Health in the hills:

An analysis of the health-seeking behaviours of people in rural Makwanpur, Nepal

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ABSTRACT

Objectives:
The overall aim of this research was to describe the health-seeking behaviours (HSBs) of people in rural Makwanpur, Nepal, and to analyse the patient, household, community, health-system, knowledge and illness factors, and the psychological, social and cultural processes which explain these behaviours.

Background:
Much about the health status of populations and individuals can be understood by studying how people utilise their health services and the factors associated with this utilisation. HSB studies act as a starting point for the planning of health programmes and the structuring of health systems. Nepal, with its shortage of health providers and funding, its low service usage and its pluralistic medical landscape provides an interesting setting in which to examine HSBs. Most health policies in this context have been devised without taking into account the perspectives of the system users. Moreover, limited formal research on this topic has been carried out in this context.

Methods:
This study involved a mixed-methods, explanatory sequential design consisting of two phases – quantitative data collection followed by qualitative data collection. Quantitative data was collected using a cross-sectional household survey carried out in 2,334 households across ten VDCs in Makwanpur district between April 2011 and August 2011. Households were selected using a random sampling method. The survey asked about care-seeking in response to an acute episode of illness in the previous one month. Qualitative data was collected after the quantitative data using semi-structured household interviews (n=90) in three VDCs between November and December 2012. The Qualitative interviews were designed to compliment the quantitative findings and to determine the explicit factors associated with care decisions.

Results:
Of the 2,334 households surveyed,46% had at least one episode of illness in the month prior. The majority of illnesses were infectious or parasitic diseases (42%). Of those households experiencing illnesses, 69% chose to seek care outside of the home; 22% used traditional healers, 37% used allopathic providers and 12% opted for pharmacies as a first option. Sixteen did nothing to address their illnesses, sighting geography, finances, workload and lack of severity as the reasons. Regression models revealed that a host of different patient, household, community, illness, health facility and knowledge factors were associated with care decisions depending on the decision, but illness factors had the greatest impact overall on whether or not a household sought some care or care outside of the home, while household level factors had the greatest impact on the type of care sought outside of the home and the length of delays before seeking care. Patient gender had an impact on whether or not allopathic care was used at least once. Qualitative results revealed that health facility factors were also equally important in determining households' conscious decision-making about specific providers.

Conclusions:
Overall it appears that people in Makwanpur are not underutilising health services as suspected. Households use certified government providers most frequently to address their illnesses, and do not rely too heavily on traditional healers or informal providers exclusively. The results indicate that while illness and household factors are important, in order to improve HSBs and increase allopathic care utilisation, a focus should be on improving health service delivery rather than on changing HSBs. However, in order to decrease delays in care-seeking, a focus should be made to reduce household-level barriers to care as well.

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List of Outcome Variables for Final Regression Models:

B.1: Delay time to outside care
B.2: Delay time to allopathic care
B.3: Delay time between different outside care providers

C.1: Whether or not home care was used first
C.2: Whether or not allopathic care was used first
C.3: Whether or not traditional healers (THs) were used first
C.4: Whether or not pharmacy care was used first
C.5: Whether or not allopathic/pharmacy care was used last

D.1: No care vs. some care
D.2: Home care only vs. some outside care
D.3: Private care vs. government care (first)
D.4: Female community health volunteer (FCHV) vs. facility-based government care (first)
D.5: Allopathic care ever

E.1: One provider vs. more than one provider

F.1: Care in the same VDC vs. other VDC
F.2: Care in the same ward vs. other ward

Abbreviations:

AHW	Auxiliary Health Worker
ANC	Ante-Natal Care/Check-up
ANM	Auxiliary Nurse Midwife
CBS	Central Bureau of Statistics
CHW	Community Health Worker
CI	Confidence Interval
DHS	District Health Survey
DoHS	Department of Health Services
EHCS	Essential Health Care Services
FCHV	Female Community Health Volunteer
FGD	Focus Group Discussion
GoN	Government of Nepal
HA	Health Assistant
HH	Household
HMIS	Health Management Information System
HP	Health Post
HSB	Health-seeking Behaviour
HuRDIS	Human Resource Development Information System
LRTI	Lower Respiratory Tract Infection
MCHW	Maternal & Child Health Worker
MIRA	Mother & Infant Research Activities
MOH	Ministry of Health
MoHP	Ministry of Health & Population
NLSS	Nepal Living Standards Survey (I, II, III)
NFHP	Nepal Family Health Programme
NSI	Nick Simmon's Institute
ORC	Outreach Clinic
PCA	Principal Component Analysis
PHCC	Primary Health Care Centre
PNC	Pre-Natal Care/Check-up
SES	Socio-economic Status
SHP	Sub-Health Post
TH	Traditional Healer
URTI	Upper Respiratory Tract Infection
VAS	Visual Analogue Scale
VDC	Village Development Committee
VHW	Village Health Worker
WHO	World Health Organization

Glossary of Terms:

Health Behaviour – *'Those personal attributes such as beliefs, expectations, motives, values, perceptions and other cognitive elements; personality characteristics, including affective and emotional states and traits; and overt behaviour patterns, actions and habits that relate to health maintenance, to health restoration and to health improvement'*

-Gochman, 1972, p. 287

****Health-Seeking Behaviour** – *'The steps taken by an individual who perceives a need for help as he or she attempts to solve a health problem'*

-Chrisman, 1977, p. 352

Pathway Models – describe the different phases in the decision making process of illnesses

-Kroeger, 1983

Determinant Models – look at a set of variables which are linked with different health service choices

-Kroeger, 1983

Explanatory Models – *"are the notions about an episode of sickness and its treatment that are employed by all those engaged in the clinical process. [The EM for any particular illness episode includes]: (1) aetiology; (2) time and mode of onset of symptoms; (3) pathophysiology; (4) course of sickness; (5) treatment"*

-Kleinman, 1980, pg 133

Medical Pluralism - the idea that there are a plurality of different healthcare options in every community – both informal and formal – that people rely on for their care, and these healthcare options need not be mutually exclusive

-Hsu, 2008

Ethnographic Decision Models (EDMs) – predict how people behave under specific circumstances; often take the form of tree diagrams or charts listing different choices people make

-Bernard, 2002

Health Management Information System (HMIS) –the objectives of the HMIS in Nepal are to: monitor the achievement, coverage, continuity and quality of health service; to help assess progress towards goals and targets of district health programmers; to support the planning and activities of all health programmes; to help senior managers to develop appropriate health policy guidelines; to provide access of data/information to the MoHP on time; to support the planning and monitoring and evaluation (PME) management cycle of all health programmes. - Neupane, 2007

Glossary of Terms Continued....

Village Development Committee (VDC)– the lower administrative part of Nepal's local development ministry. Each district has several VDCs. There are 3913 VDCs across Nepal. The purpose of the VDC is to organise village people structurally at a local level and to create a partnership between the community and the public sector for improved service delivery. A VDC has a status as an autonomous authority for interacting with the more centralised institutions of governance. - Ministry for Local Development, GoN

Ward – a subdivision of a local authority area, typically used for electoral purposes. In Nepal, each VDC is further sub-divided into wards (approximately nine per VDC, but it depends on the population).

Tole – the equivalent of a neighbourhood in rural Nepal. Each ward is further subdivided into individual toles ranging in number from 1 to 10 per ward. The toles also vary in terms of the household numbers they contain. The smallest toles are comprised of only one household, while the largest are comprised of 100 households.

Nick Simons Institute (NSI) - a Nepal-based organisation whose mission is to train and support competent healthcare workers in rural Nepal. Their website: http://www.nsi.edu.np/?site=yes . Their clinical algorithms were used to diagnose illnesses in this study - NSI, 2012

Nepal Living Standards Survey (NLSS) –a national household survey carried out by the Central Bureau of Statistics (CBS) that covers multiple topic related to household welfare, such as housing, other SES indicators, health care access and usage, nutrition etc. To date there have been three surveys carried out: NLSS I in 1995/96, NLSS II in 2003/04 and NLSS III in 2011/12. The most recent survey data was not available at the outset of this study. -CBS, 2011

Chapter 1:
Introduction

This section offers a general and brief overview of why it is important to study health-seeking behaviours (HSBs)

1.1 *Importance of Health- Seeking Behaviour Studies*

So much about the health status of populations and of individuals can be understood by studying how people and populations utilise their healthcare services, the factors associated with such utilisation and the ways in which people interpret health-related symptoms and then take actions to deal with them (Ostrove& Baum, 1983). On a micro level, health-seeking behaviour (HSB)[1] studies can help illuminate the individual determinants of prevention or care seeking, allowing health professionals to better tailor individual therapies or treatment regimens and understand patient barriers to access. On a macro level, HSB studies can act as a starting point for the planning of health interventions or the structuring of health services – informing the development of health policies. They can also be a useful tool for diagnosing problems in healthcare systems or existing programmes by providing insight into how the system is perceived and used by its intended beneficiaries. Specifically, given that government services are underutilised in most countries, these types of studies can illuminate the reasons for that underutilisation and enable policies to be drafted to increase adequate service usage (Attah, 1986; Clark et al., 2011; Enyioko & Samuel, 2012; Rahman et al., 2011; Stekelenburg, 2004; Titaley, Dibley & Roberts, 2010). More

[1]See glossary of terms for an exact definition of health-seeking behaviour

than just providing valuable descriptions of who seeks care where and from whom, they can also lay the necessary groundwork for different psychological, anthropological and sociological theories and frameworks that reflect and explain the complexities of decision making both inside and outside of the health arena.

It is precisely because HSBs are so important, and the results of such studies are so wide-ranging in their applications that the study of them is not simply the purview of a single discipline. Psychologists, sociologists, anthropologists, economists, epidemiologists and public health specialists have all approached this topic from their different vantage points, using their different methodologies to explore the individual, cultural, social, environmental, institutional and systemic factors that govern help seeking (table 1.1). [2]

There is no simple formula or single framework which can be applied to determine how and why people make the health decisions they do, nor is there a single accepted outcome measure on which researchers agree for these types of studies. Health decision-making is a dynamic and complex process, and as such, it makes for a very complicated literature spanning multiple disciplines, incorporating multiple methods, employing multiple theories, examining multiple levels and observing multiple outputs, all with multiple different objectives (Stekelenburg, 2004; figure 1.1)[3].

[2]For a table comparing different disciplinary approaches to HSB, see **Appendix 1.1**.
[3]For a figure of the typology of some approaches to the study of HSB, see page 19.

Perhaps the most abundant type of health-seeking behaviour studies are epidemiology studies which use pathway and determinant models[4] to examine quantitatively where people seek care – tracing their health trajectories as they move through the system (Hausmann-Muela, Ribera & Nyamongo, 2003; Nyamongo, 2002; Issakidis & Andrews, 2006). The purpose of these studies is to provide quantitative data on people's utilisation of the health system that could be used to form policy and evaluate system functioning (Toan et al., 2002). Data from these types of studies can provide information on utilisation of formal versus informal care, private versus public clinics, self versus facility-based care, the major diseases for which people seek care in a given context, the extent to which facility bypassing occurs and the amount of time people wait before seeking care (Ayuo et al., 2008;Develay, Sauerborn & Diesfeld, 1996; Engelkes, 1992; Gish, Malik & Sudharto, 1988; Go et al., 2002; Goldman & Heuveline, 2000; Hasan & Khanum, 2000; Hayran, Karavus & Aksayan, 2000; Kloos, 1990; Kunda et al., 2007; Materia et al., 1993; Mota et al., 2009; Nhindiri et al., 1996; Paul, 1999; Satimia, McBride & Leppard, 1998;Sutrisna et al., 1993). They can also help epidemiologists assess the appropriateness of facility use and hence get a better understanding of the overall efficiency of health system functioning, or help provide insight into how the introduction of various interventions may have changed health system utilisation (Ager & Pepper, 2005; Fedder et al., 2003; London & Backmann, 1997). In addition, these types of studies can provide valuable information about health outcomes and the relationship between service use and morbidity and mortality statistics (Clausen et al., 2000; Figa-Talamanca,

[4]Pathway models describe different phases in the decision making process of illnesses, while determinant models look at a set of variables which are linked with different health service choices (Kroeger, 1983)

1996; Ganatra, Coyaji & Rao, 1998; Muller et al., 2003; Rutherford et al., 2009; Sodemann et al., 1997). While they may be useful for the evaluation of programmes and policies, quantitative studies of HSBs are limited in that they do not explain why people make the decisions they do regarding care, or seek to understand the various subjective and objective processes which govern treatment choices. As a result, they are often limited in their applicability, which is why it is useful to couple them with more detailed qualitative examinations of these behaviours (Colvin et al., 2013).

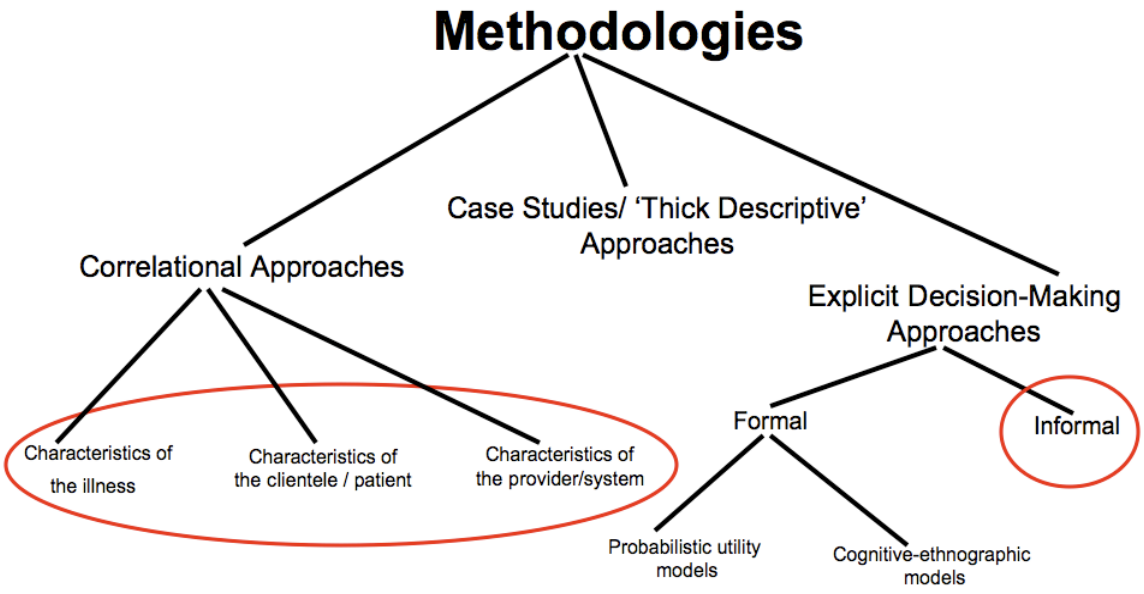
Importance of HSB Studies:

- **Micro Level: Individuals**
  - Can allow providers to understand the individual determinants of prevention or care-seeking and the individual barriers households/patients face in accessing care
  - Can enable tailoring of therapies or treatment regimens to specific patients based on the findings
- **Macro Level: Population-Wide**
  - Can operate as a starting point for the planning of health interventions, the structuring of health services, and the generation of health policies
  - Can be used as a diagnostic tool for determining existing problems in the health services
  - Can provide insights as to how the system is perceived and used by its intended beneficiaries
- **Academically**
  - Can help lay the groundwork for different psychological, anthropological and sociological theories and frameworks for decision making studies across disciplinary contexts

Table 1.1 Analytical orientations or approaches to HSB [adapted from McKinlay, 1972].

The economic:	*In which attention is concentrated on the impact of financial barriers to health-seeking*
The socio-demographic:	*In which emphasis is on the significance of gross characteristics like gender, age, and education for utilisation*
The geographic:	*In which the focus of attention is the association between the geographical proximity of health services and utilisation*
The social psychological:	*In which the emphasis is on the link between individual motivation, perception and learning, and utilisation behaviour*
The socio-cultural:	*In which the orientation is towards examining the associations between values, norms, beliefs and life-styles of different groups and utilisation*
The organizational or 'delivery system':	*In which the focus of attention is on the effects of aspects of health care organization on use of services*

Figure 1.1: A typology of some approaches to the study of HSB treatment choices [Adapted from Young, 1981]. Those branches circled are the approaches this research will use in the study of treatment choices and HSBs in Nepal.



Chapter 2:
Background, Aims & Objectives

This section offers a general overview of the HSB literature in Nepal and an overview of some of theoretical models and frameworks used to assess HSBs more generally. It illustrates the gaps in the existing literature and frameworks and concludes with the creation of comprehensive theoretical model of HSBs, which serves as the theoretical basis for this research study.

2.1 *The Study of Health-Seeking Behaviours in Nepal[5]: An Overview of the Existing Literature*



Figure 2.1 Map of Nepal (from http://www.nepalmountaintrek.com/nepal/)

Nepal, with its treacherous mountain topography, its predominantly rural population, its multiplicity of different ethnic groups, its extreme shortage of modern health providers and its dearth of public health funding, provides a very interesting setting in which to examine HSBs. It is a country still plagued by infectious diseases, with some of the highest maternal mortality (170 per 100,000

[5]For a brief background overview of Nepal and for a report from my first field visit there in Sept-Oct 2010 see **Appendices 2.1** and **2.2**

live births), under five mortality (50 per 1,000 live births) and infant mortality rates (41 per 1,000 live births) in the world, and with an overall life expectancy of just 66.3 years from birth (Mesko et al., 2003; MoF, 2002; Raj Subba, 2001; WHO, 2012; World Bank, 2002; UNICEF, 2010). Despite a recent expansion of government health services and subsequent improvements in health statistics, utilisation of modern health facilities remains strikingly low (at 0.2 visits per person per annum) and modern health service coverage remains inadequate, with one hospital bed for every 40,000 people (Acharya & Cleland, 2000; Niraula, 1994; Raj Subba, 2001). Moreover, the government still spends less than $1.30 per person per annum on health (only 5% of the GNP) and the majority of health expenses come from out-of-pocket payments (Hotchkiss et al., 1998; MOHP, 2002; Rous & Hotchkiss, 2003).

Box 2.1: The Disease Burden of Nepal
(from Department of Health Services Annual Report, MOHP, 2009**)**

Almost 70% of the overall disease burden is still due to communicable diseases. Tuberculosis and leprosy still abound, and intestinal worms, acute respiratory infections, gastritis, amoebic dysentery and diarrhoea are still responsible for the majority of outpatient (OPD) morbidity.

In 2009, the top ten reasons for hospitalisation were spontaneous deliveries, diarrhoea and gastroenteritis (presumed infectious in origin), pneumonia, typhoid and paratyphoid fevers, acute lower respiratory infections, other chronic obstructive pulmonary diseases, single deliveries by caesarean sections, urinary system disorders, pyrexia of unknown origin and other unknown and unspecified causes of morbidity. Prolapsed uterus is also a major problem affecting a large portion of women in the country.

The leading causes of mortality in 2009 in-patients were from COPD, head injuries, eclampsia, anaemia, hepatitis, septicaemia, tetanus, malnutrition and pneumonia among other causes.

In a system with such an inadequate public health sector, it is no surprise that traditional faith healers abound and are often consulted for people's health needs (Shankar et al., 2003; Streefland, 1985). In fact, it was estimated that there are between 400,000 and 800,000 faith healers in Nepal, almost ten times the

number of allopathic doctors, and yet the government refuses to afford them any official status (Shrestha & Lediard, 1980). In addition to faith healers, the medical landscape is populated by a variety of different traditional Ayurvedic and Tibetan practitioners and a handful of different low-level and mid-level health workers[6] employed both privately and publicly. It is in this medically pluralistic environment, that health-seeking takes place (Parker, 1988; Subedi, 2003; Subedi & Subedi, 1992; Subedi, 2000).

Despite the unusual medical landscape and the low utilisation statistics, which would seem to call for analysis, there has been very limited formal research in Nepal regarding HSB (Jimba, Poudyal & Wakai, 2003; Pokhrel & Sauerborn, 2003; Sreeramareddy et al., 2006). Most of the studies which have been conducted are found in the grey literature or focus exclusively on the HSBs of pregnant mothers or parents of infants or children, use small sample sizes culled from just one or two villages or used pre-existing survey data to run a series of quantitative analyses, missing out on a lot of the subjective processes that govern people's health choices (Acharya & Cleland, 2000; Asbroek et. al., 2008; Dhakal et al., 2007; Hotchkiss et al., 1998; Hotchkiss, 2001; Jahn et al., 2000; Matsumura & Gubhaju, 2001; Niraula, 1994; Osrin et al., 2002; Pokhrel et al., 2005; Pokhrel & Sauerborn, 2003; Raj Subba, 2001; Rous & Hotchkiss, 2003; Shankar et al., 2003a; Shankar et al., 2003b; Shankar, Partha & Shenoy, 2002;Sharma, Sawangdee & Sirirassamee, 2007; Shimobiraki & Jimba, 2000;Sreeramareddy et al., 2006; Syed et al., 2008; Thakur, 1996). The few studies which do examine a larger cross-section of the population tend to use

[6] For more details on the different health providers in Nepal see section 2.3 and **Appendix 2.3**

survey data collected at health facilities rather than in the communities themselves, or use DHS data, a selection which only captures those people who choose to seek modern medical care (Subedi, 1989; Sreeramareddy et al., 2006). Further, the vast majority of epidemiology studies dichotomize care choices into modern versus traditional care or self versus non-self care, without exploring the factors which may contribute to utilisation of different types of traditional practitioners or different types of therapies (Parker et al., 1979; Shimobiraki & Jimba, 2000). The medical anthropology literature, on the other hand, tends to focus too much on the factors which govern use of traditional healers, leaving out modern medical care choices almost completely (Regmi, 2001; Subedi, 2003). Only two studies look at utilisation of the different levels of the Nepalese public healthcare system – one using a small, cross-sectional household survey to simply quantitatively document the number of people who utilised different levels and one using prospective data collection at health facilities to quantitatively document the various illnesses treated and drugs prescribed at each level (Jimba, Poudyal, Wakai, 2003; Shankar et al., 2003) – and these studies did not examine the reasons why people selected various levels of the system over others. Even those studies which did look at the various levels often seem to leave out health volunteers as a potential option from which people can choose to seek care in rural Nepal (Curtae et al., 1995). In that regard, there have been no large-scale household surveys on utilisation of Female Community Health Volunteers (FCHVs).[7]

[7]For more information on the Female Community Health Volunteer Programme (FCHVs) see **Appendix 2.3** for an overview of the healthcare system of Nepal

Given the existing literature, and the unique Nepalese setting, there is a need for further research on HSBs in rural Nepal. Not only can such studies help to fill a much needed hole in the Nepalese literature by providing a better understanding of the multiplicity of variables and factors which contribute to people's (both males and females) health decisions in this pluralistic setting, but they can also provide a valuable foundation on which new health policy decisions can be made and existing health policies can be altered (Jimba, Poudyal & Wakai, 2003; Parker, 1988). Such studies can provide a rapprochement between the anthropologists and epidemiologists by bringing a better understanding of Nepalese culture to the purely descriptive statistics related to health choice and by lining up various allopathic care choices alongside traditional healer choices in attempt to ascertain why people would choose specific healers or why people would choose specific levels of allopathic care or home remedies (Justice, 1981). In this way, the beliefs, perceptions, attitudes and motivations which shape health care choices in this context can also be considered alongside the various socio-demographic, illness and health systems variables which correlated with various care choices.[8]

2.2 *Structure of the Nepalese Healthcare System*[9]

Although the demand side of the health care equation is the focus of this research, the supply side obviously influences the demand, so it is also important to understand the supply side as it informs the demand for care. In other words,

[8]See **Appendix 2.4** for a lengthier overview of each of the studies on health-seeking behaviours in the Nepalese context. There were a handful of other studies which were only published locally, and could not be obtained for the purpose of this review

[9]For more detailed overview of the structure of the Nepalese Healthcare system see **Appendix 2.3**

since HSBs and the health-seeking process are firmly embedded in a country's healthcare system, it is necessary to understand how the overall system operates in order to fully understand health-seeking behaviours within that system.

The goal of the public health system of Nepal is to have care delivered as close to the home as possible and to make care as accessible, efficient and affordable as possible through the provision of a basic set of essential care services (EHCS)[10] at each level of the healthcare system (MoH, 2000). As a result, the public health infrastructure of rural Nepal begins as the village level and moves upward from primary to secondary to tertiary care with each level, save the last, comprised of multiple tiers (Bentley, 1995; DoHS, 2009; figure 2.2).

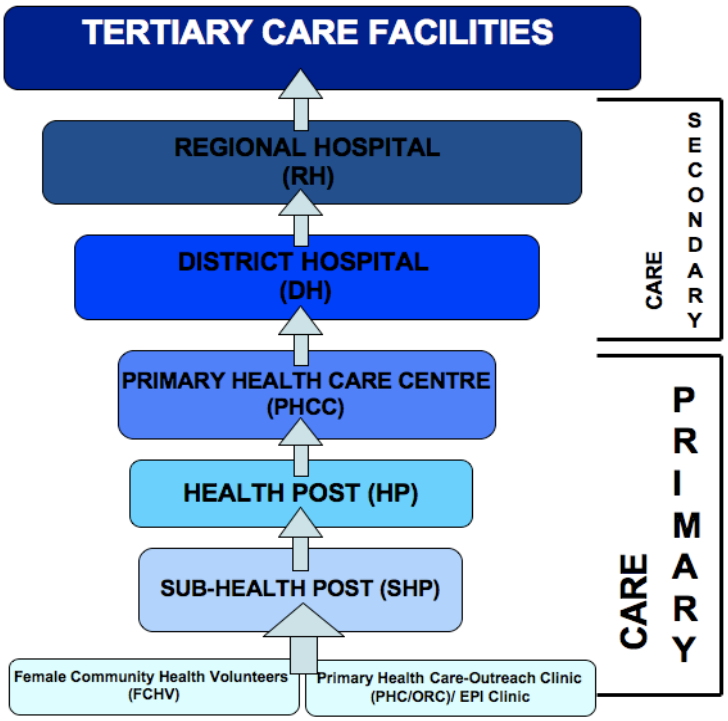


Figure 2.2 Structure of the public health system of Nepal

[10]See table of Essential Health Care Services in **Appendix 2.3**

2.3 *Overview of Existing Theoretical Models & Frameworks for Studying HSBs*

While it is important for the purpose of this study to understand how health services in rural Nepal are structured, it is also critically important to understand the theoretical underpinnings and frameworks that have guided this type of research in the past.

Theoretical models or frameworks can help illuminate the determinants of HSBs. They offer a way to explain not just who seeks care or where they seek it, but why they seek the care they do. This section presents a brief overview of the key models from the psychology, anthropology, sociology and public health literatures relevant to HSB. It concludes with a comprehensive conceptual model of HSBs derived from this body of work, which formulates the possible links between objective determinants, subjective processes and health-seeking choices and outcomes. This model provides the basis for this research.

Critical to an understanding of HSBs is an understanding of the individual cognitive and emotional processes that govern health decision-making. Before an individual makes any decisions regarding care, s/he must first process his/her symptoms and decide on a course of action. Psychologists have helped to illuminate the different ways in which people respond to health-related symptoms and are motivated to seek care. Most of the health psychology research comes into play at the start of people's care-seeking pathways, when they are

making the leap from thinking about their illnesses to actually doing something to address them – from thought to action (Gochman, 1997).

One of the most widely applied psychological models for addressing this transition from thought to action is the Health Belief Model (Becker, 1974; Gochman, 1972; Rosenstock, 1966; Sheeran & Abraham, 1995; see box 2.2 and figure 2.3). The model offers a way to examine individual motivational and attitudinal variables as a pre-requisite for health action (Leavitt, 1979). The premise behind the model is that health beliefs shape individuals' rational decision making about health actions. According to the model, in making health decisions, every individual appraises his/her susceptibility to disease, determines the severity of the consequence of that disease, and weighs the perceived benefits of seeking care against the perceived barriers and costs of care prior to making a decision regarding course of action (Castaneda, 1998; Kirscht, 1988; Rosenstock, 1966). Care-seeking then is ultimately determined by both psychological readiness to act (motivation) and by the extent to which an individual believes his/her actions will be beneficial in reducing the perceived threat (Rosenstock, 1966).

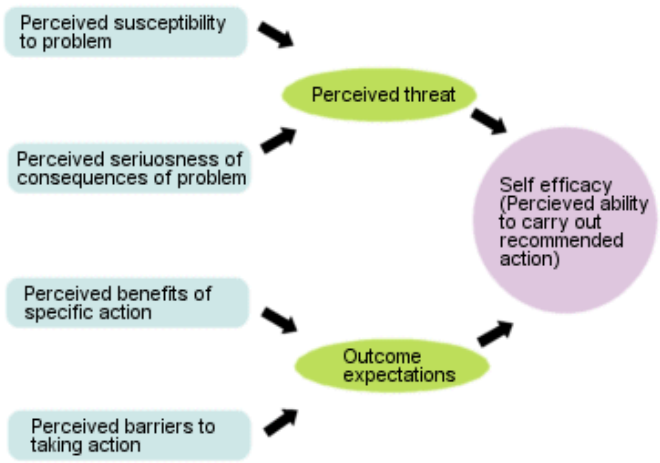


Figure 2.3 Health Belief Model [adapted from Nutbeam & Harris, 1998]

Box 2.2: Health Belief Model
(Sheeran & Abraham, 1995)
[Adapted from Hausmann-Muela, Ribera & Nyamongo, 2003]

(1) Beliefs about the impact of illness and its consequences (threat perception), which depend on:
- Perceived susceptibility; beliefs about how vulnerable a person considers him or herself in relation to a certain illness or health problem
- Perceived severity of illness or health problem and its consequences

(2) Beliefs about the consequences of health practices and about the efforts required to put them into practice, which depend on:
- Perceived benefits of preventive or therapeutic health practices
- Perceived barriers, both physical and psychological, with regard to certain health practice

(3) Health motivation, or readiness to be concerned about health matters and act accordingly

Building on the foundation laid by the Health Belief Model, Rogers (1983) proposed Protection Motivation Theory, which was supposed to describe how people cope with health threats through two appraisal processes: threat appraisal and coping appraisal (Boer & Seydel, 1996; see figure 2.4).

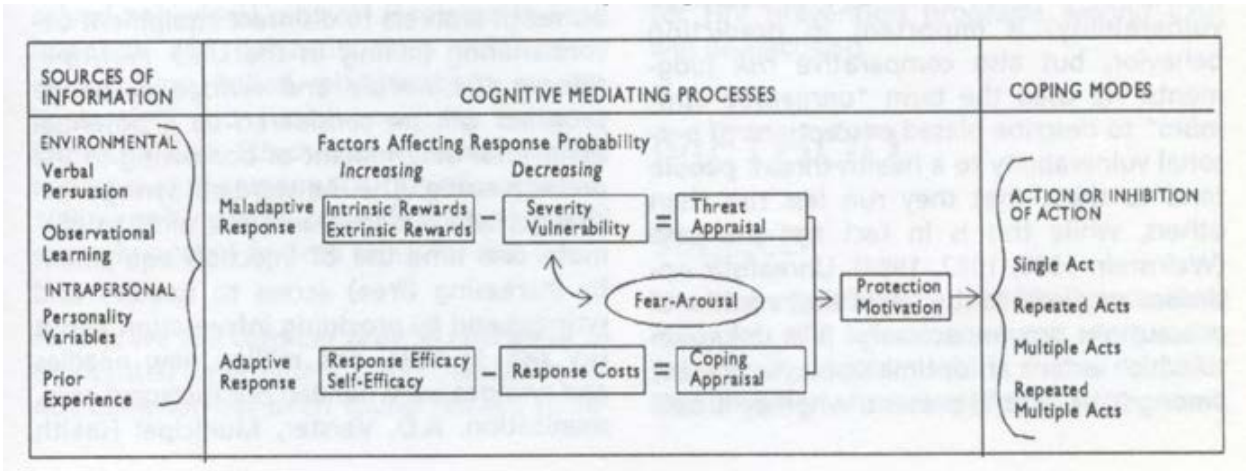


Figure 2.4 Protection Motivation Theory [adapted from Rogers, 1983]

Unlike the Health Belief Model or Protection Motivation Theory, the Theory of Planned Behaviour or Theory of Reasoned Action takes a step back and looks explicitly at the social and demographic factors which determine behaviour (Ajzen, 1985; Ajzen, 1991; Fishbein & Ajzen, 1972; 1977; 1980; Hausmann-Muela, Ribera & Nyamongo, 2003). More specifically, it looks at the attitudes, subjective norms, perceived behavioural control and socio-demographic variables that determine behavioural intentions (Armitage & Conner, 2001; see figure 2.5 and box 2.3).

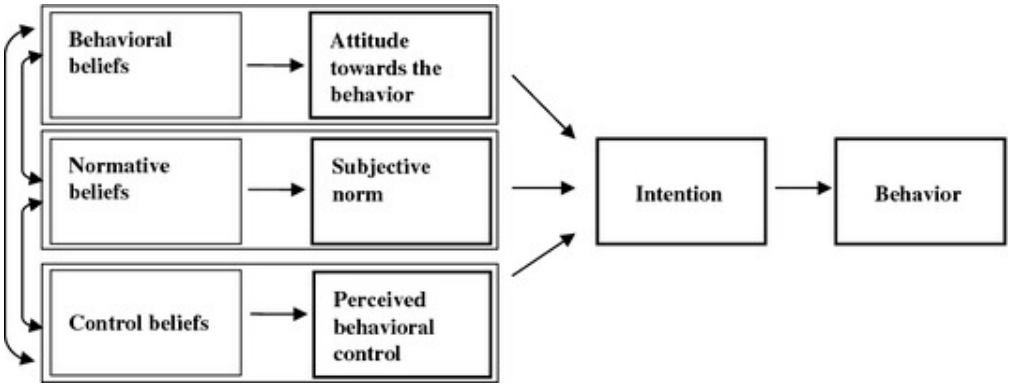


Figure 2.5 Theory of planned behaviour [adapted from Hausmann-Muela, Ribera & Nyamongo, 2003]

Box 2.3: Theory of Planned Behaviour
[Adapted from Conner & Sparks, 1995]

In the Theory of Planned Behaviour, Behavioural Intention is determined by:

- Attitudes towards behaviour, determined by the belief that a specific behaviour will have concrete consequences which can be appraised
- Subjective norms – the belief of whether other people will approve of one's behaviour – and the personal motivation to fulfil the expectations of others
- Perceived behavioural control, determined by the beliefs about access to the resources – information, abilities, skills -- needed to act successfully to overcome the problem
- Socio-demographic variables and personality traits which condition attitudes, subjective norms and perceived behavioural control (same as in Health Belief Model)

Central to the Health Belief Model, Protection Motivation Theory and the Theory of Planned Behaviour is the idea of self-control or self-efficacy. In order for people to act, they must believe they have a certain amount of power over their ability to do so (Lau, 1982; Lau & Ware, 1981).

This process of appraising health threats and determining ability to act to minimize them is not always as rational a process as it may seem based on the Health Belief Model, Protection Motivation Theory or the Theory of Planned behaviour; often, it is a process governed both by cognition and emotion. This is precisely the idea behind the Self Regulatory Model of Health and Illness, which posits that health-seeking behaviours are initially determined by two parallel processes: illness representations (cognitive process) and emotional states (Cameron, Leventhal & Leventhal, 1993; Lau, Bernard & Hartman, 1989; Leventhal, Meyer & Nerenz, 1980; see figure 2.6).

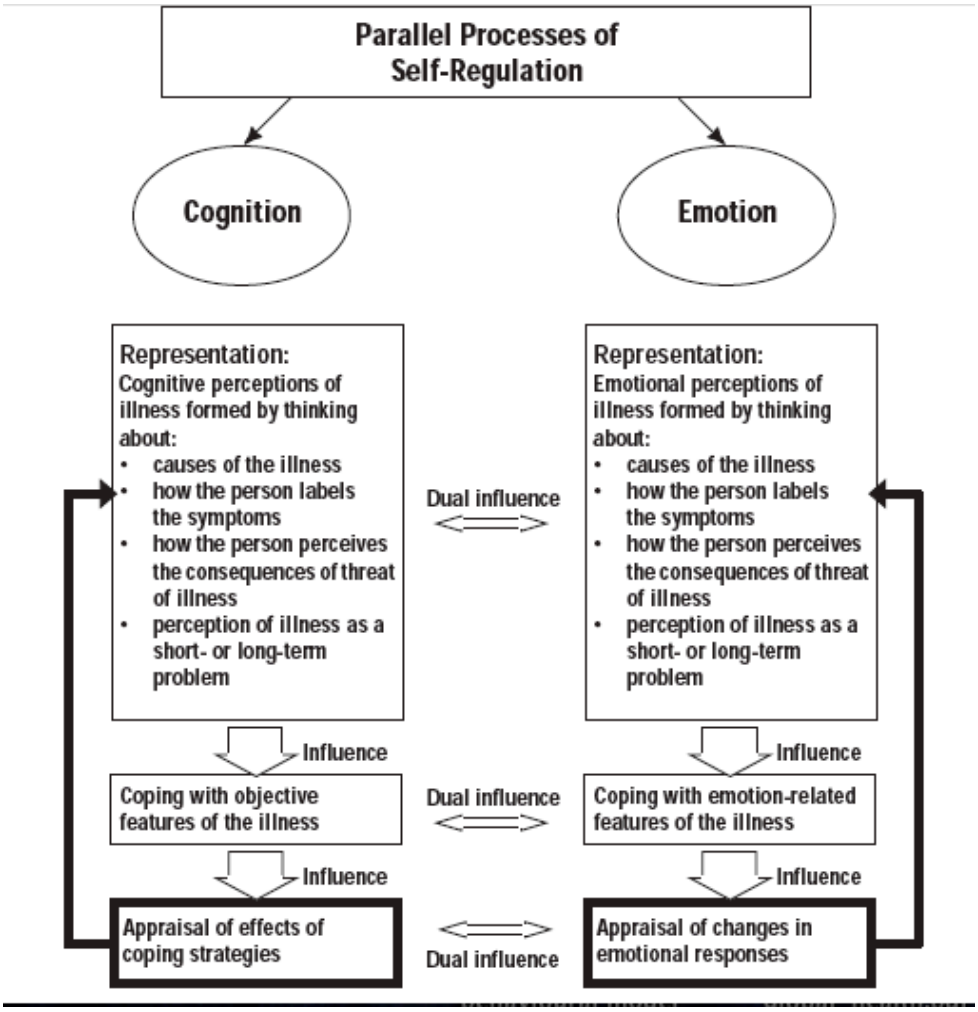


Figure 2.6 Leventhal's self-regulatory model of health and illness [adapted from Jayne & Rankin, 2001]

While the psychological models look predominantly at individual cognitive and emotional processes that determine health-seeking, the anthropology literature places a premium on the role of culture and culturally-patterned belief systems in determining health behaviours (Kleinman, Eisenberg & Good, 2006). Unlike the psychology literature, the anthropology literature looks beyond western models of care and biomedical ideas of health, to explore the diversity of illness representations and care options – focusing equally on the health-seeking behaviours of people outside the western world as well as those within it. While the psychology literature often stops once a decision to seek treatment or avoid

treatment has been made, the anthropology literature explores the pluralistic care setting in which people choose from a range of different providers depending on their explanatory models of illness (Pelto & Pelto, 1997).

> *"The **explanatory model** is constructed, or assembled, by the participating individuals in order to deal with and make decisions about individual illness episodes"*
>
> *-Pelto, 1997, p 54*

It stands to reason, then, that from the point of view of an anthropologist, health is expanded to include not just disease, but the personal, interpersonal and cultural reactions to that disease (Kleinman, Eisenberg & Good, 2006). Thus, HSB studies must seek to understand the role of local belief systems in sculpting people's thinking about illness and how this informs their treatment choices. After all, health beliefs are a critical antecedent to health behaviours. This notion of culturally-grounded health beliefs, and how those are played out in treatment decisions is substantiated in many different anthropological studies of health behaviours from all over the world (Beirsmann et al., 2007; Castro, Furth & Karlow, 1985; Feyisetan, Asa & Ebigbola, 1997; Hielscher & Sommerfeld, 1985; Kamat, 2008; Obermeyer, 2000; Weller et al., 1993). It has been demonstrated for treatment seeking of Abantu children in South Africa, men in Zimbabwe and children in Tanzania, to name just a few examples (Friend-du Preez, Cameron & Griffiths, 2009; Kamat, 2008; Pearson & Makadzange, 2008).

If looking at illness through an anthropological lens, then, the notion of care seeking is also extended beyond the confines of the formal medical system. It is this notion of medical pluralism that has come to pervade the health-seeking literature (Hsu, 2008; see glossary).

In many cultures, it is not always so easy to break illnesses down into strictly defined categories, which clearly delineate the types of treatments people should be seeking (Hausmann-Muela, Ribera & Nyamongo, 2003). Moreover, it is often the case that individuals use multiple forms of reasoning simultaneously to construct their response to illness, which complicates the process of breaking down people's health pathways into simple, straight lines from symptom recognition to cure (Greenwood, 1992; Hausmann-Muela et al., 1998; Hunt & Mattingly, 1998; Leach et al., 2008).

It is because anthropologists seek to understand these unique landscapes in which people construct and respond to their illnesses, that most anthropologists use ethnographic methods. Unlike psychology studies, ethnographic studies do not impose an existing framework or explanatory model for illness behaviour on individuals, but rather allow for the construction of decision models for health seeking after observations have already been collected (Hausmann-Muela, Ribera & Nyamongo, 2003; Weller, Ruebush & Klein, 1997). These decision models allow for prediction of future health-seeking behaviours based on a set of rules constructed using vignette studies. According to Garro (1985), this "decision modelling approach allows [us] to evaluate the influences of cultural beliefs and external constraints on treatment choices."

Decision modelling, however, is not always the ideal way in which to study health behaviours because it often reduces people's health pathways to a series of simple, ordinal rules without accounting for divergent rationalities – "variability

in the ways in which individuals apply culturally available frameworks to specific instances of illness" (Garro, 1998a; Garro, 1998b). In other words, decision models only work if care-seeking is localized in an individual, if the illness suffered is discrete and time-bound and if an individual decision-making entity whose decisions are modelled can be identified (Garro, 1998a; Garro, 1998b). Moreover, even if 'divergent rationalities' do not come into play, decision models are not always useful because they rely on hypothetical situations without real-world environmental constraints (Garro, 1998a; Garro, 1998b).

So, while the models used by psychologists often do not account sufficiently for the broader environment in determining peoples' HSBs, the techniques used by anthropologists possibly give too much weight to the cultural context dictating health-seeking choices.

Perhaps a happy medium between the cultural environment examined in HSB studies conducted by anthropologists and the individual cognitive and emotional environments examined in HSB studies of psychologists, are the models employed by epidemiologists, economists and sociologists, which look more at the structural factors which determine where people seek care or why they fail to seek it. These models provide a more pragmatic look at HSBs that can be applied in the designing of policies. These models look specifically at the factors which determine care utilisation.

Andersen's Health Care Utilisation model (Socio-Behavioural model) picks up where some of the other models leave off, and provides a way of grouping all of

the factors influencing health behaviours into three categories: predisposing, enabling and need (Andersen & Newman, 1973; box 2.4).

Box 2.4: Health Care Utilisation Model
(Andersen & Newman, 1973)

Predisposing Factors:
Age, gender, religion, prior illness experience, education, knowledge, SES, occupation, general attitudes towards health services etc.

↓

Enabling Factors:
Availability of services, cost of services, social network support

↓

Need Factors:
Perception of illness severity, total number of sick days, help from outside, loss of productivity, duration of illness

Building on Andersen's model, Kroeger (1983) created his own model in which he reclassified need factors as 'characteristics of perceived illness' and added health system factors as a category of variables which influence treatment decisions (figure 2.7). This model can even be modified a bit further to incorporate not just the individual, but also the family, community and society, which provide a broader social context which can influence peoples' decisions (figure 2.8).

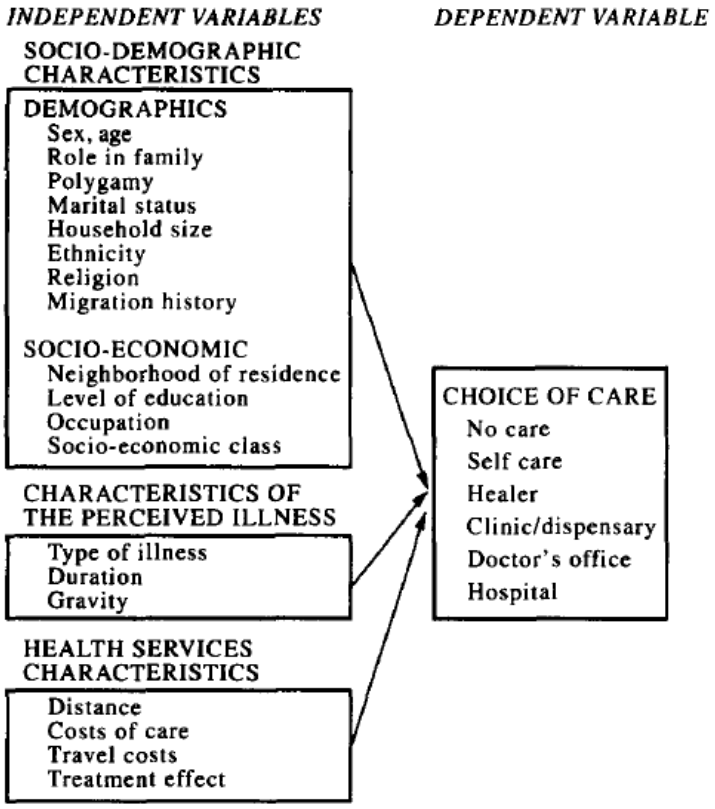


Figure 2.7 Factors influencing choice of care (Kroeger, 1983) [Adapted from Develay, Sauerborn & Diesfeld, 1996]

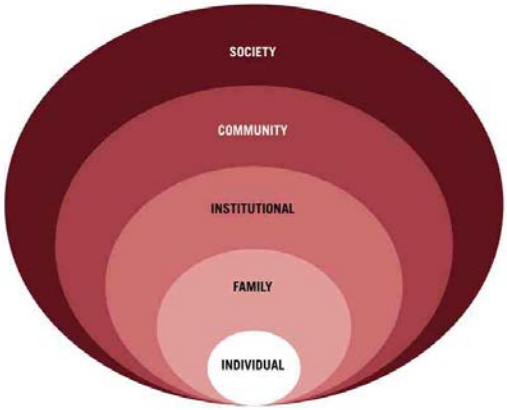


Figure 2.8 The social context which can influence care decisions. Includes individual, family, institutional, community and society levels [adapted from Perri et al., 2008]

These models offered a way to break down the multiplicity of systemic variables that influence behaviour and influence choice of health care options. Here, the literature is broken down into those studies that (a) deal primarily with the socio-

demographic patient, family and community variables which influence choice (**Appendix 2.5**, table 1), (b) deal with the health service characteristics which determine where people seek care (**Appendix 2.5,** table 2) and (c) deal with the illness characteristics which govern health seeking choices (**Appendix 2.5,** table 3). A host of different studies have been conducted using Kroeger (1983) and Andersen's (1973) models to explain and describe health-seeking behaviours and health care utilisation, although these studies are often inconsistent in their findings regarding the relative weights of determinant variables, and in the methods they employ (McKinlay, 1972) (see **Appendix 2.5** for more details on some of these studies and their main findings).

2.4 *General Limitations of Existing Health-Seeking Behaviour Literature*

All of these different models and different approaches make for a very complicated literature. While some of these quantiative studies use household-level survey data, the majority simply use data collected from health facilities, which, while easier to collect, fail to recognise those who never make it to a health facility for care (Akesode, 1982; Okoforge, 1984; Wahid, 1984; Walker & Gish, 1977). While some studies focus simply on quantitative, population-wide relationships between various independent and dependent factors, other studies try to deconstruct individual people's health pathways using qualitative methods, ethnographic approaches and decision models.

Even for those studies that do use quantitative approaches, the approaches are never consistent. Some use these theoretical models to guide their research and to quantitatively explore the relative contributions of different factors to overall health-decisions; Others use no specific theoretical models and instead explore the relationships between single determinant variables of interest, such as household income, and specific care choices using correlations or regressions. When studies do apply these theoretical models, though, the number of variables is often limited, so the models are never really actualised. Further the outcome variables of interest are often different. Some are limited to a single binary care choice (ie. self care or outside care), while others look at multinomial variables (ie. the first outside care provider utilised as part of a care pathway). Still others do not look at care choices as the outcomes, but rather examine expenditures, health outcomes or levels of satisfaction with services (Ha et al., 2002; Levin et al., 2001; Pokhrel & Sauerborn, 2004; Rous & Hotchkiss, 2003).

In terms of analysis, the methods also frequently differ. Some studies use simply chi-squared or unadjusted binary regression analyses to examine the relationships between single predictors and single outcomes, not accounting for confounders; Others use adjusted regression models to examine the relative roles of multiple predictors and confounders; Still a few others use nested regression models to examine the different levels of independent variables or behaviour modelling to mathematically predict provider choices. All of these different methods of data collection and analysis lead to very different conclusions about the relative impacts of various factors on the decision-making processes, even within the same context. Moreover, most of the quantitative studies fail to

acknowledge health-seeking as a process comprised of multiple and different steps. As a result, most of these studies only get at the where and the what of health seeking, without really acknowledging the *whys* or the *hows* of the behaviour, and those that do acknowledge the whys and the hows are not able to link this data to the broader population-wide picture.

So, despite their widespread applicability, the sole conclusions which can be reached from a synthesis of the vast literature on HSBs globally is that HSBs are complex and dependent on more than one factor. This literature, however, taken as a whole can lead to the creation of a more comprehensive model of health-seeking behaviours on which future research can be modelled.

2.5 *Toward A Comprehensive Analytical Model of Health-Seeking Behaviours*

Using the existing literature and building on the existing models and frameworks, a revised analytical model of health-seeking behaviours was created to serve as the basis for this research (figures 2.9 and 2.10). No single existing model of health-seeking behaviours was determined to be comprehensive enough for this purpose[11]. This new model allows for multi-disciplinary approaches to understanding HSBs and allows us to cross the divide between the quantitative, population-level, studies and the qualitative, individual decision-making studies. More, it acknowledges the inter-relationships among these different objective factors and processes and acknowledges the importance of looking at multiple

[11]For a more detailed overview of how this model was created by amalgamating and building on the existing models, see **Appendix 2.6**

different care decisions and outcomes collectively –not just whether or not care was sought or initial provider selection.

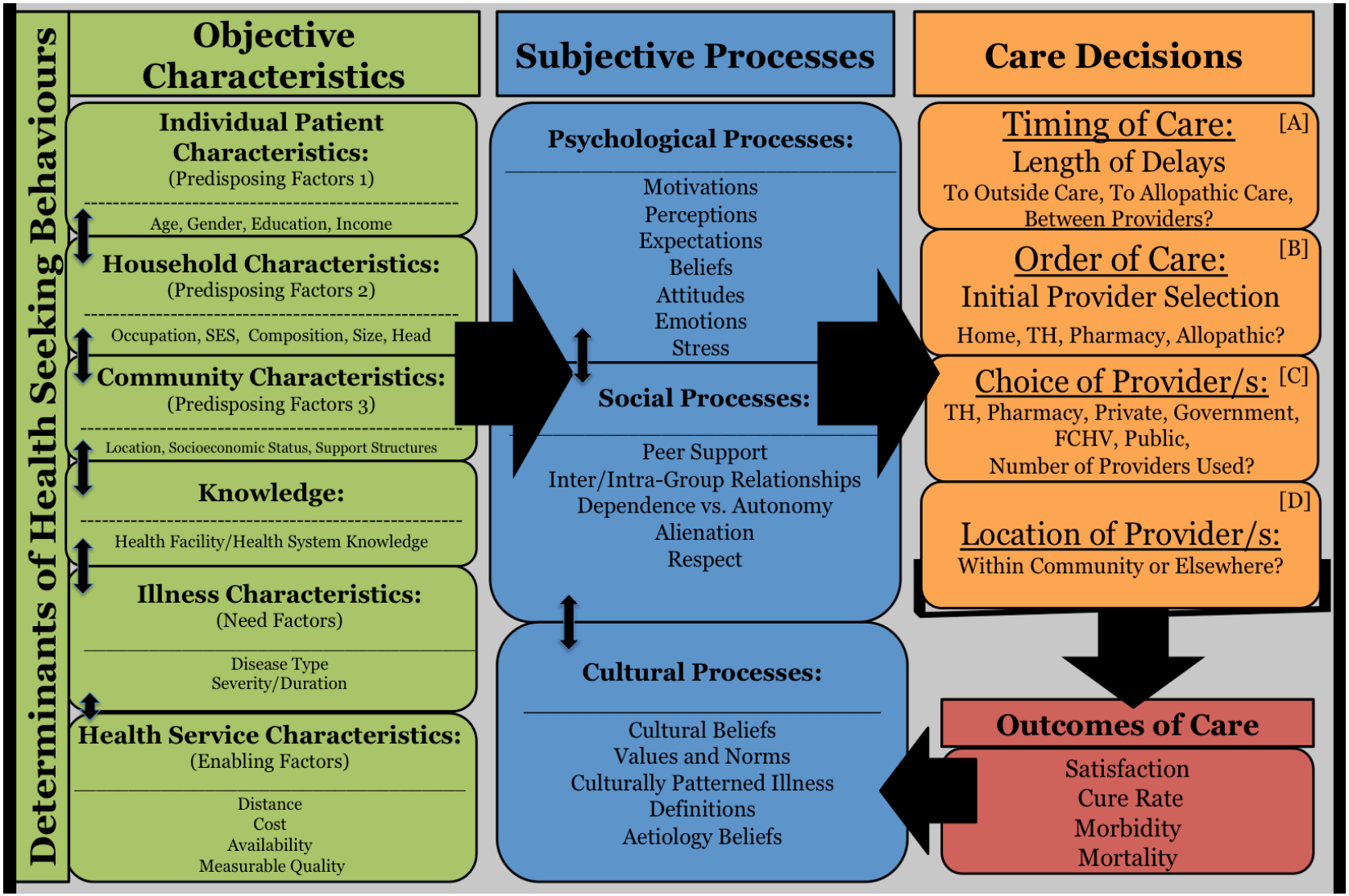


Figure 2.9 A detailed conceptual model of health seeking behaviours which was created for and was used throughout this research. Although figure 2.10 essentially shows this same model in a slightly different form, and may better capture how each of these processes and factors are inter-related, this particular model is easier to comprehend as a visual guide for this particular study. For a more detailed overview of how this model was created by amalgamating and building on the existing models, see **Appendix 2.6.**

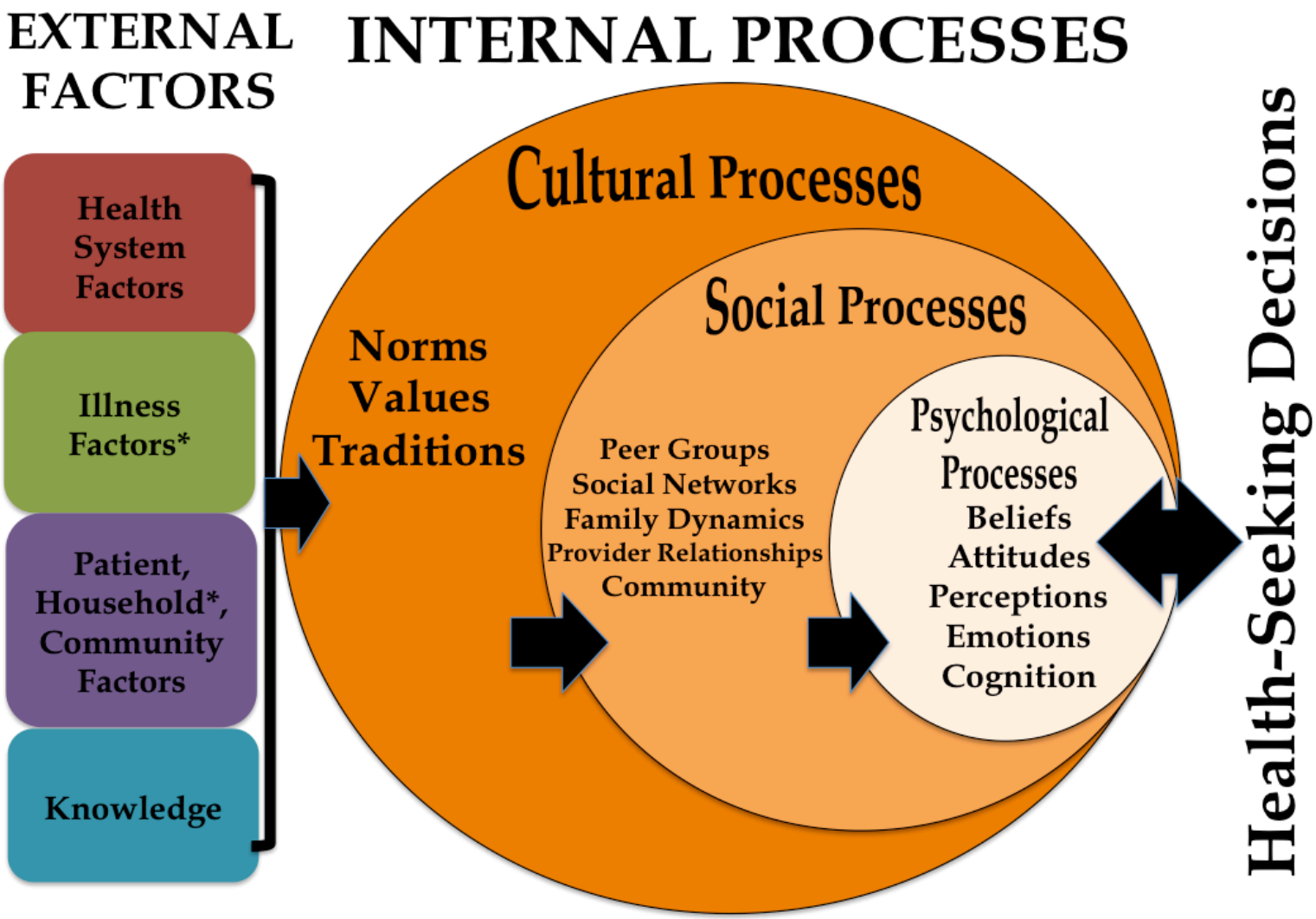


Figure 2.10. Another way of visualising the interrelationship among the different external (objective) factors and internal (subjective) processes that guide HSBs. This model is essentially another way of presenting the model in figure 2.9. It is presented heresimply to increase overall conceptual understanding of the model and to enhance understanding of the different variables involved.

While the care-seeking process for the purpose of this research had to be broken down into a series of discrete decisions which would loan themselves easily to quantitative analyses (those in the orange boxes in figure 2.9), it is important to acknowledge that according to this research, care-seeking does not take place in a single step, but rather is an entire process (figure 2.11), each step of which is influenced and shaped by these objective factors and subjective processes. Unfortunately, to deconstruct each of these steps in turn, would require another whole dissertation, so steps 3 and 4 have been selected as the focus of this particular research. Steps 1 and steps 2, on the other hand, are only discussed briefly in **Appendix 3.9** and step 2 is touched upon somewhat as part of the results for objective 2b (Chapter 7)**.**

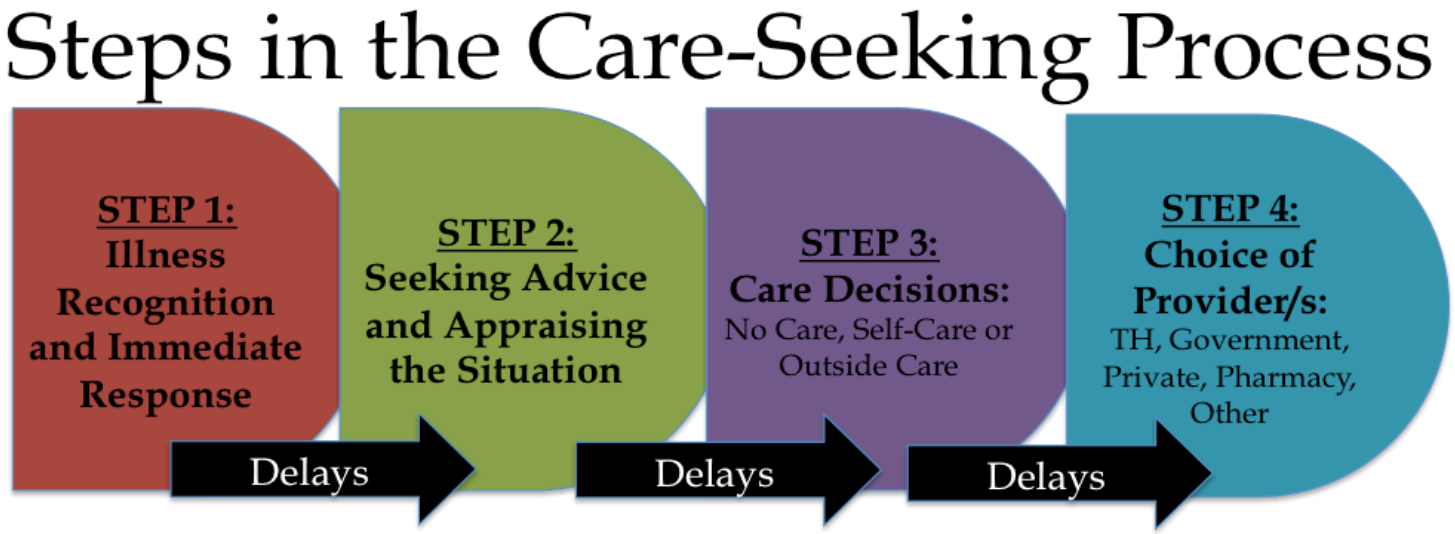


Figure 2.11 A deconstruction of each of the distinct steps in the overall care-seeking process. Although this study will only focus on steps 3 and 4, it is important to acknowledge the complexity of each of the steps involved.

2.6 *Improving on the Nepalese Health-Seeking Literature:*

Despite some work on HSBs in Nepal[12], a significant research gap still exists. First, there is a need to look more meticulously at factors which contribute to utilisation of different levels of the modern government healthcare system. To date, there is almost a complete neglect of this aspect of care-seeking. In addition, the literature on the factors which contribute to utilisation of care from community level government health workers (such as Female Community Health Volunteers, Village Health Workers or Maternal and Child Health Workers) is almost non-existent in this context. Moreover, there is a need to look beyond women and children at the rest of the male population who utilise or fail to utilise government health services. Secondly, there is a need to update the information on HSBs as the vast majority of these studies use survey data that is over ten years out of date. The structure of government health services and programmes in Nepal are constantly changing, and in order to stay apprised of the ways in which these changes affect people's behaviours, more recent studies of HSBs are needed. Thirdly, as many of these studies have demonstrated there is a need to move beyond Andersen's Model to look more holistically at determinants of health-seeking and health care utilisation. Andersen's model was demonstrated to be inadequate in this context for examining health-seeking delays and health care utilisation (Niraula, 1994; Subedi, 1989). Fourthly, there is a need to move beyond small cross-sectional surveys and look at a larger number of households in hopes of providing information that can be generalised beyond a single village or set of wards. Finally, as much as it is important to be able to generalise the results, there is also a great need to move beyond simple quantitative analyses at the population level to more

[12] See **Appendix 2.4** for more details on the Nepalese HSB literature.

individual looks at some of the factors governing decision-making within this context. In short, there is a real need to provide data within this context that can allow for the perspectives of users to be incorporated into healthcare policy. To the extent that a gap exists between the intended and actual utilisation of the system, it is important to bridge this gap by understanding the factors which have created it and the ways in which it can be fixed. As Jimba, Poudyal and Wakai (2003) aptly state, there is a need for more HSB studies which can be linked to healthcare policies.

To that end, this study, used both quantitative and qualitative data collected using household surveys, semi-structured interviews, and a handful of key informant interviews, in the hopes of offering a more comprehensive, and up-to-date look at health-seeking behaviours within the rural Nepalese context, while accounting for the pluralistic landscape in which such health decisions take place.

The Public Health Importance of this Research: A Summary

There is no doubt that an understanding of HSBs is of critical importance for public health. Health-seeking behaviours tell us about how and why people use their health services in the way they do. Studies of HSBs help public health practitioners and policy makers identify key areas for interventions or help them evaluate the effectiveness of health promotion programmes. Moreover, HSB studies can also provide researchers with a better understanding of the health statistics of populations by demonstrating how health service utilisation contributes to morbidity and mortality statistics; They can also help public health officials understand reasons for underutilisation of health services or assist health economists in the allocation or evaluation of health budgets.

Nowhere are studies of HSB more critical than in healthcare systems, such as Nepal's, with minimal resources, poor efficiency and poor equity. In a country with health statistics behind most of the other countries in the region, it is important to understand how the healthcare system is functioning and how people are engaging with it. HSB studies offer a way of evaluating the healthcare system from the demand side as well as provide critical information on factors both within and outside of the healthcare system which influence care choices or prevent people from seeking the care they need. In Nepal there is marked gap between the ideals of health system performance and the realities of that performance, yet sparse actual data is available to illuminate this gap. This study will use concrete data to point out some of the reasons why the healthcare system may be under performing –due to faults in the system design or a lack of understanding of the cultural, psychological, physical, social barriers preventing people from seeking adequate care.

In providing this type of data on barriers to utilisation, perceptions or beliefs regarding care, attitudes towards services etc., it is hoped that the problems can be fixed or targeted interventions can be designed to address them, and thus increase equalities in the system, decrease inefficiencies, reduce critical delays and improve overall morbidity and mortality of the population.

2.7 *Research Aims & Objectives*

The overall aim of this research project was to understand the health-seeking behaviours of people in rural Makwanpur district[13], Nepal with these specific objectives:

OBJECTIVE 1a:

To identify and describe the factors which may ultimately govern HSBs in this context. More specifically:

- To determine which households, wards and individuals experience illnesses (patient, households and community factors)
- To determine the types of illnesses households experience (illness factors)
- To determine the subjective and objective severity of the illnesses households experience (illness factors)
- To determine the characteristics of the government healthcare system available to households in this context, and the perceptions of those characteristics (health system factors)
- To determine how knowledgeable households are about the government healthcare system and its services

OBJECTIVE 1b:

To describe households' health pathways in terms of the length of delays before seeking care, the modalities of care they use (ie. the types of providers), the sequences they use them in (ie. the order of care) and the frequency of transitions from one provider to the next

[13]See methods section, setting subsection for more details on Makwanpur district

OBJECTIVE 2a:

To quantify the relationship between the objective characteristics/factors (described in objective 1a) and the health care decisions (described in objective 1b) using logistical and linear regression analyses. More specifically:

- To quantitatively explore the relationship between patient, household, community, health service, knowledge and illness characteristics/factors and the length of delays, the order of provider usage (which treatment options were selected first), the specific types of provider/s utilised (focusing on allopathic care), the number of providers utilised and the location of providers selected
- To determine which of the aforementioned objective characteristics/factors has the greatest influence on the length of delays, the order of provider usage (which treatment options were selected first), the specific types of provider/s utilised (focusing on allopathic care), the number of providers utilised and the location of providers selected

OBJECTIVE 2b:

To examine the relationship between the objective characteristics, subjective processes and care decisions using qualitative methods. More specifically:

- To qualitatively explore the relationships between patient characteristics, household characteristics, community characteristics, health service characteristics, knowledge factors, illness characteristics and psychological processes, social/interpersonal processes, cultural processes and reasons for using or not using specific care options
- To explore the overall factors that go into hypothetical care-seeking decisions

By looking at a simplified version of the comprehensive health-seeking behaviour model depicted in the previous section, we can see how each of these research objectives fit into the overall process of health-seeking behaviours (figure 2.12)

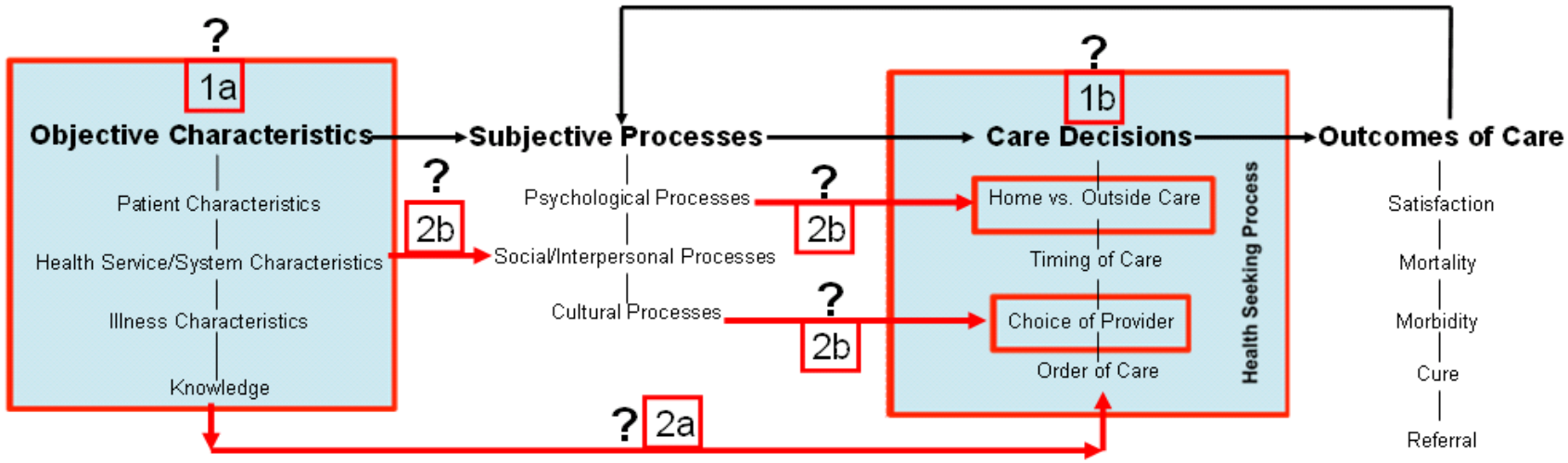


Figure 2.12 Simplified version of the comprehensive model of health-seeking behaviours. The numbers correspond to the preceding research objectives mentioned above.

The ultimate intentions of this research were to construct, test and refine a comprehensive model of health-seeking using Makwanpur district as a case study. This research will be used to help generate local policy recommendations to improve the design and functioning of the Nepalese healthcare system, taking into account the perspectives of the system users.

From a policy perspective, the goals of this study were as follows:

Box 2.5: Policy Goals of This Study

1) Determine the best ways to increase overall usage of allopathic care (specifically government services)

2) Determine the best way to decrease overall delay times to seeking care from allopathic providers

3) Determine the extent to which different health services are being equitably used and how to improve equitable usage

4) Determine, from the users' perspectives, the problems that exist with current health services, and the best ways to improve them

5) Determine the best ways to change HSBs in the future

Chapter 3:
Quantitative & Qualitative Methodology

This section presents a detailed overview of the methods used to collect the quantitative data -- sampling method, instrument design, data collection logistics, data management and data analysis – and the qualitative data – theoretical approach, sampling methods, interview script creation, logistics of field work and data analysis and management. Each is discussed in turn:

3.1 *Study Design Overview*

In order to address the research objectives outlined, a mixed-methods study design was employed following an explanatory sequential design consisting of two distinct phases: quantitative data collection followed by qualitative data collection (Creswell & Clark, 2010; figure 3.1). Quantitative cross-sectional household survey data was collected from households and health service providers in 90 wards of 10 Village Development Committees (VDCs) in Makwanpur District, Nepal between April and August 2011. Structured questionnaires were administered via interviews in Nepali (due to low levels of literacy) to 2,334 households in each of the nine wards[1]. Participants for the household surveys were selected via a two-stage random sampling method. Qualitative data was collected via a series of in-depth semi-structured interviews with 90 households in three purposively-selected VDCs (VDCs not selected for the surveys) -- 30 in a VDC with a SHP, 30 in a VDC with a HP and 30 in a VDC with a PHCC. These households were selected

[1]Sample size calculation was done using a standard algorithm (http://www.surveysystem.com/sscalc.htm), with a confidence level of 95% and a confidence interval of +/- 2. Dr. Pete Scarborough and Dr.Bhandari were consulted to assist with this calculation. A linear population projection (with an annual population growth of 2.1%) was used to calculate the population of Makwanpur in 2011 from the 2006 government data. The number of households was then calculated using available data on average household size in the district. 88,377 households (from a population of 486,075) was the number used for the sample size calculation to yield 2,338 households. See **Appendix 3.1**for details about the equation**.**

purposively using a combination of key informants, convenience sampling (door to door) and snowball sampling. Given that these interviews were designed to enhance and further explain the survey data, they were carried out after the survey data had been collected between November and December 2012.While the qualitative interviews picked up on some of the emerging themes from the survey data, they also introduced some new themes, such as the psychological, social and cultural processes that influence care decisions, which were unable to be captured with quantitative methods. The qualitative data is often used in mixed methods studies to further corroborate or elaborate on the data from the quantitative collection, which is how it was used here, and in this case the survey data was used to help guide the design of the qualitative study instruments (Castro et al., 2010; Greene, Caracelli & Graham, 1989; Rossman & Wilson, 1985; Tashakkori & Creswell, 2007)[2].

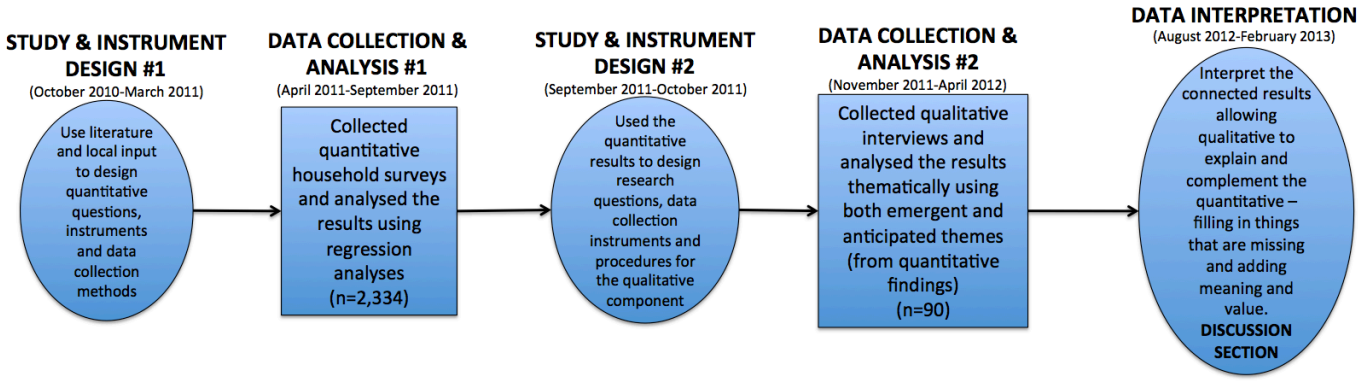


Figure 3.1 Overview of the explanatory sequential mixed-method design employed as part of this study. The quantitative data collection and analyses preceded and informed the qualitative instrument design and data collection. "The rationale for this approach is that the quantitative data and their subsequent analysis provide a general understanding of the research problem. The qualitative data and their analysis refine and explain those statistical results by exploring participants' views in more depth" (Creswell, 2003).

[2]For a lengthier justification of the choice of mixed methods, see **Appendix 3.2**

To complement this data, and in order to get a better sense of the functioning of the healthcare services in the district, a series of other informal semi-structured interviews were carried out with health personnel, THs, pharmacists and FCHVs in each of the VDCs throughout the course of the data collection process. In addition, data on primary reasons people seek care from each of the health facilities and providers was obtained through a review of the health registers and Health Management Information System (HMIS) reports[3] at each of the levels of the healthcare system simply as a basis of comparison. Information on primary diagnosis was obtained from these records for the period of March until July 2011[4] to contextualise our illness data. Finally, 20 key informant interviews were also conducted with NGO staff, village development office staff and district development committee staff for the purpose of obtaining demographic data on the selected VDCs.

Ethical approval for this study was obtained from the Nepal Health Research Council, Patan Academy of Health Sciences[5] and Oxford University (OXTREC)[6]. Formal permission for the data collection was also granted by the Makwanpur District Development Committee and Department of Health.

[For a justification of proposed mixed-method choice, see Appendix 3.2**]**

[3]The Health Management Information System (HMIS) was put in place by the Ministry of Health and Population to monitor service progress in each of the districts of Nepal. Data is collected on a monthly basis from each level of the healthcare system and compiled at the central level into an annual report put out by the Department of Health Services. For a copy of the HMIS data collection forms see **Appendix 3.3.**
[4]This data is routinely collected by health centre staff in their health registers at the SHP, HP and PHCCs
[5]NHRC Reference Number: 982 (see **Appendix 3.4a)**
[6] OXTREC Reference Numbers: 09-11 (see **Appendix 3.4b)**

3.2 *Setting: Makwanpur District*

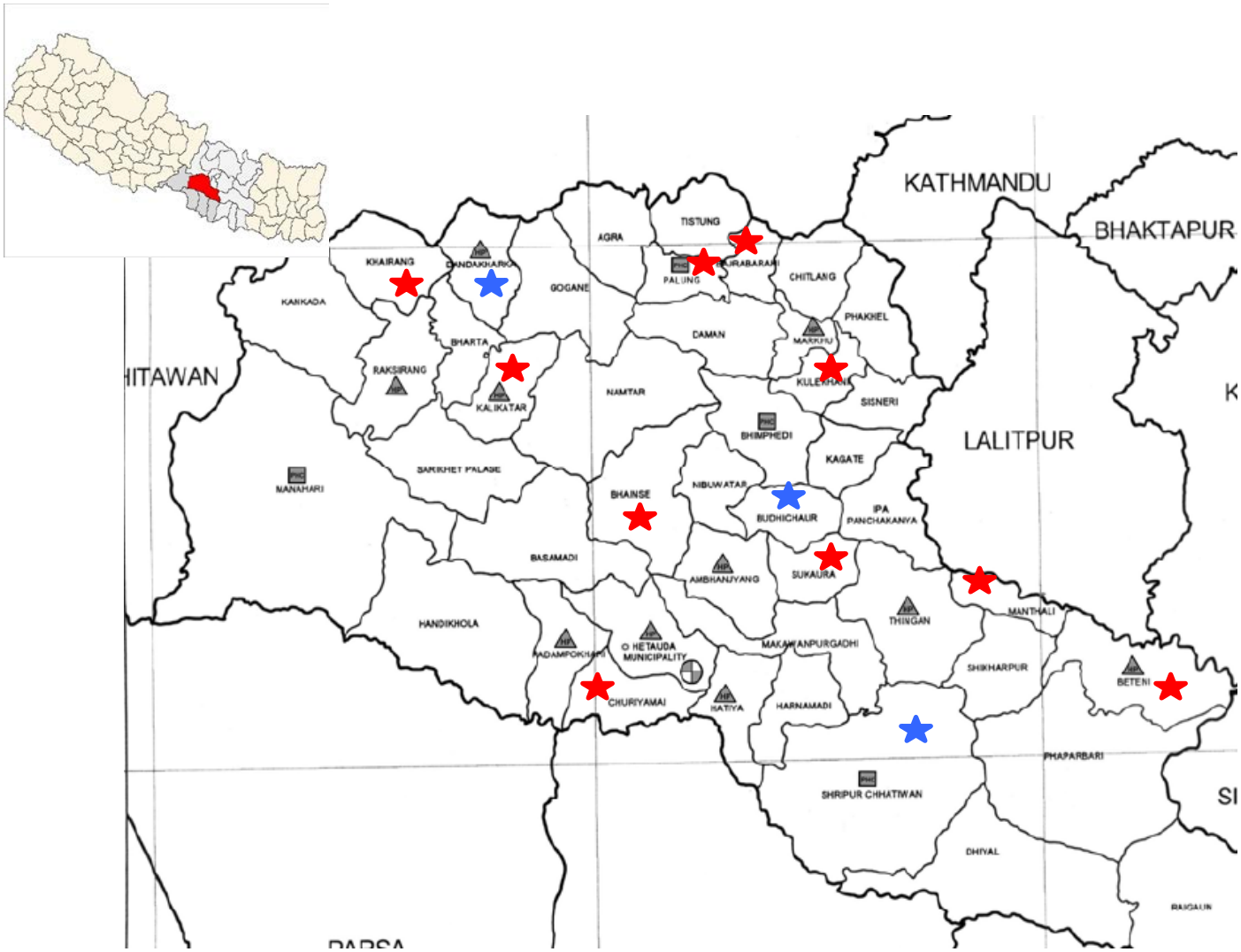


Figure 3.2. District map of Makwanpur. The ten VDCs where the survey data was collected have been starred in **red**: Khairang, Kalikatar, Bhainse, Sukaura, Palung, Bajrabarahi, Manthali, Kulekhani, Churiyamai and Beteni. The three VDCs where the qualitative data was collected have been starred in **blue**: Chhattiwan, Budhichaur and Dandarkharka.

Nepal is divided into seventy-five districts covering three different topographic belts (plains, hills and mountains) and is comprised of fourteen administrative zones. Makwanpur is part of Narayani Zone. The district covers about 2,500 square kilometres to the south of Kathmandu. It has a population of approximately 440,000 (divided into

~88,000 households), most of whom are subsistence farmers. It includes both hills and plains and has two primary motorable roads. The district is further subdivided into 42 Village Development Committees (VDCs)[7] and a municipality, Hetauda, where the 24-bed district hospital is located. The predominant ethnic group in the region is Tamang (tibeto-burman origins) followed by Brahmin, Chhetri and fifteen other groups (GON, 2009; Makwanpur District Profile, 2006; Mesko et al., 2003). This district was purposively selected on the basis of its topographic and ethnic diversity, and on the logistical feasibility[8] of carrying out the data collection there. As one of the districts with relatively poor health performance despite its proximity to Kathmandu, it provides an interesting case study for this research.

The most common health problems faced by the district are skin diseases, acute respiratory infections, pyrexia of unknown origin, diarrhoeal disease and gastritis. Infant mortality in the area still remains quite high at 95.8 per 1,000 live births, and life expectancy is quite low at 55.8 years. Only 13% of women deliver with the assistance of a skilled health worker, while, on the other hand, more than half receive the required four ante-natal check-ups, although this could be due to the presence of an NGO in the district who are working to design interventions to increase utilisation of maternal health services (MIRA[9], DoHS, 2006).

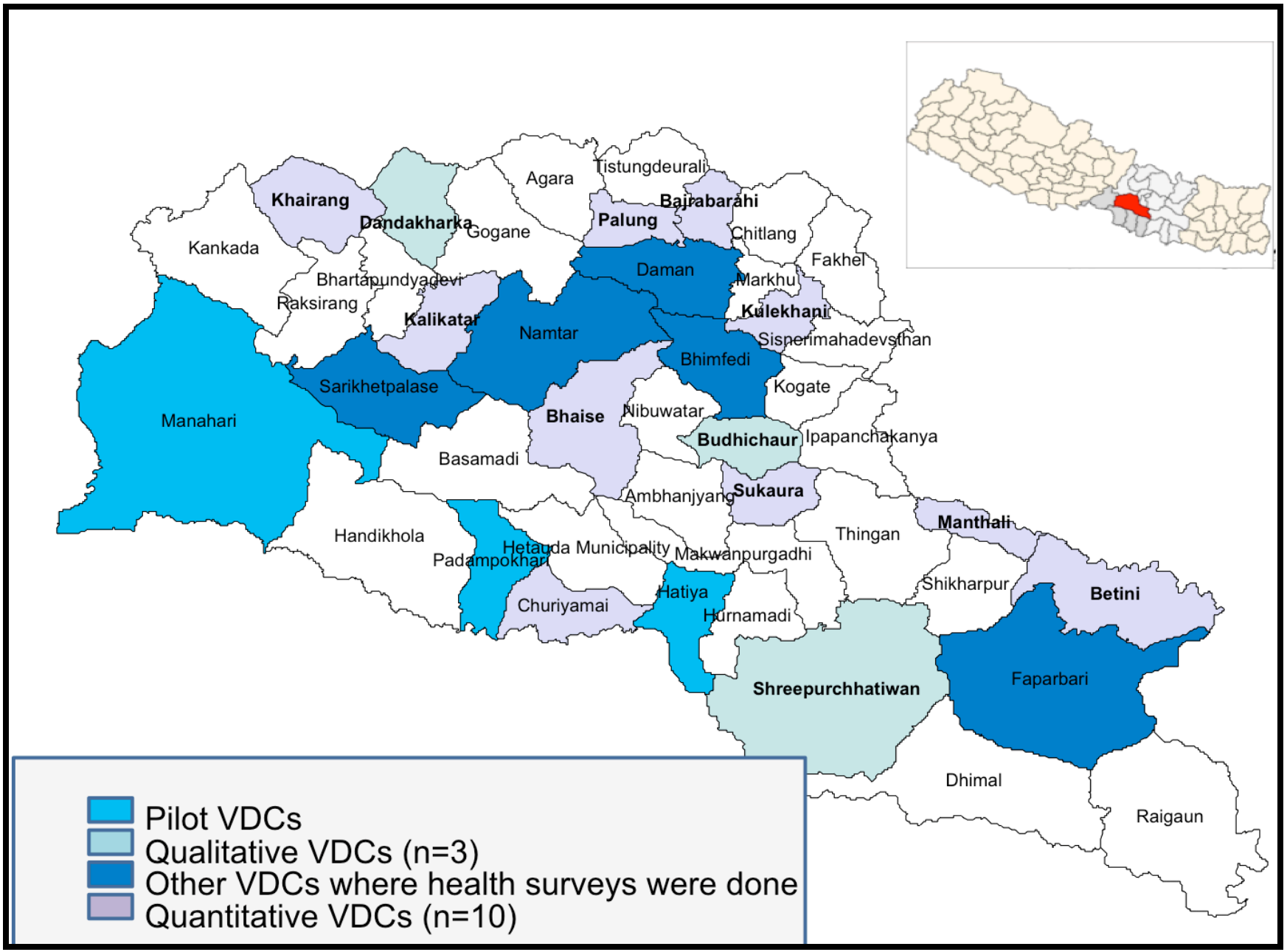
[7]The VDC is the lower administrative part of Nepal's local development ministry. Every district is broken down into multiple VDCs, and these VDCs are further broken down into smaller administrative units referred to as Wards (an average of nine per VDC). These wards are then even further broken down into the equivalent of neighborhoods, referred to as Toles (each ward is comprised of two or more Toles). These Toles range in size from one to a couple hundred households, and are usually homogenous in terms of ethnicity and other SES indicators.

[8]The logistics of the data collection process are very important to take into account for this study. Given the topography, dearth of public transport and lack of motorable roads in Nepal, survey data collection can be very difficult, often requiring data collectors to travel long distances over difficult terrain to get to houses.

[9]Mother and Infant Research Activities is a local NGO operative in all VDCs of Makwanpur District: http://www.mira.org.np/index.htm

In terms of health facilities and health personnel, the district, like all rural districts in Nepal, has a pronounced shortage of health staff, with only eleven doctors, 74 nurses and 136 paramedical staff to cater to the entire population. The entire district is served by a single district hospital, which sees approximately 1,956 inpatient cases per year. The district also has four Primary Health Care Centres (PHCC), ten Health Posts (HP), 30 Sub Health Posts (SHP), two Ayurvedic health facilities, 78 pharmacies and an unknown number of traditional faith healers (DoHS, 2006).

For more details on the quantitative VDCs, see **Appendix 3.5**


Khairang
Dandakharka
Agara
Tistungdeurali
Bajrabarahi
Palung
Gogane
Chitlang
Kankada
Daman
Fakhel
Markhu
Bhartapundyadevi
Raksirang
Kalikatar
Namtar
Kulekhani
Sisneri
mahadevsthan
Bhimfedi
Sarikhetpalase
Kogate
Manahari
Bhaise
Nibuwatar
Budhichaur
Ipapanchakanya
Basamadi
Sukaura
Ambhanjyang
Manthali
Handikhola
Thingan
Hetauda Municipality
Padampokhari
Makwanpurgadhi
Shikharpur
Hatiya
Betini
Churiyamai
Hurnamadi
Shreepurchhatiwan
Faparbari
Dhimal
Raigaun
Pilot VDCs
Qualitative VDCs (n=3)
Other VDCs where health surveys were done
Quantitative VDCs (n=10)

3.3 *Quantitative Study Methodology*

The quantitative component of this study involved 2,334 household-surveys carried out in ten randomly-selected VDCs. This section will review how households were selected, how the survey instrument was created, and how the data was collected, managed and analysed.

3.3a Sampling Method for Selection of Surveyed Households

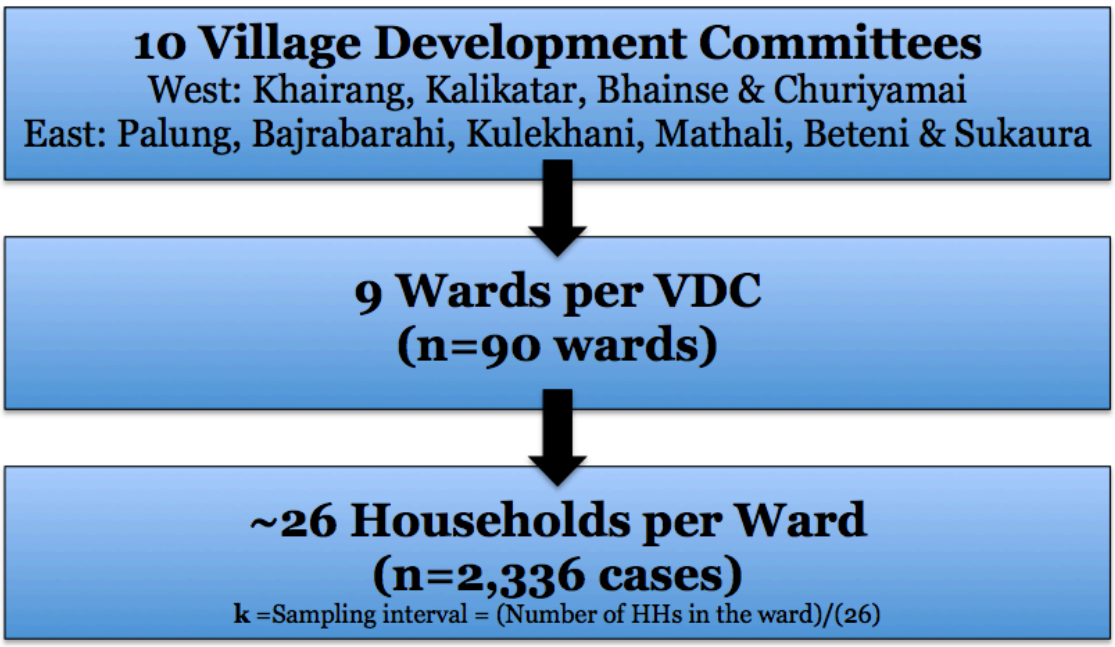


Figure 3.3 Schematic description of enrolment of study subjects

Subjects for the household survey were selected randomly using a two-tiered, random-sampling method, starting with the random selection of ten VDCs from amongst the 42 in Makwanpur and working down to the selection of every k'th household in each ward of the VDCs (figure 3.2). Similar selection methods have been used in other HSB studies and have been shown to be effective in achieving a representative sample (Acharya & Cleland, 2000; Alstair & Pepper, 2005; Craig & Mindell, 2006; Fantahun & Degu, 2003; Toan et al., 2002). The entire district

was divided into three geographic zones and each of the VDCs within those zones was assigned a number. The numbers were drawn at random until ten had been counted (~1/4 of the total VDCs in the district)[10]. Once the VDCs were randomly selected, a decision was made to sample from each of the nine wards in each of the ten VDCs (in essence the VDCs were the clusters, albeit much larger than traditional clusters). In total, the sample was drawn from 90 different wards across the district. An attempt was made, through interviews with people working in the district, to ensure that the selection of VDCs was representative ethnically, geographically and in terms of health service availability of the district as a whole. Five of the wards selected did not have direct road access, two had HPs, while one had a PHCC and the rest had SHPs.

At the level of the wards, a sampling interval (k) was calculated by taking the number of households in that ward (collected from VDC office or MIRA staff) and dividing it by the number of households required per ward to achieve the adequate sample size (26 households). Every k'th household in that ward was approached for surveying (starting from the FCHV house and working in both directions).[11] This resulted in surveys of approximately 3% of the total households in the district.[12]If, after some probing, it turned out a household did not have an episode of minor illness in the previous two weeks or major illness in the previous

[10] Four from the Western zone, three from the Central zone and three from Eastern zone

[11]The most up to date list of the households in this district was the 2006 voting list. It was determined that approaching every k'th household in the district would be more accurate, given how many families have migrated to cities since the conflict, than using this list to randomly select households. The FCHV house is usually randomly located within the ward, so this was a good starting point to use to ensure random sampling

[12]Although ideally we would have liked to have weighted the sample according to the size of the individual wards, rather than using a fixed number for each ward and VDC, given how inaccurate all available data on the population of Makwanpur was, this weighting was not possible in advance of the data collection. Unfortunately this meant that different percentages of each ward and each VDC were actually sampled (see table in **Appendix 3.6**)

month leading up to the survey, basic demographic data was recorded, questions were asked about general health service usage and the interviewer moved onto the next randomly-selected household[13].

The heads of all of the government health centres in each of the selected VDCs (n=10), all of the available FCHVs in each of the wards (n=79, 88%) and a selection of pharmacy heads (n=13) and THs (n=11) were purposively selected for contextual key-informant interviews.

3.3b Survey Development Process

For the creation of this study instrument, the methods of instrument development as outlined by Turner and colleagues (2007) were followed:

Steps in the Survey Design Process

1) Consulted general literature on survey/questionnaire/ interview design (with a specific focus on surveys for developing countries)
2) Obtained copies of instruments used in other HSB studies elsewhere and within Nepal
3) Obtained copies of other surveys (from other disciplines) used in Nepal which had items of interest (i.e.. surveys which collected SES data)
4) Took formative research trip to Makwanpur to run FGDs and conduct key informant interviews to get a sense of how best to collect SES data, to test out different potential rating scales to be used and to get a sense of the local concepts of different illnesses and health providers (pre-testing)
5) Modified items from steps 2 and 3 in accordance with local conditions/culture based on findings from step 4 and in consultation with local experts
6) Formatted instrument so it was easy to read and follow
7) Translated and back-translated each survey item using doctors and students at PAHS (paying careful attention to content validity –following Ommeren's (1999) translation method)
8) Sent out instrument to a broader audience for additional feedback
9) Pilot-tested in the instrument in Makwanpur with 100 households to assess validity and reliability
10) Debriefed participants
11) Revised instrument for final time

[13] A detailed data-collection plan which lays out all of the logistics of the data collection process was created for the purpose of this research project

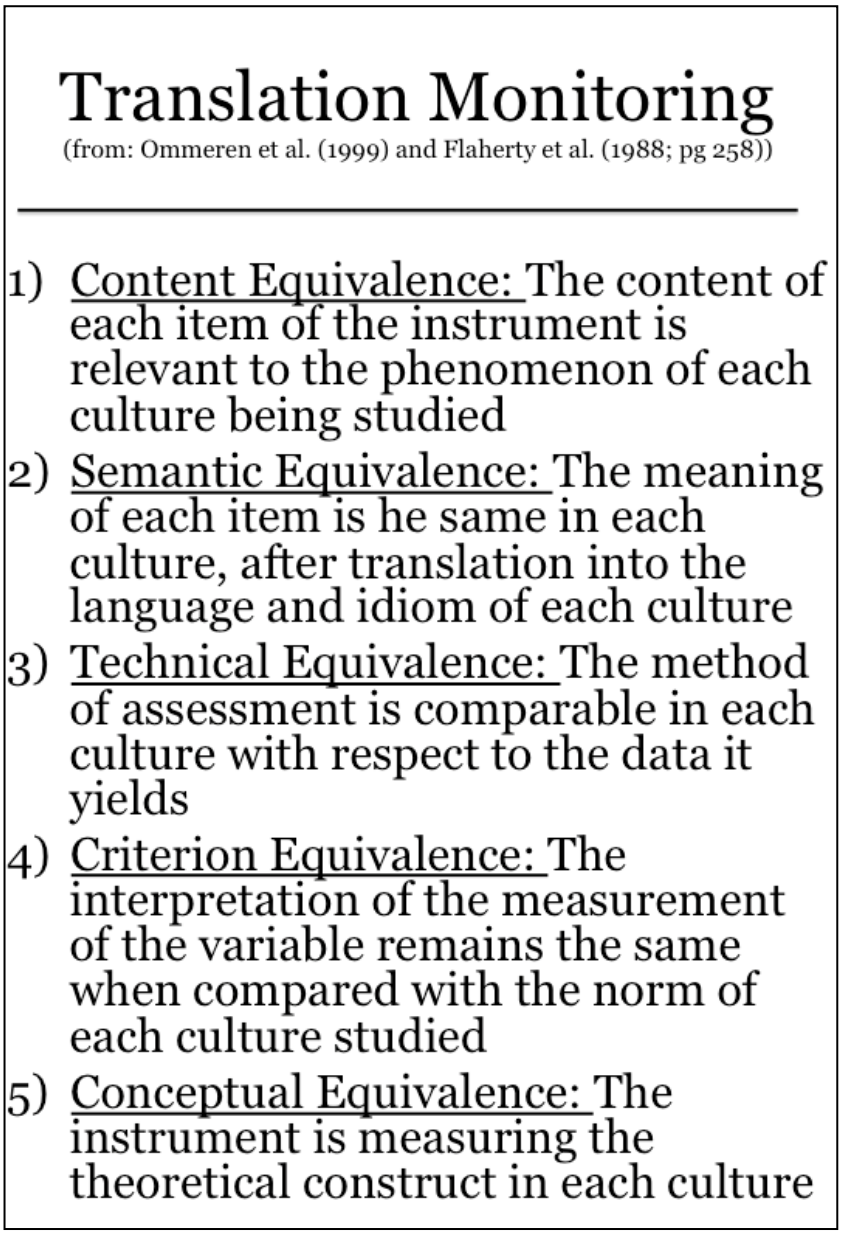
This study required the design of a novel household survey on HSBs specific to this research and this context. Initially for the purpose of designing this instrument a variety of general survey-design literature was consulted (Boyton & Greenhalgh, 2004; Campenelli, 2010; Fowler, 1995; Fowler, 2009; Grosh & Glewwe, 2000; Kalter, 1992; Kroeger, 1983; Jenn, 2006; Leung, 2001). In addition, information was gleaned from survey and questionnaire design courses through the 'CASS' program at the University of Southampton.

After consulting the general survey-design literature, all survey literature pertaining to HSBs and healthcare utilisation was review with a specific focus on the methods used and data collection instruments (**Appendix 3.7**). The household survey produced was an amalgamated version of existing instruments. Questions were culled from previous unpublished and published studies of HSBs undertaken both within Nepal and elsewhere in the developed and developing world. If the instruments could not be found online or in the documents themselves, the authors were contacted directly to obtain copies of the original instruments (Acharya & Cleland, Ager, 2005; Awasthi, Srivastava & Pant, 2008; Auer, 2009; Bhuiya, 2009; CBS, 2014, 2011; Charles et al., 2008; Develay, Sauerborn & Diesfeld, 19996; Fantahun & Degu, 2003; Feyisetan, Asa & Ebigbola, 1997; Gish, Malik & Sudharto, 1988; MoH, 2001, 2006; Habib & Vaughn, 1986; Jimba, Poudyal & Wakai, 2003; Kloos, 1990; Luque, 2008; Malik et al., 2006; Mbagaya, Odhiambo & Oniang'o, 2005; Mesko et al., 2003; Mishra et al., 2005; MoHP, 2008; Mulder et al., 2008; Niraula, 1994; NFHP, 2009;

Patel, Simunyu & Gwanzura, 1997; Pepperall et al., 1995; Pillai et al., 2003; Rutherford, 2009; Rahman, Andersson & Svanstom, 1998; RTI, 2008, 2010; Ryan, 1998; Rutherford et al., 2009; Sauerborn, Nougtara & Diesfeld, 1989; Sreeramareddy et al., 2006; Srivastava, Awasthi & Agarwal, 2009; Subedi, 1989; Thakur, 1996; Weller, Ruebush & Klein, 1997; Winston & Patel, 1995). Demographic background questions on household assets and SES were taken directly from the Nepal Living Standards Survey II and III (CBS, 2003, 2011), the Nepal Demographic and Health Surveys (MoH, 2002, 2006) and several other health surveys from Nepal which included demographic variables on them (Hashibe et al., 2010; Maltsoglou & Taniguchi, 2004). Illness severity measures were extracted from the "Severity of Illness Index" and from other HSB models that included illness factors (Cummings, Becker & Maile, 1980; Horn & Horn, 1986). All the health service rating scales and questions about health service usage were taken from existing literature where they had already been validated (Andaleeb, 2001; Bhuiya, 2009; Baltussen, Haddad & Sauerborn, 2002; Bernhart et al., 1999; Dipankar, Peters & Bandeen-Roche, 2006; Haddad et al., 2000; Gilson, Alilio & Heggenhougen, 1994; Pascoe, 1983; Sundararaman, 2007). The rest of the individual survey items were carefully selected from existing study instruments. All of the non-Nepal survey items were adapted to the local context in consultation with experts from Patan Academy of Health Sciences (PAHS), Oxford University Clinical Research Unit-Nepal (OUCRU-NP), MIRA and the District Development Committee (DDC) of Makwanpur. Once a draft of the survey had been created, it was circulated among a handful of Nepali health

researchers from various organisations and among the rest of the study team to solicit detailed feedback.

In addition to consulting the literature and consulting with experts on Makwanpur and on health service research in Nepal, two formative trips were taken to some of the VDCs in Makwanpur to solicit input on the study design and instruments. During these trips a series of informal FGDs and key informant interviews were conducted to assess the best ways to collect SES data and to get a sense of the best rating scales to use with households. These trips also helped us to get a sense of the local terms people used for different health providers, facilities and illnesses. The survey was originally drafted in English and each question was individually translated and back-translated by doctors and students at PAHS, using van Ommeren's (1999) translation monitoring form for Nepali-speakers and paying attention to comprehensibility (semantic equivalence), acceptability (technical equivalence), relevance (content equivalence) and completeness (criterion and conceptual equivalence; See 'Translation Monitoring' Box). Finally, the survey was extensively piloted in Makwanpur with a convenience sample of 100 households in each of the wards in Manahari VDC in February 2011, prior to the start of formal data collection. An informal cognitive debriefing procedure was used with all participants who took part in the pilot phase (Turner et al., 2007).



Final modifications were made to the survey after the piloting period.

3.3c Survey Content

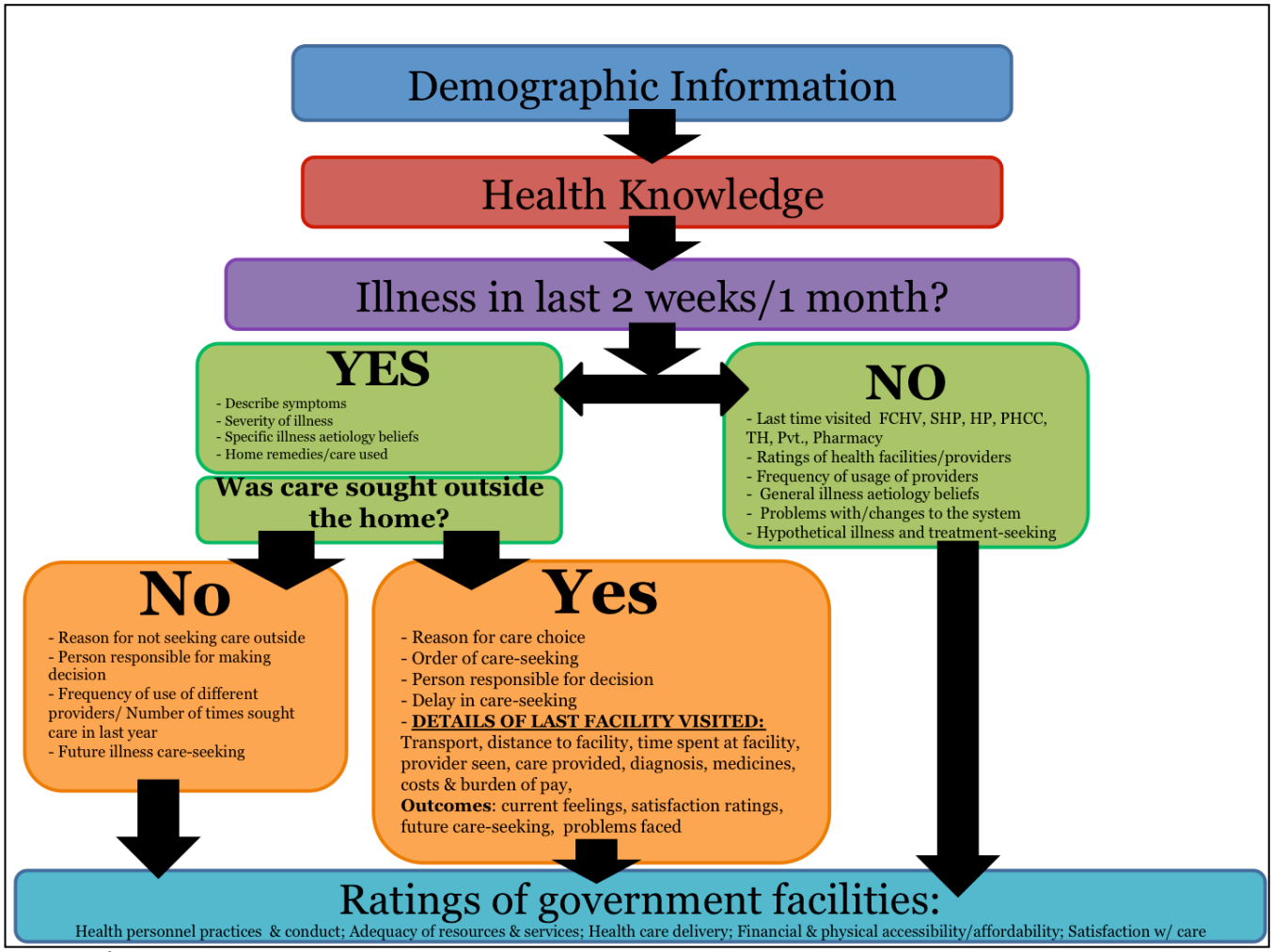


Figure 3.4 An overview of the survey content and the flow from one section to the next. If more than one illness was experienced in the prior month, the most severe illness or the most salient illness was selected as the focus for the green and orange boxes.

The survey was made up of 40 items for those households experiencing an illness and seeking outside care, 19 items for those experiencing an illness who did not seek outside care, and 23 items for those not experiencing an episode of illness in the prior month (not including sub-questions).The survey was divided into 4 main sections: Demographics, Knowledge of Health Services and Providers, Details of the Illness Episode and Ratings of Government Health Services. The first section was used to elicit basic household demographic and SES information

from the primary respondent (usually the partner of the household head or the household head). The second section asked a series of knowledge-based questions of the primary respondent on the availability and function of different government health services and providers. In the third section, each person in the household was asked individually about whether or not they had experienced an episode of illness in the two weeks to one month[14] prior to the survey administration, and all of the symptoms experienced were recorded for each episode. A list of tracer conditions and clinical algorithms were used to ascertain symptoms to enable more accurate diagnoses to be made[15], and to ensure no illness episodes were overlooked (Kroeger, 1983; Nick Simons Institute, 2009; **Appendix 3.8**). One episode of illness (either the most serious or most salient) was then selected as the primary focus of the remainder of the survey. If the primary respondent was not the person who had experienced the illness, an attempt was made to get the person who had experienced the episode to answer the questions directly (if the patient was a child, the mother was consulted). Participants were asked to recall that episode of illness and discuss how sever they felt it was, what they thought caused it, where they sought care and in what order (including all providers and home care used), the costs involved, the timeliness of the treatment seeking, the difficulties they faced, the transportation

[14]Although HSB studies have all used different recall periods for illness episodes, two weeks has been shown to be the most appropriate time period to use to reduce bias and increase accuracy of recall for minor illnesses. For more major illnesses, thirty days recall can be accurately used. Several studies have use these periods and validated them against health centre records (Kroeger, 1983).

[15]During the interviews a long list of symptoms for each of the episodes were collected using the NSI clinical algorithms to guide the process. These symptoms were later given to two medical doctors along with basic patient demographic information who performed verbal autopsies on the symptoms to ascertain a diagnosis. For more details on how diagnoses were obtained and illnesses classified, see **Appendix 3.8**.

they used to get to facilities, the treatment they were provided at the facilities, whether or not they were referred elsewhere for additional treatment, their reasons for seeking treatment at this facility or from this provider, whether they felt better afterwards, the length of time it took for them to recover after having initiated the treatment, their satisfaction with the process and their future treatment plans. To increase recall and reduce bias, specific dates (including holidays and festivals) were referenced in the interviewing process, and detailed descriptions of each care choice were elicited in a step-wise fashion. For any medicines prescribed, the respondent was asked to produce the actual pills or prescription, and if they were unavailable, a detailed description of their colour and shape was recorded. All of these were techniques suggested elsewhere to increase recall and reduce bias (Kalter, 1992; Kroeger, 1983; Grosh & Glewwe, 2000).

Like the study of pathways to care for tuberculosis patients conducted by ten Asbroek and colleagues (2008), an attempt was made to trace health pathways from the onset of the illness to the time of cure, even if it involved multiple care choices at multiple different facilities over the course of multiple days.

In the last section patients were also asked to rate their satisfaction with the services they received and rate their general satisfaction with government health services with regard to a set of specific criteria used in other studies (Dipankar et al., 2006; Bernhart et al., 1999; Haddad et al., 2000; Baltussen et al., 2002).

For those households not experiencing illness, information on general care-seeking behaviours and perceptions of different providers was collected. All participants, regardless of whether or not an illness was experienced were asked to rate government services.

For an overview of the different independent variables (IVs) and dependent variables (DVs) examined with the household surveys, see the conceptual model (figure 3.5). More details about the variables selected for the actual analyses are covered in later sections.

An outline of the survey content can be found below, and the entire survey instrument used can be found in **Appendix 3.9** (in English and Nepali).

Calculating Income in the Household Surveys:

Calculating household income can be an incredibly difficult thing to do when you are dealing with predominantly subsistence farming households, with many members living under the same roof, residing in rural areas, most of whom have very few possessions. Other studies have shown that you can approximate income quite accurately in these contexts using either household assets or household expenditures as a proxy for earning capacity (Montgomery et al., 1999; Morris et al., 2000). While others have used participatory wealth rankings (Hargreaves et al., 2007). In Nepal specifically, the NLSS uses both assets and expenditure data to estimate the relative SES of households in rural Nepal. They collect detailed information on food and non-food expenditures as well as dwelling type, size and materials, livestock ownership and credit and savings among other things. This study attempted to be as comprehensive as possible in the collection of asset and income data. Data was collected on assets, dwelling type, land and livestock ownership, which were used to create wealth quintiles (**Appendix 3.13).** With regard to income specifically, however, the study asked about household expenditures to calculate monthly income. The interviewers were told to phrase the question so that rather than asking about how much was earned per month, which is notoriously inaccurate, they asked instead about how much was spent on children's school fees, food, oil, other cooking supplies, other food supplies etc. per month. These expenses were tabulated to produce the household income. This has been done in other studies (CBS, 2011; Montgomery et al., 1999; Morris et al., 2000).

Outline of Household Survey Content:

Section A.1: Household Demographic Information*

- Household Composition
- Caste
- Income
- Occupation
- Education of Head
- Assets (including animals)
- Housing Infrastructure
- Land Ownership

Section A.2: Knowledge Regarding Health Services*

- Knowledge of nearest health facility
- Knowledge of structure of government health services
- Knowledge of essential medicines and care
- Knowledge of availability of doctors
- Knowledge of referral system
- Knowledge of FCHV duties and roles

Section B.1a: Episode of Illness & Care Seeking**

- Record of any illnesses experienced in last 2 weeks or 1 month
- Who experienced illnesses
- When were the symptoms experienced
- List of symptoms experienced
- Any pre-existing, chronic conditions
- Suspected diagnosis
- Choice of illness to be interview focus
- Illness aetiology beliefs
- Illness severity ratings
- Initial illness response: advice and home care
- Efficacy of home remedies
- Care-seeking outside of the home: TH, allopathic, ayurvedic, pharmacy
- Treatment order
- Reasons for care choices
- Person responsible for making decision about where to seek care
- Delay times between facilities and before care seeking

Section B.1b: Care Process Focusing on Single Provider***

- Transportation/Distance
- Wait times at facilities
- Type of provider seen
- Care Provided
- Diagnosis, medicines and treatment compliance
- Referrals
- Self-reported outcomes
- Satisfaction
- Future illness
- Problems/difficulties faced

Section B.2: Care Seeking Inside Home❖

- Reason for not seeking care outside
- Person making decision
- Frequency of care-seeking from other providers
- Future illness

Section C: General Ratings of Government Health Services*

- Health personnel practices and conduct
- Adequacy of resources and services
- Health care delivery
- Financial and physical accessibility/affordability
- Overall satisfaction

Section D: General Health-Seeking Behaviour⊙

KEY:
* To be filled out by all households
** To be filled out for all those households experiencing illness episodes
*** To be filled out by those households who sought outside care for illness only
❖ to be filled out for all those households who sought home care for their illnesses only
⊙to be filled out for those households without illness episodes only

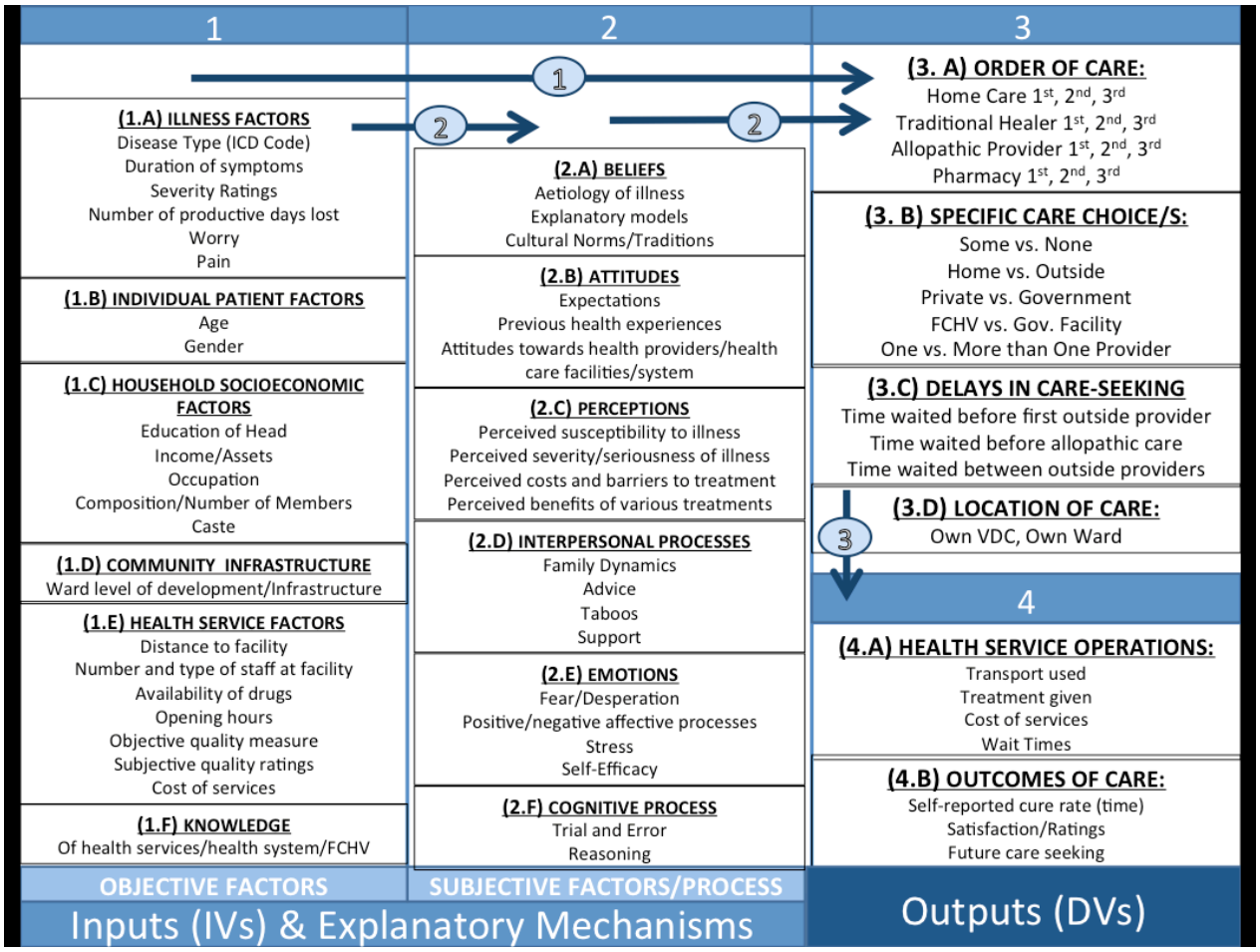


Figure 3.5 A conceptual framework for the quantitative survey and qualitative semi-structured interviews. All of the variables in columns 1 (1A-1F) and boxes 3 (3A-3D) and 4 (4a and 4b) were collected using the household survey, while all of the factors in column 2 (2A-2F) were explored with the qualitative interviews. For the purpose of the analyses, the relationships between objective factors and order of care, specific care choices, delays in care seeking and location of care (1A-F→3A-D) was explored quantitatively (arrow #1), the relationship between choice of care and health service operations and outcomes (3A→4A,B) was explored quantitatively (arrow #3), and the relationship among the objective factors, subjective factors/processes and choice of providers (1A-F→2A-F→3A-D) was explored qualitatively (arrow #2)

For details on the creation of other data collection instruments for the health providers, and a copy of the health facility survey, see **Appendix 3.10.**

3.3d Logistics of Survey Data Collection

Due to low levels of literacy amongst the survey participants, all surveys were conducted verbally as structured interviews. All interviews were conducted by myself in conjunction with six other research assistants familiar with the local dialect, study objectives and design[16]. All interviews were conducted in Nepali or Tamang[17], and filled out in English in books with pre-coded response categories to reduce subjectivity in responses.

All participants (primary and secondary respondents) were consented using an informed consent procedure, and it was made clear that participation was completely voluntary (**Appendix 3.9**). If the participant was unable to sign his/her name, a thumbprint was used in lieu of the signature. Personal information was kept to a minimum, and numbers were assigned to participants to maintain anonymity. Any personal patient information obtained during the interview was destroyed of properly upon return from the data collection period. All data was kept with the research team during the data collection period, and was stored in a locked cabinet upon return to Kathmandu. All consent forms were stored separately from the completed surveys in sealed envelopes.

[16]All people assisting with the data collection were carefully trained and monitored throughout the process to ensure consistency in result collection. They were asked to follow a standard, scripted questionnaire in Nepali (see **Appendix 3.9**) and use only pre-coded response categories to further increase the reliability and consistency of results. For more details on the composition of the research team, how the research team was selected, trained and supervised, please see **Appendix 3.11.**

[17]For Tamang households not fluent in Nepali, the local dialect was used. Local villagers were selected to help translate between Nepali and Tamang on the two occasions when this was necessary

The surveys t00k an average of 42±7 minutes to complete (ranging from 30-74 minutes).

If a patient was unavailable to participate in the survey on the day the household was initially approached, an attempt was made to return once more the following day before moving onto the neighbouring household[18].

Calculating Distances to Health Facilities:

In order to enable the calculation of accurate distances between households and health facilities, GPS coordinates and altitudes for all of the health facilities used by people in the sample were obtained using standard GPS mapping procedures (Figure 3.6). Unfortunately, given constrained resources, it was impossible to GPS map all of the individual toles[19] where the survey data was collected. As a result, topographical aerial maps with each of the toles labelled on them were obtained for all of Makwanpur district, and the latitude and longitude coordinates were obtained for each of the toles using these. The distances between the toles and health facilities were calculated using the haversine formula[20] and factoring in the altitude differentials.

[18]In some cases this was logistically impossible given the topography of the area, and the household had to be bypassed without being returned to.
[19]As mentioned earlier, each ward is subdivided into a series of smaller neighbourhoods, called toles. These toles are comprised of one to a couple hundred households. They are usually homogenous ethnically and in terms of other SES indicators.
[20]The following website was used to help with the calculation of the distances between latitude and longitude coordinates: http://www.movable-type.co.uk/scripts/latlong.html

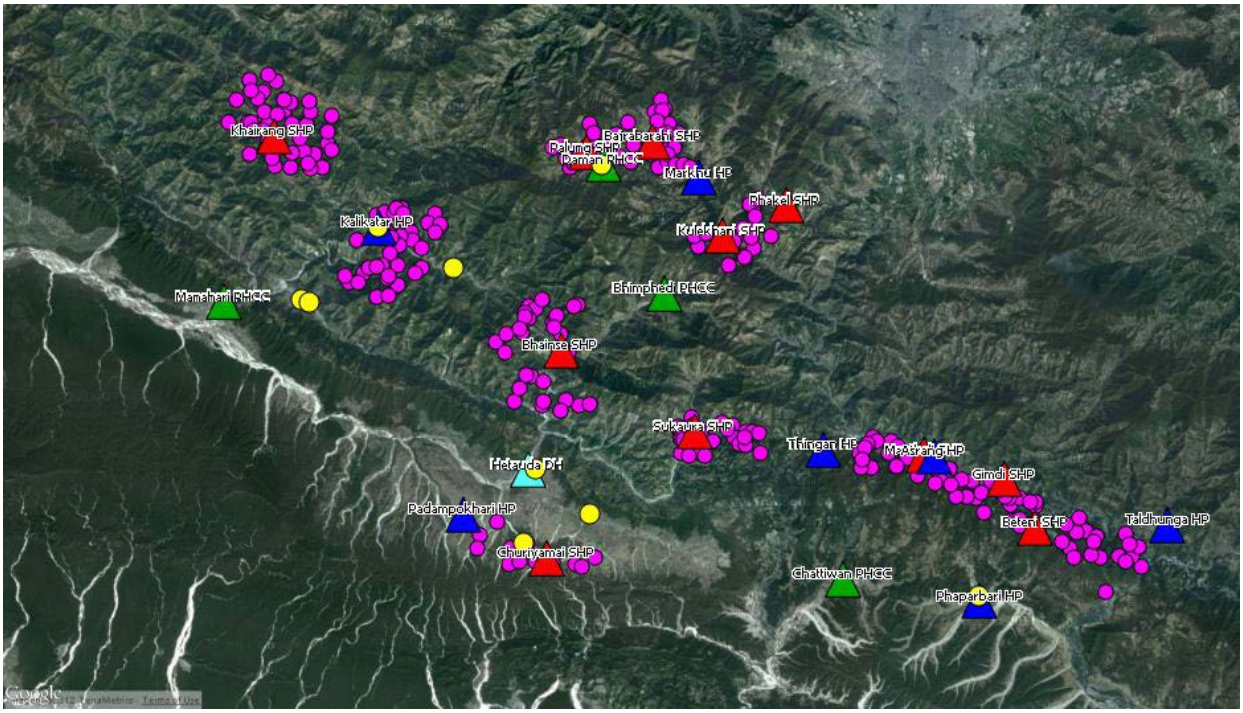


Figure 3.6. GPS mapping of all of the individual toles where surveys were conducted. Each of the triangles represents a different health facility utilised by households in the quantitative sample. **Green triangles** = PHCCs; **Dark blue triangles** = HPs; **Red triangles**=SHPs; **Light blue triangle** = DH; **Yellow dots** = pharmacies; **Pink dots** = individual toles where household surveys were carried out. Map created using qGIS (v.1.8.0, OSGeo, Vancouver, CA).

3.3e Data Management

All data was entered separately by six RAs into an MS Access (V. 14.0, Microsoft Corporation, WA, USA) database created specifically for the purpose of this research. The data entry screens were designed to accurately resemble the actual survey to increase the ease of the data entry process and reduce data entry errors. The database did not allow for free response for any of the questions with pre-coded response categories. All data was checked twice through, once by myself and once by another RA, before being transferred to SPSS (V.17.0, SPSS Inc., IL, USA) for data analysis and cleaning.

3.3f Data Analysis

All analyses were performed in SPSS (V.17.0, SPSS Inc., IL, USA).

For all of the survey data descriptive statistics such as means, standard deviations and medians were calculated for the continuous variables and absolute numbers and percentages (proportions) were calculated for the categorical variables.

Descriptive Statistics: For Objective 1a

For this objective, household survey data was summarised to convey basic patient demographic data (mean and standard deviation of patient age and the proportions of males and females), the prevalence of the main illnesses affecting households in the district[21], the objective and subjective severities of those illnesses, and the proportion of people rating various aspects of their government health services as poor, fair, good, excellent.

Health facility interview data was also descriptively analysed to determine the costs of services, the distances to the facilities, the hours of operation, the availability of equipment, instruments and medicines, and the availability of various personnel among other things.

[21]For a more detailed description of how illnesses were diagnosed and categorised see **Appendix 3.8**

Descriptive Statistics: For Objective 1b

For this objective, household survey data was summarised to convey the proportions of households using different modalities of care -- pharmacy care, THs, home care, allopathic care and other care (see box 3.1) – the proportions of households using different sequences of care, limited to the first three outside providers sought (ie. TH→allopathic→pharmacy), and the transition frequencies between different providers used. The same methodology has been employed elsewhere in the study of HSBs and provider-usage (Ryan, 1998).

Box 3.1:
Definitions of Different Providers as Defined in this Study**

- **Home:**Any form of self-care performed or administered inside the household of the ill person (not including if allopathic providers or THs were called upon to see patient). This includes herbs taken which were gathered from the forest or procured from a neighbour, any home treatments such as cold compresses, oil rubs or drinking hot water with lemon, allopathic drugs consumed which were already in the home prior to the onset of the illness and were not acquired for this particular episode and prayer or any other family rituals performed (not including traditional healing by an outside TH).
- **Traditional Healer (TH):**A TH was considered to be any Dhami, Jhankri, Jyotishi, Gubhaju, Lama, Shaman, Baidang, ButiWala or other TH consulted for this particular episode of illness (excluding immediate family members residing under the same roof). Rituals usually entail chants, drums, reading of the pulse, lighting of incense and throwing rice grains or coloured powder. Compared to homeopathic or Ayurvedic practitioners, THs are not formally trained or certified. (TH types have been defined by Gartoulla, 2008).
- **Pharmacy Care:** A pharmacy was any place the primary purpose of which was to sell medicines (could also be considered drug vendors). While a few of these facilities were run by certified health workers, the majority were not. They were considered pharmacies and not private clinics if they did not include a separate room where examinations were performed.
- **Allopathic Care:** An allopathic provider was considered to be any provider whose primary purpose was to practice allopathic medicine (ie. evidence-based medicine or biomedicine). This includes private providers, community-based health workers, government provider and any other providers, community or facility-based, whose practices were rooted in allopathic/biomedicine.
    - **Private Provider/Clinic:** A private provider was considered to be any non-governmental or non-public provider whose practice was rooted in biomedicine. To differentiate between a pharmacy and a private provider, the following three distinctions were made: the primary purpose of a private provider was to examine patients and then offer treatments (not sell drugs), as a result the facility needed to have a separate exam room where patients were seen, and the provider needed to have undergone some formal certification process to be trained to perform allopathic duties. These could include NGO facilities or individuals who established their own clinics.
    - **Government Provider/Facility:** A government provider was considered to be any allopathic provider or facility that was maintained by the government. At the primary care level this includes FCHVs, ORCs, SHPs, HPs and PHCC. At the secondary and tertiary care level this includes District Hospitals, Regional Hospitals and Zonal Hospitals (for more details on the specific government providers and services see **Appendix 2.3**).
    - **Public Provider:** A public provider was considered to be any allopathic provider who did not fit one of the two aforementioned categories. This includes public or community hospitals which are not maintained primarily by the government, but may have a public/government branch associated with them.
- **Other:** Other providers included any provider who did not fit into one of the aforementioned categories. These could include Ayurvedic doctors (Bidhya or Kabiraj), nutritionists, bone doctors or other homeopathic practitioners.

** Before data collection was initiated these definitions and their Nepali translations were made very clear to each of the researchers participating in the data collection process so that they were standardised from one survey to the next. In each individual VDC, before data collection was initiated, the study team sat down and decided collectively how each of the different facilities in that VDC and neighbouring VDCs was to be categorised to further ensure consistency. (These definitions were based on the definitions of different provider used by the MoHP).

Overview of Data Analysis Procedure & Multivariate Model-Building for Objective 2a

The following steps were followed leading up the construction of the final multivariate models. The approach to analysis and model-building was predicated on the methods employed in other studies (Niraula, 1994, Subedi, 1989, Charles et al., 2008), and followed the steps as outlined by Rothmann (2002), Hills and De Stavola (2003), Pampel (2000) and Hosmer and Lemeshow (2000). This approach was selected given the number of variables under investigation, and given the fact that it was deemed most appropriate in consultation with several statisticians based on the overall research objectives. The following general steps were followed in the construction process[22]:

1) Examined distributions of each dependent and independent/exposure variable of interest and determined any transformations required. (For the delay times a square root transformation was used).

2) Examined the relationship between each potential independent variable/confounder and each outcome using Pearson's correlations coefficients (Starting with all of the potential variables of interest gleaned from the literature[23]). Assessed each group of variables for multicollinearity using Variance Inflation Factors (VAF)[24] (Allison, 1999; Hosmer & Lemeshow, 2000).

3) Built preliminary regression models including only those variables that were found to be significant in step 2 (excluding those with significant multicollinearity). Individual linear and logistical regression models were run for each set of potential explanatory variables separately-- patient demographics, household demographics, ward-level factors, knowledge variables, health facility characteristics and illness characteristics – and all of the potential outcomes of interest. A total of 230 preliminary regressions were run (**Appendix 7.2**).

4) Examined the relationship between each potential independent variable which was found to be significant in step 3 and each outcome variable of interest using chi-squared tests and chi-squared tests for trends (when the IV was ordinal) for

[22]There were too few cases overall to perform multi-level regressions (Gorard, 2003)
[23]For a detailed overview of the variables selected and the reasons for their selection see the next section and **Appendix 3.12.**
[24]"VAF quantifies the severity of multicollinearity in an ordinary least squares analysis. It provides an index that measures how much the variance (the square of the estimate's standard deviation)of an estimated regression coefficient is increased because of collinearity". (From: http://en.wikipedia.org/wiki/Variance_inflation_factor)

the binary outcome variables (Altman, 1999). [For logistical purposes, the number of outcomes investigated was paired down from previous step to include only initial provider selections, providers utilised at least once, location of providers utilised and number of providers utilised].

5) Built each final model in a forward entry, step-wise fashion (SPSS Inc., 2010) with each potential variable from step 4. Fifteen final explanatory variables were included and entered in a forward entry process in accordance with the theoretical model, starting with patient-level factors and ending with knowledge variables. With each variable entered, I assessed the impact on the overall model, and evaluated the contribution of the exposure variables and categories of exposure variables to the overall model's R-squared statistic. A total of 23 final models were run (although only 13 of these were examined as part of the results and discussion sections). In the final model, significance was considered to be a $p<0.05$ (although in the discussion section and summary boxes in Chapter 4 only those with $p<0.01$ were mentioned because of the sheer number of variables involved). [25]

Overview of Explanatory/Independent Variables for Final Models[26]:

From the set of 66 independent variables which were examined in the preliminary models, the list was paired down even further to include only those 11 variables which were most plausible and significant in a number of the preliminary models and four composite indices (created using Factor Analysis, see **Appendix 3.13** for how they were created), which were created in part because of high levels of multicollinearity amongst the different factors that comprised them and in part because it was felt that they would offer a more useful metric when combined into a single index (some of these composite indices were also examined as part of the preliminary models) (table 3.1). A total of fifteen were included in the final models. Several of the variables -- caste, occupation, education and illness type --were recoded into fewer categories after the preliminary models in order to simplify the analyses and increase the number

[25] Given the fact that preliminary regression models were run and given the fact that the final model was constructed in a step-wise fashion, a decision was made not to run uni-variate analyses or bivariate analyses for each of the final variables independently.

[26] For a detailed overview on how the preliminary models were created, please see **Appendix 3.12**

of cases in each category. An attempt was made to include those variables which were found to be significant in a number of the preliminary models (at least one variable from each of the different categories). Patient subjective ratings of severity were selected over other severity ratings because in the preliminary models it was found that all the different severity ratings were highly correlated and we decided, based on other studies, that patient assessments of their own illnesses were more likely to dictate their behaviours than a doctor's ratings or objective severity ratings.

TABLE 3.1

Overview of the explanatory variables included in the final models entered in a forward step-wise fashion according to the columns, starting with predisposing factors , moving to enabling factors and then need factors and finally knowledge variables (according to Andersen's model).

Predisposing Factors (8 variables)	**Enabling Factors** (4 variables)	**Need Factors** (2 variables)	**Knowledge Variables** (1 variable)
(1) Patient Gender	(9) HF Quality Composite✝	(13) Illness Type (ICD Code)⊗	(15) Knowledge Composite Index✝
(2) Patient Age❖	(10) HF Distance❖	(14) Illness Severity: Pt. Rating	
(3) Education of HH Head⊗	(11) HF Type		
(4) Occupation of HH⊗	(12) HF Subjective Quality Rating⊗		
(5) HH Wealth Quintile✝			
(6) Number of Children 1-5 y.o			
(7) Caste⊗			
(8) Ward-Level Infrastructure□			

❖= continuous; ✝=composite index created using PCA; ⊗=recoded variable (recoded into fewer categories than were used in preliminary models)

The following is a more detailed list of all of the exposure variables, with the details on how they were coded (those in red are composite indices). This list also

follows the order in which they were entered into the final models, starting with the predisposing factors and ending with knowledge:

Predisposing Factors: 8 variables

a. **Individual/Patient Level Factors**
   i. **Patient Gender**: binary (M/F)
   ii. **Patient Age**: continuous

b. **HH Level Factors**
   i. **Education of HH Head**: categorical (0 = none; 1=primary (class 1-5 and class 6-8); 2= secondary+ (class 9-10, +2, University))
   ii. **Occupation of HH:** categorical (1=subsistence farmer; 2=commercial farmer; 3=unskilled labourer; 4=skilled labourer; 5=professional worker)
   iii. **Wealth Quintile:** categorical, created using PCA (1 =poorest; 5=wealthiest)
   iv. **Number of Children in HH:** continuous
   v. **Caste:** categorical (1=Brahmin/Chhetri; 2=Tamang/Magar; 3=Chepang/Biswokarma/Other Dalit; 4=Newar)

c. **Ward Level Factors**
   i. **Ward Level Index:** categorical, created using PCA (1=low ward infrastructure; 2=medium ward infrastructure; 3=high ward infrastructure)

Enabling Factors: 4 variables

a. **HF Factors**
   i. **HF Quality Composite:** categorical, created using PCA (1=poor HF quality; 2=fair HF quality; 3=good HF quality)
   ii. **HF Distance to nearest facility (km):**continuous
   iii. **HF Type:** categorical (1=SHP; 2=HP; 3=PHCC)
   iv. **HF Subjective Quality Rating:** categorical (1=poor; 2=fair; 3=good; 4=very good; 5=excellent)

Need Factors: 2 variables

d. **Illness Factors**
   i. **Illness Type (ICD code):** categorical (1=A00-B99; 2=J00-J99; 3=all other diagnoses)[27]
   ii. **Illness Severity:** categorical (1=not at all severe; 2=somewhat severe; 3=very severe; 4=life-threatening)

Knowledge Factors: 1 variable

e. **Knowledge Factors**
   i. **Knowledge Composite Score**– categorical, created using PCA (1=low knowledge; 2=medium knowledge; 3= high knowledge)

[27] A00-B99 = infectious and parasitic diseases; J00-J99 = respiratory diseases

Overview of Outcome Variables for Final Models:[28]

From the 37 outcome variables examined in the preliminary models (**Appendix 3.14**), only 16 were selected for the final models. Most of the order of care models (C models) had to be excluded (with the exception of those which dealt with initial provider choice) because there were too few cases to run them. Those which included 'other' sources of care were also excluded because they contained too few cases. Those models which dealt specifically with modalities of care (D models) were paired down to exclude any of the comparisons between allopathic and TH, allopathic and pharmacy and TH and pharmacy, because it was determined that these did not provide any additional useful information which was not already being captured elsewhere (a summary of these results are included in **Appendix 7.7**). The delay of care models (B models) were reduced to three (excluding model B.4) because it was also determined that this model did not provide any additional information. The number of provider model (E model) and location of care models (F models) were all included. Finally, one additional model was added – whether or not allopathic care was ever used -- because it was determined to be a critical outcome of this study.

[28]Before reading this section, please take a look at **Appendix 3.12** for an overview of the outcome variables used

Overview of Outcome Variables for Final Models:

Delay to Outside Care [B.1]
Delay to Allopathic Care [B.2]
Delay between First and Second Outside Providers [B.3]

Home Care First [C.1]
Allopathic First [C.2]
TH First [C.3]
Pharmacy Care First [C.4]
Allopathic/Pharmacy Care Last [C.5]

No Care vs. Some Care [D.1]
Home Care Only vs. Outside Care [D.2]
Private vs. Government (first) [D.3]
FCHV vs. Governmental Facility (first) [D.4]
Allopathic ever [D.5]

One vs. More than One Provider Used [E.1]

Same VDC vs. Other VDC [F.1]
Same Ward vs. Other Ward [F.2]

On the next page is a decision model which illustrates each of the different outcomes of interest as a set of decision-making steps a household has to make (figure 3.7).

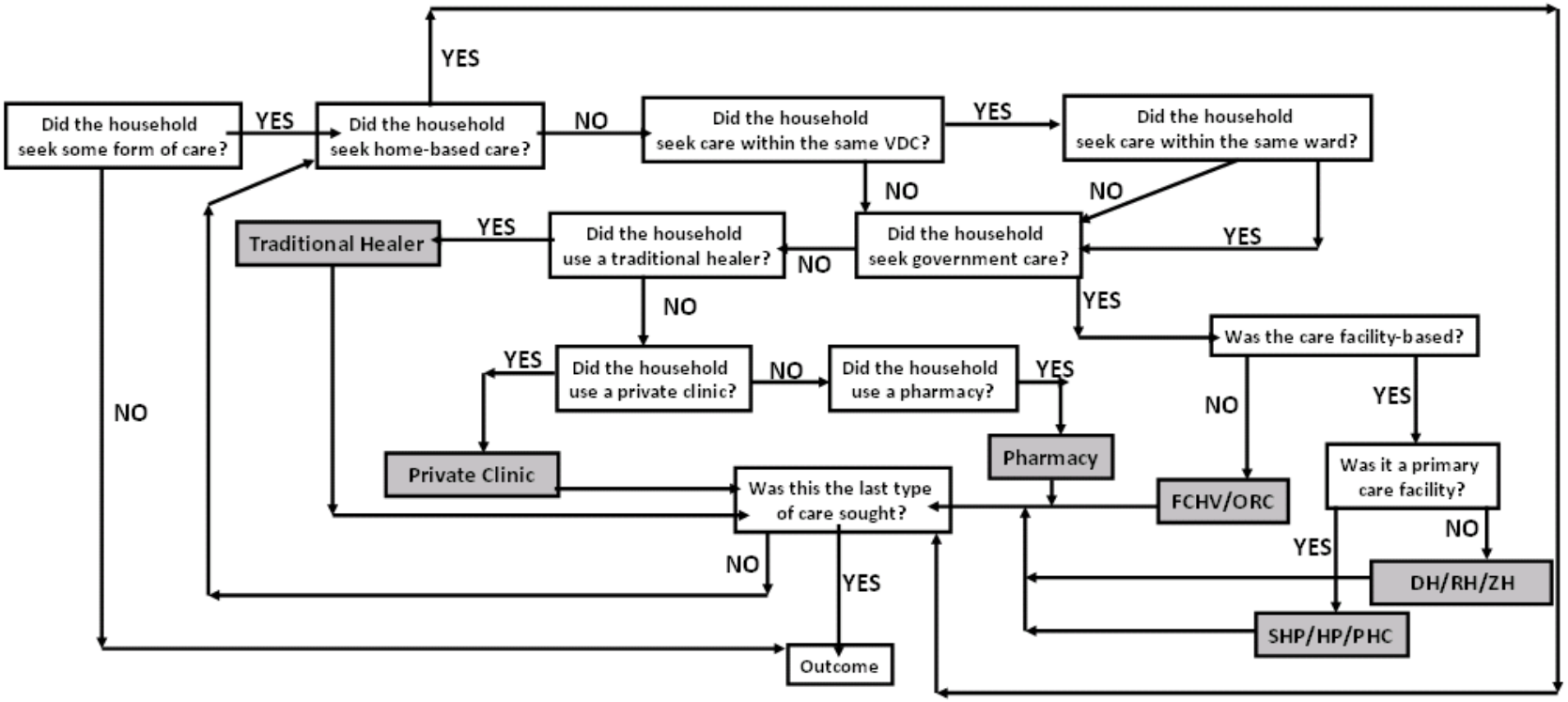


Figure 3.7 A decision matrix for HSBs in Makwanpur. This diagram illustrates each of the distinct decisions a household must make in their care seeking process. An attempt was made to capture as many of these decisions as possible in the regression models.

Assessing Exposure & Outcome Associations:

Before running the final models I conducted a series of preliminary chi-squared analyses examining the relationship between each of the selected explanatory variables (IVs) and most of the potential outcome variables (DVs) to determine if there were statistically significant difference amongst each of the characteristics (for example Wealth quintiles) in terms of care-seeking decisions. In case of an ordinal IV, a chi-squared test for trend was used (Altman, 1999). These results are presented in **Appendix 7.1**.

Outline of Approach to Final Model-Building for Logistical and Linear Regression Models:

For the final logistical regression models (those that involved a binary outcome) the approach to model building as outlined by Hosmer and Lemeshow (2000) was roughly followed (although I also adopted some of the strategies outlined by Hills and De Stavola (2003) and Rothmann (2002; p194-196) as well). Initially multicollinearity among the different explanatory variable was investigated using variance inflation factors (VIFs). Since all of the VIFs for each of the final models were less than 2.5 a decision was made to include all of them in the final models (**Appendix 3.14**). Interaction terms were examined for one of the models (C.3), but a decision was made not to include them because it was felt that they were not plausible (**Appendix 3.15**). The final logistical regression was carried out in a forward stepwise manner. The explanatory variables were entered in an a priori order, reflecting the move from individual patient, household and community level variables, through health facility variables, through illness variables and finally through knowledge variables (based on the theoretical model created for this research). A total of 13 logistical regression models were run.

For the final linear regression models, a similar approach was followed as for the logistical regressions (Hills & De Stavola, 2003; Hosmer & Lemeshow, 2000; Rothmann, 2002). First each of the independent delay variables were examined to determine if they were normally distributed using a histogram. Given that all of the data for all three of the B models was positively skewed a one-sample Kolmogorov-Smirnov Z test was run to determine which transformation to use. The transformation with the lowest chi-squared value was selected, which happened to be a square root transformation for all three models (UCLA, 2011; **Appendix 7.3**). A constant term of 0.5 was also added to the IV to ensure that all variables had positive values (McDonald, 2009). Multicollinearity among the different explanatory variable was investigated using variance inflation factors (VIFs). Since all of the VIFs for each of the final models were less than 10 a decision was made to include all of them in the final models (**Appendix 3.14**). The final linear regression was carried out in a forward stepwise manner. The explanatory variables were entered in an a priori order, reflecting the move from individual patient, household and community level variables, through health facility variables, through illness variables and finally through knowledge variables (based on the theoretical model created for this research). If the IV was categorical, a dummy variable was created and this was plugged into the final model with the first dummy category as a reference. A Breusch-Pagan test was also run to determine if there was heteroskedasticity. All data and R-squared values were back-transformed before interpretation. A total of three linear regression models were run.

Summary of Quantitative Data Analysis:

1) For objectives 1a, 1b, 3a and 3b ran descriptive statistics and chi-squared tests
2) For objective 2a ran forward, stepwise logistic (13 total) and linear (3 total) regression models as follows:
    a. Ran Pearson's correlations for all potential IVs of interest (66)
    b. Determined any multicollinearity among IVs
    c. Ran a series of 230 preliminary regression analyses broken down by different categories of IVs: patient variables, household variables, community variables, health facility variables, illness variables and knowledge variables (only include those IVs that made it through a & b above) [Models B.1*-F.2*]
    d. Paired the list of IVs down to 15 variables of interest (including some composite indices created using PCA)
    e. Paired the list of DVs down to 16 of interest
    f. Ran chi-squared tests
    g. Determined any multicollinearity among new IVs
    h. Ran a series of 13 logistic and 3 linear final regression models (transforming any DVs that needed to be transformed) [Models B.1-F.2]
    i. Analysed all significant results ($p<o.o5$) from block 15 of the models (unless block 15 was not significant in the linear regression models)

* indicates a preliminary models rather than a final model

3.4 *Qualitative Study Methodology*

The qualitative component of this study was carried out after the quantitative data had already been analysed. The qualitative data was intended to build on and expand upon the findings from the quantitative results as well as provide a very different way of looking at the same types of decisions. A decision was made to use individual household interviews rather than FDGs (although FDGs were piloted), because we wanted to understand how individual households made decisions about their own illnesses and the role that they felt the larger social sphere played in their own decision processes. We did not want the rationalisation of these decisions to be influenced by 'group-think' or by the responses of others. These also lined up nicely with the household surveys. So, while FDGs would have loaned another interesting dynamic and perspective to the social aspects of health decision-making, and should be considered for future research, a decision was ultimately made to exclude the FDGs from this research so as not to add yet another complicated dimension.

This section provides an overview of how the qualitative data was collected and analysed.

3.4a Theoretical Approach

Although there are many different theoretical frameworks by which you can approach qualitative research, this particular study used an interpretivistic epistemological framework or an interpretive perspective, which asserts that the social world and the researcher dialectically impact one another, that the process of collection and interpretation of qualitative data is subjective, and therefore the findings are inevitably shaped by the values and perspectives of the researcher (Coffey, Hollbrook & Atkinson, 1996; Ritchie

&Lewis, 2003; Willis, 2007). I was aware of this throughout the data collection process and tried to remain as objective as possible. I also encouraged my interviewers (RAs) to be aware of how they might influence the interviews and responses (van Teijlingen et al., 2011).

The qualitative data, however, was not considered a stand-alone piece of work. It was intended to be used as part of an enhancement model, to add something to the quantitative findings in order to both enable a more sophisticated understanding of the various aspects of the HSB decision and to explain some of the findings (especially the unexpected findings) from the quantitative research (Bryman, 2006; Creswell & Clark, 2010; Green, Caracelli& Grapham, 1989; Johnson & Onwuegbuzie, 2004). This research used the qualitative data to really understand the "whys" of the HSB decision-making process and to understand the explicit and conscious factors that govern these decisions. In addition, the qualitative data was intended to explore the broader role of culture, interpersonal relationships and individual psychologies on these decisions because it was determined that these were not sufficiently captured with the quantitative data. An attempt was made throughout the research process to ensure that it was truly mixed and integrated with the quantitative study – from the research questions up through the analysis -- rather than simply being a parallel study on HSBs using qualitative data (Yin, 2006). The study followed an explanatory sequential design.

3.4b Sampling Method

The sampling method, like the quantitative sampling, also involved a two-tiered selection process, although it was purposive rather than random.

Sample VDCs:

Unlike the quantitative data, which relied on random sampling methods to ensure representativeness of the sample (including the random selection of VDCs), the qualitative VDCs were selected purposively with the intent of maximising variability through "theoretical sampling" methods (Fitzpatrick & Boulton, 1994; Strauss, 1987). Since it was known from the quantitative results that both the nearest government facility type and the level of development of the area played a role in influencing HSBs, it was decided we would select one VDC with each of the government health centre types – SHP, HP, PHCC – and that those would be selected within each of the different regions within the district, and represent different levels of development. It was also decided that these VDCs would be different from the ones used for the quantitative surveys for fear that people would tire of being asked similar questions again if we re-approached the households in the quantitative VDCs. It was also decided that they should all be VDCs where no other programs or research projects were being run at the time. As a result of these criteria, the VDCs were narrowed down significantly. Since we had pre-piloted and piloted the data collection process in the other VDCs with PHCCs, the decision was made to select the remaining one, Chhattiwan, for this study. Since all of the HPs had been included in the quantitative sample except Dandarkharka, a decision was made to use this VDC. Finally,Budhichaur was selected because it was slightly less remote than Dandarkharka, but slightly more so than Chhattiwan, it had a SHP and was in the central area of the district[29].

[29]For a moredetailed overview of the qualitative VDCs see **Appendix 3.16**

Sample Households:

While the VDCs were selected to achieve as much variability as possible, so too were the households for interviews selected with the idea of "theoretical sampling". Since the quantitative results revealed that a whole host of patient, household SES and illness factors could influence care choices, we wanted to maximize the diversity of households selected for interviews (Fitzpatrick & Boulton, 1994; Strauss, 1987). With that in mind, a decision was made to select about 30 households per VDC. Because the results were not being analysed throughout the data collection process to determine when data saturation was achieved, it was decided that a total of 90 interviews would be sufficient to more than capture the diversity of opinions and psychologies. A decision was also made to find 10 of those households in the ward closest to the health facility, ten in the ward farthest from the health facility and 10 in one or two wards in between (because distance might make a difference in decision-making). Once the wards were decided on, key informant interviews were conducted with some of the VDC council members, health workers or shop owners to identify households who had experienced illnesses within the last month. These were the starting points of the interviews. From there, a combination of snowball sampling and convenience sampling were used to select additional households. Each household interviewed was asked if they knew of another household we could interview, and if they did not, the interviewer selected another household a sufficient distance away from the initial one and continued to knock on doors until suitable cases were found. All illness types and severities were included (just like in the quantitative sample), and a period of one month prior to the interview was used. An attempt was made to increase diversity in the household, patient and illness factors of the households selected for interviews (the health

facility factors were taken care of by the selection of VDCs and wards to draw the samples from).

3.4c Interview Schedule Creation & Content[30]

The interview schedule construction involved an iterative process over the course of two months. The initial sets of questions and topics were based on the results obtained from the household surveys, and attempted to explore in further detail some of the more subjective experiences that guide individuals in making sense of their health problems and seeking care for them (Britten, 1995). Relevant literature on HSBs, health beliefs, illness narratives and health decision- making was also used to guide the initial question and topic creation (Bauman, 1992; Braun & Clarke, 2008; Britten; 1996; Craig et al., 2010; Coyle & Williams, 2000; Lobstein, Baur & Uauy, 2004; Patel et al., 1995; Ptersens et al., 2011; Ziebland& McPherson, 2006). The revised MINI used in western Nepal served as a good starting point for the question and topic generation (Craig et al., 2010). A series of specific ethnographic studies on healing, Shamans and health beliefs were also consulted to lay the groundwork for the interview script (Desjarlais, 1992; Harper, 2003; Koirala, 2001; Korkt& Schreiber, 1999; Nicoletti, 2004; Peters, 1981; Pigg, 1966). It is important to note, though, that the questions were designed to build upon and enhance the quantitative results as well as fill in any holes that were missing from them (or deconstruct any processes that was too difficult to explore with the quantitative results -- for example, illness aetiology beliefs). Specifically, the interview schedule asked a series of open-ended questions in an attempt to get at people's health beliefs, attitudes, perceptions, the interpersonal and emotional processes that govern specific provider choices (Athula et al., 2001; Bauman, 1992;

[30] A copy of the full qualitative interview transcript and outline in English and Nepali can be found in **Appendix 3.20.**

Caldwell, Reddy & Caldwell, 1983; Kart et al., 2007; Kleinmann, Eiseberg & Good, 1978; Kleinman, 1980; Landrine & Klonoff, 1994; Lloyd et al., 1998; Mass-Morris et al., 2002; Petersen et al., 2011; Shaw et al., 2008; Stapleton, 1989; Weinmann et al., 1996; Weinman, Petrie & Mass-Morris, 1996; Weiss, 1997). Like the study on cultural health attributions in Latinos conducted by Murguia and colleagues (2000), an attempt was also made to ascertain how people's health beliefs were culturally constructed and informed (although in a less quantitative way). The interview guide was designed to touch on every step of the HSB process from illness perception to outcome, and was designed to focus more on the individual than on the entire households (although it important to understand the individual in the context of the household).

After the initial questions were laid out, a group of Nepali health researchers, students (including the study RAs) and anthropologists was convened to review the questions, ensure they addressed the topics of interest and were culturally appropriate. During this meeting, all questions were initially translated into Nepali using the translation monitoring form used for the survey data, and all questions were grouped into categories (Van Ommeren et al., 1999). Given that the questions were designed to be flexible and more open-ended than the survey questions, a rigid translation was not necessary, and an attempt was made to engage the study RAs in the translation and modification process as much as possible to ensure they understood the general idea behind each question and the ways in which it could be adapted on the spot. Rather than drawing out a fixed interview transcript, the topics were grouped into an interview topic guide with corresponding prompts and questions for each topic, which were there as guidance.

Once the draft of the topic guide had been generated, it was tested amongst my RAs before a pilot of the guide was done with households in Manahari VDC in Makwanpur. After the pilot stage a few more modifications were made to the order of the topics and the length of the guide (which was cut in half). The process of reflexivity and adaptation of the interview guide continued throughout the data collection process as the RAs became more familiar with the topic guides.

To ensure true integration of methods, an attempt was also made to ensure that the constructs and concepts from the qualitative instrument corresponded with some of the constructs and concepts from the quantitative instrument like so:

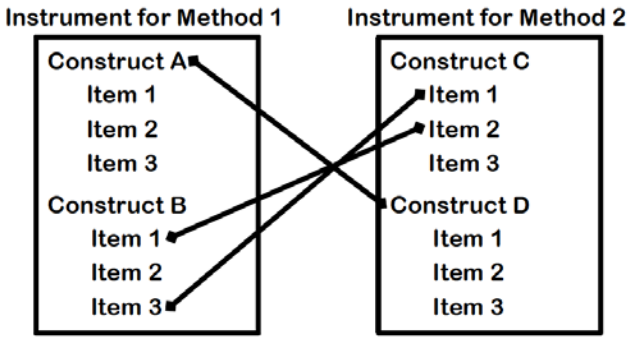


Figure 3.8 How to ensure that instruments from a mixed methods study reinforce one another rather than work in isolation [from: Yin, 2006]

Box 3.2:
Qualitative Interview Topic Guide Outline

Section 1: Demographics

Section 2: Initial Illness Narrative***

- Understand how people narrate their illnesses and what general knowledge they have of them
- Understand how people think about and conceptualise their illnesses in their own words
- Understand what people initially value or find important when discussing their illnesses or illness episodes

Section 3: Explanatory Models***

- Understand the cultural significance of certain diseases and illnesses, illness aetiology beliefs and pathways people use for seeking care
- Elucidate people's understanding of the physiological, natural, supernatural, psychological and biological causes of illness and their understanding of general pathophysiology

Section 4: Medical Attention and Response to Treatment

- Highlight utilisation of the various health facilities, treatment pathways and experiences for a single episode (treatment narrative)
- Explore the functioning of various health services and people's personal interactions with different facilities and their satisfaction with services
- Explore why people make the specific choices of providers that they make and who they consult in these decisions. Get at people's reasons for their medical choices**

Section 5: Previous Illness Experience/s

- Determine if the person has learned from or benefitted from previous illness experiences
- Determine if these previous experiences have influenced their current and future health-seeking processes (both for specific illness and or a specific provider)**

Section 6: Future Illness

- Determine their future treatment plans and expectations of the health services
- Indirectly measure their satisfaction with their health-seeking decisions for this specific episode

Section 7: Health Beliefs, Expectations and Decision-Making Processes

- Understand peoples' expectations and beliefs regarding providers and government services, and whether or not these expectations are being met by the services available*
- Determine how people measure quality in their health services/providers
- Determine the conscious factors that go into people's general health decision-making processes and choices (when asked hypothetically)**
- Determine the extent to which people feel changes should be made to their available health services and providers

* These areas were analysed in order to inform objective 1a results
** These areas were the focus of the analysis for objective 2b
***These areas were not analysed in the body of the text, but are touched on in more detail in **Appendix 3.17**.

3.4d Logistics of Fieldwork:
Data Collection & Interviewing Process

The data collection was carried out by five interviewers[31] over the month of November 2012. Ten days were spent in each of the three VDCs and a total of 90 interviews were completed (3o in each as originally planned) along with informal interviews at each of the health facilities and VDC offices to obtain background data. The household interviews took between 40 minutes to an hour and fifteen minutes including an informed consenting procedure which was similar to the one used for the quantitative study. All interviews were recorded and all interviewers kept field notes of emerging themes and concepts in Nepali throughout the interview process (as well as any personal notes on the overall interview itself and any problems they had). Afterwards all interviews were summarised by the interviewer in English to provide an overview of the pathway followed and some the key emerging themes (as they saw them). All interviews were also transcribed verbatim in Nepali at the end of each day. Before leaving each VDC, the interviewers sat down as a group and generated a list of some of the key themes as they saw them from their different interviews. All of the recordings, Nepali transcriptions, individual interview summaries and group summaries were given to me at the conclusion of the month.

[31]For details on the interviewers and their training process see **Appendix 3.18**

3.4e Data Processing & Analysis

All interviews were recorded by the interviewers and transcribed verbatim by each of them on a daily basis (in Nepali). All transcriptions were checked for accuracy by two colleagues in Kathmandu. All transcription were then translated verbatim by two translators with extensive prior translation experience, abiding once again by van Ommeren and colleagues (1999) translation methods. The translators met to discuss any uncertain terminology and to ensure consistency across the translations. Any time a word did not have an exact translation into English it was documented in a spread-sheet and the closest approximation was used. After each of the translations were completed, I discussed them with my research team and read them through several times to familiarise myself with the data. Analyses were performed over the course of several months using NVivo8 software and MS Word v.14.0 (2010).

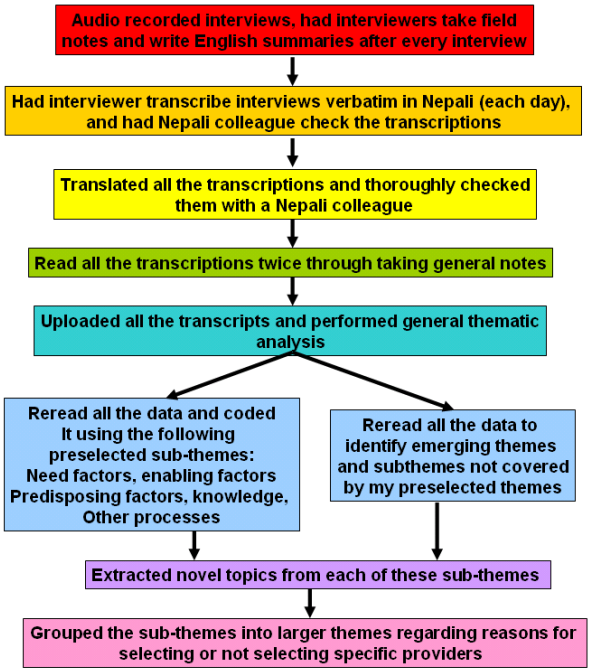


Figure 3.9 Flowchart which provides an overview of data analysis activities for the qualitative component of this study

Data Analysis:

Analysis of the data from the piloting phase allowed me to refine my research questions and pursue emerging themes of relevance. Unfortunately, because I was not present for the final data collection, however, I was not able to use sequential analysis techniques and was not able to ensure data saturation was achieved (although it was assumed that 90 interviews would be more than enough to capture the diversity of responses and the interviewers were also taught to watch out for data saturation).

A thematic analysis was performed on all of the data as described by Taylor-Powell & Renner (2003). This involved both coding down using anticipated themes from the quantitative results to guide the analysis and coding up, using inductive coding to identify emerging topics (Taylor-Powell & Renner, 2003; Keenan, van Teijlingen & Pitchforth, 2005). The following general steps were followed in the analysis process:

1) Getting to the know the data through a process of reading and re-reading
2) Focusing the analysis using the original research objectives and some of the concepts which emerged from the quantitative data
3) Categorising information using the existing themes from the quantitative data and theoretical framework, identifying new topics within those themes and organising them into coherent categories (using mostly preset categories)
4) Identifying patterns and connections within and between these categories and the topics contained within them
5) Interpreting everything by bringing the qualitative results back to bear on the theoretical model and on the quantitative results

In order to identify emergent topics, a modified version of the One Sheet of Paper (OSOP) method was employed (Ziebland & McPherson, 2006). This method involves keeping track in a single document all of the issues that are raised in the coded transcripts along with

participant information. This method of coding can allow for exploration of both convergent and divergent opinions, and has been used successfully in other qualitative research studies (Chapple & Ziebland, 2004a; 2004b; Cooper et al., 2008; Khan et al., 2012; Vanden Bussche et al., 2010; Williams, 2013).

I produced OSOPs for the major themes identified for objective 2b as *Internal factors effecting choice of TH, choice of home care, choice of pharmacy care, choice of private provider and choice of allopathic providers* and *External factors effecting choice of TH, choice of home care, choice of pharmacy care, choice of private provider and choice of allopathic providers* which were further broken down into reasons for using and not using each of the specific provider options. These overarching themes had already been selected based on the literature and quantitative results. This technique was then used to explore and organise further sub-themes: psychological processes, social processes, cultural processes, enabling factors, need factors and predisposing factors (all of which came from the original theoretical model). Within each of these sub-themes, important topics were also then identified – some of these topics emerged newly from the qualitative data – such as the importance of financial factors -- and some were picked up on because they had emerged from the quantitative data as being important, but necessitating an explanation – such as the role of gender in allopathic care seeking. An attempt was made to account for all different views, although the data was not analysed to ascertain what specific demographic factors may have contributed to these differing views (that is the purview of a future study).

For the qualitative results, which were analysed as part of objective 1a, the same process was followed for the analysis although the pre-set themes were each of the different aspects of quality of health services rather than the reasons for care choices.

For details on how data quality was ensured for the qualitative data see **Appendix 3.19**.

Table 3.2 An Overview of the specific research questions and methodologies used to address them

Research Objectives	Research Questions	Data Collection Methods Used to Address this Objective
OBJECTIVE 1a: Describe the Predisposing, Enabling and Need Factors Which May Govern HSBs	▪ What are the illnesses that effect people in this context? ▪ What are the demographic characteristics of those individuals and households and communities experiencing illnesses? ▪ Are there any SES factors associated with greater likelihood of getting sick? ▪ How severe are the illnesses households experience? ▪ How accessible, affordable, available, good and clean are government health services in this area? What is the quality of the government healthcare system available to people in this area?	▪ Household surveys in 10 VDCs in Makwanpur (n = 2,336) ▪ Semi-structure interviews with staff at each level of the healthcare system (n=100) ▪ Qualitative interviews with households in 3 VDCs in Makwanpur about their perceptions of the government system (n=90) ▪ Review of health registers from each of health centres for month prior to survey data collection
OBJECTIVE 1b: Describe Households' Health Pathways	▪ What do households do first for treatment when they perceive an illness? ▪ What modalities of care (specific care providers) do households use to treat their illnesses? ▪ What care sequences do households go through in their treatment-seeking? ▪ How do households transition between different providers? ▪ How many different providers do households use in their care pathways?	▪ Household surveys in 10 VDCs in Makwanpur (n = 2,336) ▪ Descriptive analyses of choice of care data from household surveys using methods employed by Ryan (1998).
OBJECTIVE 2a: Quantify the Relationship between Objective Factors and Care Decisions Using Quantitative Methods	▪ What are the individual, household, community- level socio-demographic factors that determine where and from whom people seek care and how long they delay before seeking it? ▪ What are the objective health service factors that determine where and from whom people seek care and how long they delay before seeking it? ▪ What are the illness factors that determine where and from whom people seek care and how long they delay before seeking it? ▪ What are the knowledge variables that determine where and from whom people seek care and how long they delay before seeking it? ▪ What are the magnitudes and directions of each of the aforementioned relationships? ▪ When examined collectively, which categories of factors have the greatest effect on where and from whom people seek care and how long they delay before seeking it?	▪ Household surveys in 10 VDCs in Makwanpur (n = 2,336) ▪ Preliminary chi-squared analyses of relationship between objective factors and choice of care an delay data from household surveys ▪ Preliminary regression models of relationships between potential objective factors and choice of care and delay data from household surveys ▪ Final step-wise regression models with some of the significant variables from the preliminary models and chi-squared analyses using methodology of Niraula (1994), Subedi (1989), Charles et al. (2008), Rothman (2003) and Hills & De Stavola (2003)

Research Objectives	Research Questions	Data Collection Methods Used to Address this Objective
OBJECTIVE 2b: Examine Relationship between Objective Factors, Subjective Processes and Care Decisions Using Qualitative Methods	▪ When explicitly asked, what factors do households consider most important in their selection of care options for treatment of their illnesses? ▪ How do peoples' individual psychological processes – ie. attitudes, beliefs, perceptions, cognition and emotions – influence people's selection of specific care providers to treat their illnesses? ▪ How do social/interpersonal processes influence people's selection of specific care providers to treat their illnesses? ▪ How do cultural processes – ie. Norms, traditions and values – influence people's selection of specific care providers to treat their illnesses? ▪ What factors are most important in determining hypothetical care choices in response to illness?	▪ Qualitative interviews with people in 3 VDCs in Makwanpur (n=90) ▪ Thematic analysis of qualitative results using an enhancement model and the following pre-coded categories: predisposing factors, enabling factors, need factors, psychological processes, social processes, cultural processes. Used methodology employed by Craig et al., (2010), Britten (1996), Lobstein, Baur & Uauy (2004), Ziebland &McPherson (2006), Bauman (1992), Petersens et al. (2011), Coyle & Williams (2000) and Braun & Clarke (2008).

Chapter 4:
An Overview of the Study Sample

This chapter provides an overview of the household demographics for both the surveyed households (section 4.1) and the qualitative interviewed households (section 4.2).

4.1 *Overview of Quantitative Data*

This section offers an overview of the type and amount of data collected and assesses overall study participation rates.

Overall, an attempt was made to reduce non-response rates in the survey sample. Of the 2,438 households approached to be surveyed in the 10 selected VDCs, seventy-three households (3%) were vacant and could not be re-approached, thirteen households (0.5%) refused participation and 18 households (0.7%) could not be interviewed for other reasons[1]. A total of 2,334 complete household surveys were conducted, the equivalent of 27% of the 8,631 households in the sample VDCs. Surveys were conducted in all nine wards of each VDC (n=90 wards) and in 295 out of 302 toles[2] of those wards. Data was not collected from seven toles (2%) because these toles were either too small to warrant surveying (one to three households) or were unable to be approached during the data collection period because there was a festival taking place and nobody was at home during the day. **Appendix 3.6** contains a VDC-wise breakdown of the

[1] The reasons for not interviewing these particular households varied. Some of the households only contained very old or very young respondents incapable of adequately responding to questions, whereas in several other households the primary respondent was mentally handicapped, mentally ill or deaf/dumb and could not be interviewed. In other households interviews were not taken because a death had recently occurred in the family and it would have been deemed insensitive to conduct the interview even if the respondents did not refuse participation.

[2] A tole is the equivalent of a neighbourhood in rural Nepal. Each ward is further subdivided into individual toles ranging in number from 1 to 10 per ward. The toles also vary in terms of the household numbers they contain. The smallest toles are comprised of only one household, while the largest are comprised of 100 households.

percentages of total households in each ward which were surveyed. Since the sample numbers were not weighted according to the size of the VDC[3], in some VDCs only a small percentage of the overall houses were sampled, whereas in other VDCs over half of the households were surveyed. The largest VDC in the sample was Churiyamai with 2,488 total households. In this VDC only 9% of the total households were surveyed. Conversely, the smallest VDC in the sample was Manthali with 426 total households. Fifty-four percent of households in this VDC were surveyed.

To enhance the household survey data, which focused solely on demand side factors, additional interviews were conducted with health providers and other key informants on the supply side of the care equation. These enabled a more multi-faceted understanding of care options in this context and helped to contextualize the household surveys. More specifically, key informant interviews were conducted with VDC office members in each of the ten VDCs, with 80 of the 90 FCHVs in those VDC, with 18 traditional healers in six VDCs, with 17 private pharmacists/care facilities and with 19 government care facilities being used by people in the sample VDCs. Finally, 90 semi-structured qualitative interviews were carried out with households in three other VDCs (not included in the ten surveyed VDCs) to provide the numerical survey data with a complementary narrative and to enhance understanding of household health decisions.

[3] See section 3.3 for the way in which the sample was obtained

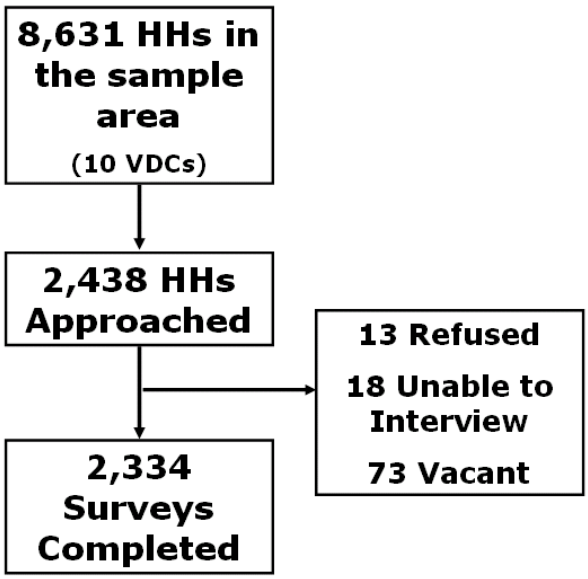


Figure 4.1 Schematic overview of study enrolment. HH = households

4.1a Overview of Study Sample

This section offers an overview of the characteristics of the households and VDCs included in the survey, and assesses the sample's representativeness as compared to the overall population of Makwanpur district. The demographic characteristics of the surveyed households are outlined and compared below.

Characteristics of Surveyed Households:

The goal of the random sampling methods employed was to achieve a sample which was representative of Makwanpur district in its totality. As can be seen from table 4.1, however, there are some differences in terms of household demographics of the sample and the household demographics of Makwanpur district as obtained from the VDC profile, but overall the sample provides a good

representation of the rural and peri-urban VDCs in the district and for the Central Development region[4] more broadly.

Household Demographics:

Let's begin by looking at the gender composition of the households. In the sample, thirteen percent of the surveyed households were female-headed, which is a slightly greater number than the number of female-headed households in the totality of Makwanpur district (10%), but slightly fewer than in the Central Development Region of Nepal (15.7%). The average household in the sample contained 50% female members, 50% male members. Thirty-nine percent of households contained fewer than 50% females while 1% contained only males. Conversely, 1.2% of households were exclusively female.

In terms of caste, the sample accurately reflects the caste composition of Makwanpur. Most of the surveyed households (59%) were from the Tamang caste, which is not surprising given that 48% of Makwanpur district is comprised of Tamangs, a much greater percentage than in the rest of Nepal.

Unlike caste data, which is readily available, data on household head demographics or educational attainment rates for Makwanpur are unavailable, so it is difficult to draw comparisons between the sample and the district in this regard. It is noticeable, though, that overall the educational attainment of household heads appears lower in the sample than for the Central Development Region generally. The average age of household heads in the sample was 49±15

[4]The Central Development Region is the larger geographical region in which Makwanpur district is located.

years (range: 15 - 88 years). The mean age for household heads in the Central Region is 45 years, which is consistent with the sample. The vast majority of household heads in the sample were uneducated (56%), slightly higher for female heads than males (66% vs. 54%). Forty-six percent of heads in the Central Region have never attended school, fewer than in the sample. Conversely, a little more than half of heads were literate, slightly higher than the literacy rates for household heads in the whole Central Region (44.2%). Very few heads had completed upper secondary school (2%) and almost none (0.5%) had started or completed University level studies.

Looking beyond the household heads and at the household composition in its entirety, the sample is roughly comparable to Makwanpur and the Central Region. The average household size for the sample was 5.8±2.4 members, which is slightly larger than the average household size of Makwanpur district generally. The households ranged in size from 1 to 20 members sharing a kitchen, with the largest household located in Sukaura VDC. The average crowding index[5] was 2.6±1.6 members per room and ranged from one to twelve members sharing a given room.

In terms of the age of household members, they also reflect the overall population composition of Makwanpur pretty accurately. For the household in its entirety, the average age of all of the household members combined was 28±11 years (range: 8 - 84 years). Thirteen percent of households contained infants less than

[5]The crowding index was determined on the basis of how many family members shared a bedroom. This was calculated by taking the number of bedrooms in the households and dividing it by the total number of members in that household. Crowding has been used in other household surveys as a determent of SES – greater crowding is usually associated with lower SES

one year old, while 43% contained children one to five years. Thirty-five percent of households had at least one member over the age of 60.

Household Socio-Economic Status:

What was true in terms of representativeness of household demographics is also true for household socioeconomic status. First, in terms of occupation the sample represents the district. Similar to the rest of Makwanpur and rural Nepal more broadly, the majority of households were involved in some form of agriculture (61%) as their primary source of income generation. This percentage is slightly higher, however, in the sample than for all of Makwanpur, which stands to reason given that Hetauda municipality is also included in the district-wide statistics and this study focused predominantly on rural and peri-urban VDCs where farming is more abundant. Of the 1,414 households whose primary source of income stemmed from agriculture, fifty-seven percent were subsistence farmers only and grew just enough to feed their families, twenty-six percent were commercial farmers who sold cash crops for profit and the remainder sold livestock (chickens, goats and cows). The majority of the remaining families, who were not involved with agriculture, earned their wages predominantly from unskilled domestic (13%) or migrant labour (8%), doing things such as working construction, working as porters to transport goods or working in the transportation industry. A few of the households earned their incomes from business ownership (7%), government employment (6%) or skilled labour (5%). The overall breakdown of primary occupation for the sample was similar to that for all of Makwanpur district (table 4.1).

In terms of earnings, the average annual household income[6] from all salaries combined was 79,632±82591 NPR,[7] but it ranged from 1,000 NPR to 1,200,000 NPR. The average household income for the Central region is reported as 91,693 NPR, slightly above that of the sample mean. The median household income for the sample was 60,000 NPR, which is comparable to the mean income for the Central Development Region (52,980 NPR). The wealthiest household was in Bajrabarahi VDC, while the poorest were in Beteni, Khairang and Kalikatar VDCs respectively. Interestingly, however, the second wealthiest household in the sample was also in Kalikatar VDC and earned 960,000 NPR/year. The majority of households earned either below 31,000 NPR/yr (26%) or above 90,000 NPR/year (32%).

[6]See **Section 3.3c** for a more detailed overview of how household income was calculated

[7]NPR stands for Nepali rupee, which is the national currency of Nepal. 1 GBP is equal to 130.2 NPR as of 14/4/2012 (http://themoneyconverter.com/gbp/NPR.aspx)

TABLE 4.1

Characteristics of surveyed households compared to the rest of Makwanpur district and Nepal's Central Development Region

Characteristic or Value	NHSB-MK Study Sample (n=2334)	Makwanpur District* (n=88,000)	Nepal Central Region**
Gender of Household Head			
Female	303 (13%)	8800 (10%)	16%
Caste ϕ			
Brahmin	140 (6%)	13200 (15%)	13%
Chhetri	210 (9%)	9680 (11%)	16%
Tamang	1377 (59%)	42240 (48%)	6%
Magar	187 (8%)	4400 (5%)	7%
Newar	186 (8%)	7040 (8%)	5%
Chepang	117 (5%)	3520 (4%)	-
Other Dalit	70 (3%)	4400 (5%)	9%
Other	47 (2%)	3520 (4%)	-
Educational Attainment ϕ	**Male/Female**	**Male/Female**	**Male/Female**
None	54% / 66%	--	14% / 40%
Primary School	31% / 22%	--	20% / 17%
Some Secondary School	7% / 5%	--	35% / 24%
SLC & Above	8% / 7%	--	32% / 18%
Literacy Rates	54% / 48%	63% Combined	61% / 72%
Primary Occupation ϕ			
Agriculture	1400 (60%)	37840 (43%)	58%
Unskilled Manual Labour	490 (21%)	12320 (14%)	5%
Skilled Labour	117 (5%)	8855 (~10%)	~10%
Business/Sales & Services	163 (7%)	5280 (6%)	16%
Government/ Professional/Technical	117 (5%)	6160 (7%)	6%
Clerical	--	--	4%
Other	47 (2%)	2640 (3%)	0.6%
UNK	--	15840 (18%)	--
Average Household Size	5.8	5.5	5.4
Socioeconomic Status (Wealth Quintiles)			
Lowest	430 (18%)	--	15%
Second	504 (22%)	--	17%
Middle	479 (21%)	--	20%
Fourth	428 (18%)	--	22%
Highest	493 (21%)	--	26%

* The data for this column was obtained from the Makwanpur VDC profile from 2009 -2010;
**The data for this column was obtained from the Nepal DHS from 2011 and the NLSS II & III from 2003 and 2011 respectively.

ϕ For the NHSB-MK study, this data was collected at the household level, rather than the individual level

Given that income data alone, however, is not always the most reliable measure of SES it is also important to look at household assets and infrastructure to determine socioeconomic status (Braveman et al., 2005; Fotso & Kuate-Defo, 2005; Morris et al., 2000; Vyas & Kumaranayake, 2006; Wagstaff & Watanabe, 2002). This is commonly done in surveys carried out in the developing world. Tables 4.2 and 4.3 presents an overview of this asset and infrastructural data for the study sample and for the Central Development Region. This data was not available for Makwanpur district specifically.

The study sample overall appears to be less well off than the rest of the Central Region in terms of assets (tables 4.2 and 4.3). Fifty-five percent of households had no access to toilet facilities, and only 2% had indoor toilets. This is less than for the Central Region broadly, where 39% reported access to toilet facilities. Fifteen percent of households in the sample got their water supply from wells or springs, while the remainder got their drinking water from taps (mostly public taps). Seventy-six percent of households had water supplies less than five minutes from their home, while a small minority (5%) had to travel 30+ minutes to get to a source of water. Fewer households have piped water in their homes than in the rest of the Central Region. Most houses had 2-3 rooms (68%), compared to an average of 3.6 rooms per house in the Central Region.

TABLE 4.2

Household asset and physical infrastructure data for the survey sample

Characteristic

Land Ownership (in hectares)	Mean (±SD)	Median	Range
	0.48±0.66	0.356	0 to 20.31

Livestock Ownership No. (%)	None	1-5	6-10	10≤	Mean
Chickens	612 (26%)	766 (33%)	512 (22%)	444 (19%)	8±1
Goats	395 (17%)	852 (37%)	674 (29%)	413 (18%)	6±6
	None	**1-2**	**3-4**	**5≤**	**Mean**
Cattle	842 (36%)	831 (36%)	410 (18%)	251 (11%)	2±2
Buffaloes	1234 (53%)	877 (38%)	200 (8%)	23 (1%)	1±1

Assets Ownership	No. of HHs (% of total HHs)
Radio	1575 (67%)
Television	752 (32%)
Bicycle	2 (<1%)
Motorcycle	53 (2%)
Oxcart	1 (<1%)
Fridge	27 (1%)

Toilet Facilities	None	Outdoor	Indoor
No. (%)	1287 (55%)	1000 (43%)	47 (2%)

Water Supply	Private Tap (piped into home)	Well/Spring/ River	Public Tap/Pipe
No. (%)	39 (2%)	331 (14%)	1964 (84%)

Dwelling Type (No. (%))	Tin Walls	Mud Walls	Wood Walls	Cement Walls
Tin Floor	0	0	0	0
Mud Floor	20 (1%)	1265 (54%)	1 (<1%)	256 (11%)
Wood Floor	3 (<1%)	31 (1%)	18 (1%)	26 (1%)
Cement Floor	0	0	27 (1%)	352 (15%)

Mean No. of Rooms ±SD	2.69±1.51
No. of HH w/Permanent Roof	64 (3%)

In terms of assets, fifty-nine (2.5%) households owned no land, while the majority (20%) owned between 0.4 and 0.6 hectares. The mean and median amount of land owned were 0.5±0.7 hectares and 0.4 hectares respectively, compared to the average land ownership of 0.7 hectares for the Central Region. The maximum land owned was 20.3 hectares by a household in Bajrabarahi VDC.

Table 4.3. Livestock ownership, dwelling type and water source data for the Central Development Region of Nepal from the Nepal Living Standards Survey II (MOHP, 2003)

Livestock Ownership	**Poultry**	**Cattle**	**Goats**	**Buffalo**
Percentage of Households	44.4%	57.4%	62.5%	49.4%
Mean No. Owned	6.7	2.6	4.4	2
Dwelling Type	**Mud**	**Wood**	**Cement**	**Other**
Floor	75.6%	2.5%	19.3%	2.6%
Walls	40.9%	14.2%	23.6%	21.3%
Water Source	**Piped into House**	**Piped Outside House**	**Covered Well**	**Open Well**
Percentage of Households	14%	30%	56%	5%

In addition to looking at the asset and infrastructural data individually, this data was also combined into wealth quintiles using principal component analysis. These quintiles were constructed according to the DHS method for the creation of a wealth index (Rutstein & Johnson, 2004).[8] As can be seen from table A in **Appendix 3.13**, there is a significant negative correlation between most other

[8] For more details on the construction of this index see **Appendix 3.13**.

SES variables (including household composition, household income, household land ownership, household land cost etc.) and the constructed wealth quintiles (figure 4.2). The wealthiest category was associated with a smaller overall household size, less crowding, fewer infants and children in the household, higher household incomes and lower land ownership (although the cost of land was higher in the highest quintile). The breakdown of the number of households in each of these wealth quintiles could not be obtained for Makwanpur district.

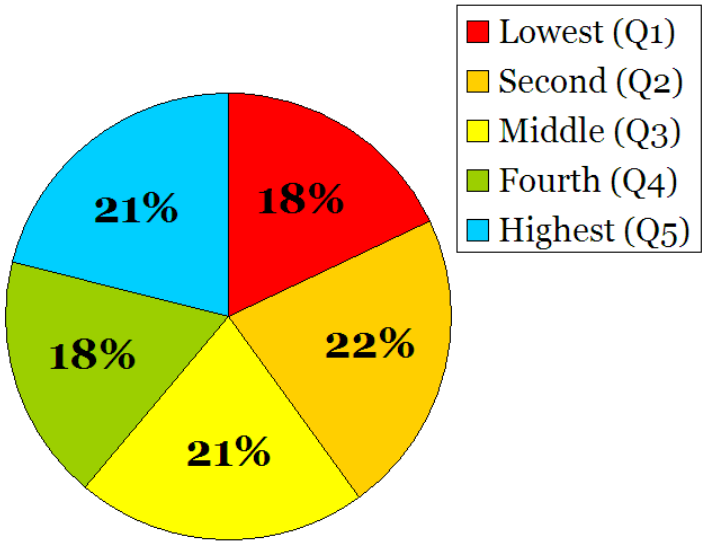


Figure 4.2. Percentage of households from the survey sample belonging to each wealth quintile brackets (notice even distribution). Brackets were created in SPSS using PCA methods.

Primary Respondent Details:

It is important not to just look at the overall household demographics, but also to look specifically at the primary respondent details as well to ensure that no biases were introduced in terms of whom in the family was initially approached for the surveys. Of the 2,334 primary respondents approached, eight-hundred and

eighty-nine (38%) were the household heads, seven-hundred and sixty eight (33%) were partners of the household head and 620 (27%) were children or children-in-law of the household head. Fifty-six percent of primary respondents were female, and the average age was 39±15 years (range: 18 - 88 years). Forty-seven percent were illiterate, while fifty-five percent had completed no formal schooling. Conversely, twenty-four respondents (1%) had attained university level education.

4.1b Generalisability of the Survey Sample:

Obviously the two tiered random-sampling method was intended to increase the likelihood that the sample would represent the district at large, and for the most part it does (although district-level data was extremely difficult to obtain and was not always accurate when it was obtained, so it made it hard to compare the sample and district). Overall, however, the sample was representative of the rural and peri-urban VDCs in Makwanpur district, with some slight differences. The occupational composition of the households in the sample differed somewhat from the occupations of the district more broadly, but this could be due to the fact that the sample excluded most of the larger, more urban VDCs where people were more likely to be engaged in occupations other than subsistence farming. In our sample a higher percentage of households were engaged solely in subsistence farming. Nevertheless, the sample is representative of the broader district in terms of overall household size, caste, household composition and other

socioeconomic factors. In short, it is safe to say that the results from the survey can at least be generalised to the rest of Makwanpur district.

4.2 *Overview of Qualitative Data*[9]

Unlike the primary respondents from the quantitative sample, the majority of respondents for the qualitative interviews were female (71%). This was intentional, however, because it was assumed that if the patient was a child, the mother was the best person to talk to to get the illness details. In fact, thirty-eight percent of those experiencing illnesses in the qualitative sample were children. The median age of respondents was comparable to the surveys 35±15 years (range: 16 – 77 years).

Despite the gender inequity in the primary qualitative respondents, when it came to those actually experiencing the illnesses episodes discussed during the qualitative interviews (ie the patients), there were actually slightly more males than females (figure 4.3). The average age of patients was lower than for respondents -25±22 years (median: 23 years) and ranged from 13 days to 77 years.

[9] For a table with the individual household codes and corresponding demographic information, see **Appendix 5.5.**

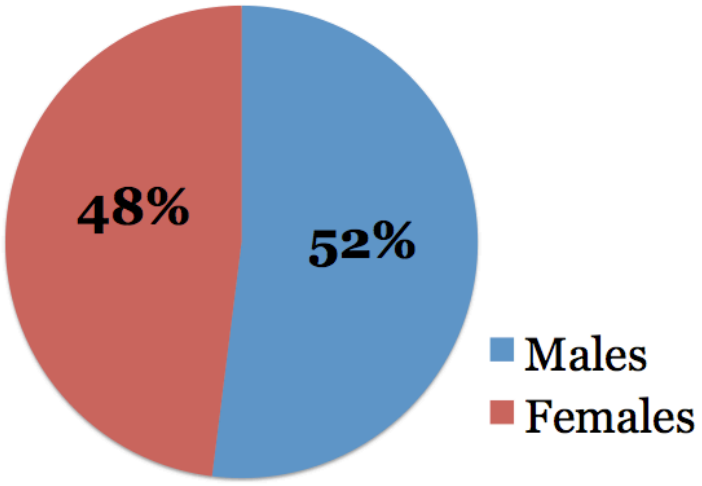


Figure 4.3 Gender breakdown of the individuals experiencing the illness episodes in the qualitative sample (n=89).

In terms of household demographics, the majority of households interviewed were subsistence farming households (85%), while the remainder were unskilled labourers (6%), skilled labourers (4%), small business owners (3%) or professionals (2%). In terms of ethnicity, like the quantitative sample, the majority were Tamang (figure 4.4)

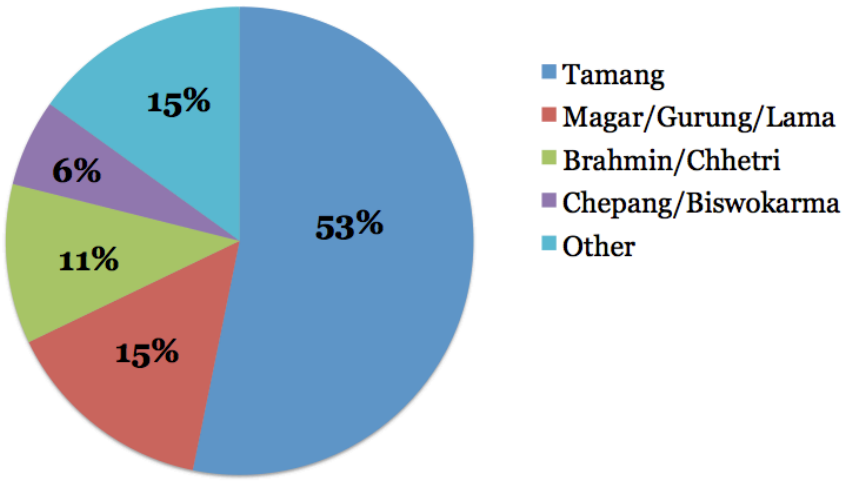


Figure 4.4. Ethnic breakdown of households participating in the qualitative interviews.

Finally, in terms of the illnesses experienced, the majority were infectious or parasitic diseases (A00-B99) or diseases of the respiratory system (J00-J99; figure 4.5). The most common infectious diseases (based on presumptive diagnoses diagnosed using verbal autopsies) were suspected to be typhoid, tuberculosis, measles, mumps and dysentery (more serious diseases than found in the quantitative sample). The most common diseases of the respiratory system were ARIs and URTIs (including some suspected and diagnosed cases of pneumonia). Injuries (S00-T98) and diseases of the digestive system (K00-K99) were also quite common in the interview sample. A concerted effort was made to maximise the diversity of disease types selected for interviews.

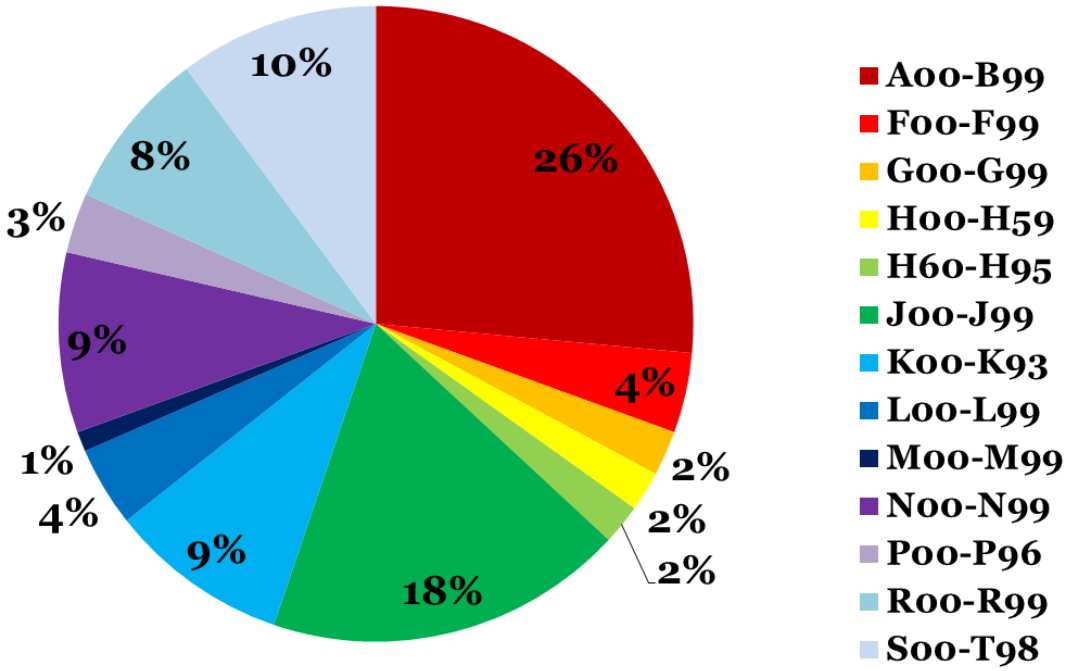


Figure 4.5. Breakdown of the different illnesses experienced by households in the qualitative sample. For what each of the codes mean, see footnote[10]

[10] A00-B99: Certain infectious & parasitic diseases; F00-F99: Mental & behavioural disorders; G00-G99: Diseases of the nervous system; H00-H59: Diseases of the eye and adnexa; H60-H95: Diseases of the ear and mastoid process; J00-J99: Diseases of the respiratory system; K00-K99: Diseases of the digestive system; L00-L99: Diseases of the skin; M00-M99: Diseases of the musculoskeletal system; N00-N99: Diseases of the genitourinary system; P00-P96: Conditions originating in the perinatal period; R00-R99: Symptoms, signs & abnormal clinical findings not elsewhere classified; S00-T98: Injury, poisoning & certain other consequences of external cause

Chapter 5:
Results & Discussion for Objective 1a

This chapter provides: ***(1)*** *An overview of the main study results for objective 1a;* ***(2)*** *A more in depth discussion of each of the main research findings for objective 1a, comparing them to relevant literatures and attempting to explain them within the context of Nepal;* ***(3)*** *A summary box of the main implications of the research findings for objective 1a.*

I. Objective 1a Results

Describing the Predisposing, Enabling, Need and Knowledge Factors

OBJECTIVE 1a:

To identify and describe the factors which may ultimately govern HSBs in this context. More specifically:

- To determine which households, wards and individuals experience illnesses (patient, households and community factors)
- To determine the types of illnesses households experience (illness factors)
- To determine the subjective and objective severity of the illnesses households experience (illness factors)
- To determine the characteristics of the government healthcare system available to households in this context, and the perceptions of those characteristics (health system factors)
- To determine how knowledgeable households are about the government healthcare system and its services

Before we can begin to understand why people make the care choices they do, and before we can begin to examining the relationships between various explanatory, intervening and dependent variables, we must first identify and examine each of the variables in isolation, starting with the potential explanatory variables, which have been illuminated in other studies conducted in other contexts, but which also need to be explored within the context of Makwanpur district. In Nepal there is limited illness data collected at the

household level, and that which is collected, is often collected informally via key informant interviews (this is how the Makwanpur VDC profile data is collected – based more on estimations than on actual household-level data). This section uses the data from the household surveys, household interviews and health facility interviews to provide a detailed look at the various predisposing, enabling and need factors which may ultimately influence care choices in this specific context (figure 5.1).

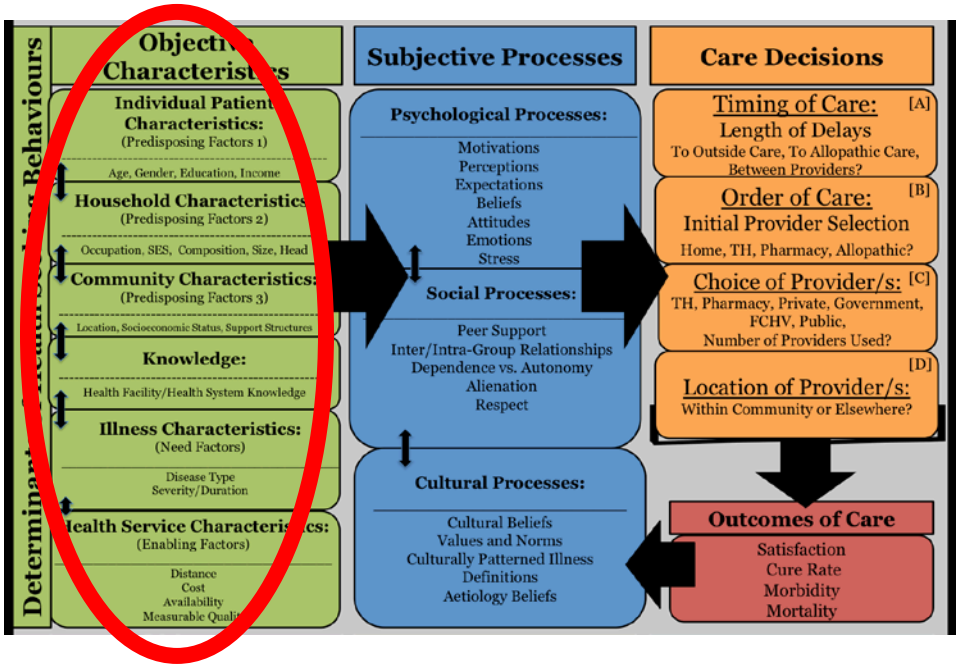


Figure 5.1 This objective (1a) will deal with this column (circled in red) of the comprehensive theoretical model discussed in Chapter 2. This section takes each of these boxes in turn.

5.1 *Describing Predisposing Factors:*
Patient, Household & Community-Level Demographics

5.1a Characteristics of Households Experiencing Illness Episodes:

It is important to start by examining the characteristics of the households which experienced illness episodes versus those that did not. Of the 2,334 households surveyed, forty-six percent had experienced at least one episode of acute illness in

the previous month, which is significantly higher than the 16% reported for the rest of the Central Region. Of those 1,069 households, seven-hundred and forty-four (68%) had experienced an illness episode in the two weeks prior to the interview, while the rest had experience episodes between 30 and 15 days prior. Not surprisingly, households were more likely to experience illness episodes if they had more children, were of poorer socioeconomic status, were of certain castes or owned more land. More specifically, when controlling for all other socioeconomic factors a one unit increase in the number of children ages one to five years in the household increased the odds of having an episode of illness by 43% (95% CI: 26%-62%) for the four week period preceding the interview or by 32% (95% CI: 16%-50%) for the two week period preceding the interview. Similarly, Biswokarma families were 2.5 times (95% CI: 1.09-5.52) more likely than Brahmin families to experience illnesses in the one month period prior to the interview, and Chepang families were 1.8 times (95% CI: 1.03-3.16) more likely than Brahmin families to experience illnesses in the two weeks prior. This is also not surprising given that Biswokarma and Chepang families tend to be less well-off socioeconomically than Brahmin families. In addition, compared to the poorest quintile, households in the third wealth quintile were 47% (95% CI: 40%-70%) less likely to experience illness in the one month period or 34% (95% CI: 50%-88%) less likely to experience illness in the two week period, while families in the wealthiest quintile were 54% (95% CI: 33%-64%) less likely to experience illness in the one month period or 41% (95% CI: 42%-83%) less likely to experience illness in the two week period (table 5.1, figure 5.2). Finally, a one unit increase in land ownership increased the likelihood of an illness episode by 54%

(95% CI: 22%-95%) for the one month period and 42% (95% CI: 18%-71%) for the two week period, and households whose source of income came from commercial farming were 1.4 times (95% CI: 1.10-1.81) more likely to experience illnesses than subsistence farming households.[1]

Table 5.1 A look at the number of illness episodes experienced broken down according to wealth quintile. As can be seen, the less well-off families tend to experience more illnesses than the more wealthy families. The trend is pretty consistent from one quintile to the next.

Wealth Quintiles	Illness in Past 4 Weeks		Illness in Past 2 Weeks		Total
	N	%	N	%	
Poorest	261	61%	184	43%	430
2nd	283	56%	196	39%	504
3rd	211	44%	149	31%	479
4th	148	35%	100	23%	428
Wealthiest	166	34%	115	23%	493
Total	1069	46%	744	32%	2334

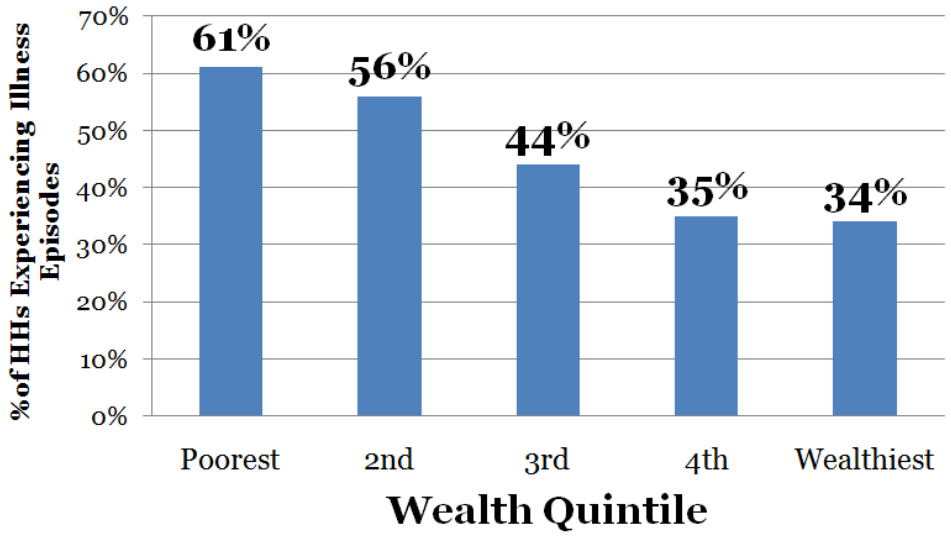


Figure 5.2 A graphical representation of the breakdown of illness episodes experienced by wealth quintile. A clear trend can be seen.

Of the households experiencing illness, eight hundred and ninety-seven households (84%) had experience just one episode of illness, while 145 (14%) had

[1] For an overview of the logistical regression models which led to these results see **Appendix 5.1**

experienced two episodes and 27 (2%) had experienced three or more episodes. One household had experienced five episodes, the maximum in the sample (figure 5.3).

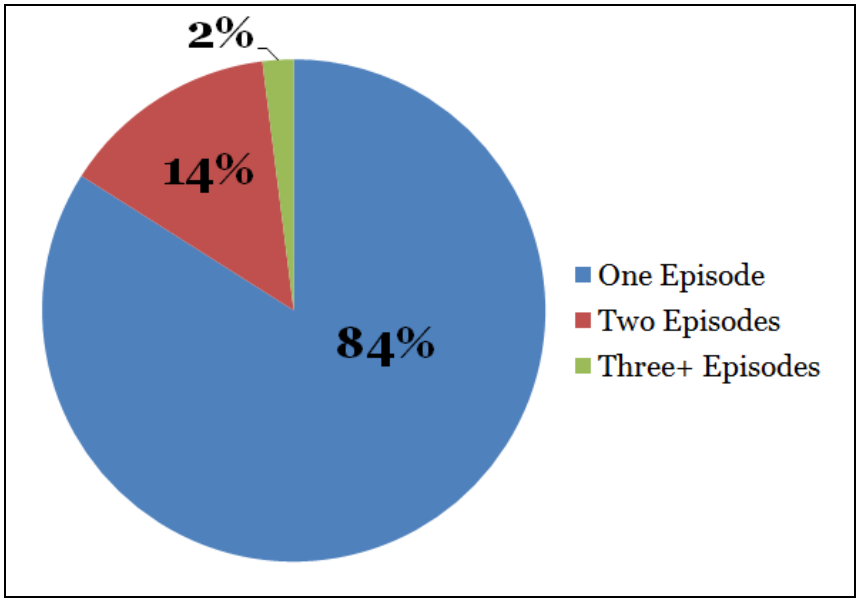


Figure 5.3 Number of episodes of illness experienced by a single household. The majority of the 1069 households experiencing illness had only experienced one episode in the month prior to the survey.

In total, there were 1,273 illness episodes experienced across the 1,069 households in the previous month. Households which were headed by males were 2.0 times (95% CI: 1.09-3.78) more likely to have more than one episode of illness, as were households with more members. More specifically, a one unit increase in the number of family members sharing a kitchen increased the odds of having more than one episode of illness in that household by 14% (95% CI: 2%-

27%) when controlling for other socioeconomic and demographic factors.[2] This stands to reason given that more people in a household means a greater potential for one of them to fall ill.

A comparison of the demographic characteristics for those households which experienced acute illness episodes in the preceding month and those households which did not can be found in table 5.2 along with data from the chi-squared analyses.

[2] For an overview of the logistical regression models which led to these results see **Appendix 5.1**

TABLE 5.2

Characteristics of surveyed households with and without illnesses (n=2334).

Characteristic or Value	w/ Illness Episode (n=1069)	w/out Illness Episode (n=1265)	Combined (n=2334)
Gender of Household Head			
Male	932 (87%)	1101 (87%)	2033 (87%)
Caste◆◆			
Brahmin	51 (5%)	91 (7%)	142 (6%)
Chhetri/Thakuri	103 (10%)	120 (9%)	223 (10%)
Tamang	653 (61%)	724 (57%)	1377 (59%)
Magar	76 (7%)	100 (8%)	176 (8%)
Newar	66 (6%)	131 (10%)	197 (8%)
Other	2 (1%)	29 (4%)	31 (1%)
Chepang	75 (7%)	44 (3%)	119 (5%)
Other Dalit	37 (3%)	26 (2%)	63 (3%)
Education of Household Head			
None	597 (56%)	707 (56%)	1304 (56%)
Class 1-5	325 (30%)	372 (29%)	697 (30%)
Class 6-8	83 (7.8%)	81 (6.4%)	164 (7%)
Class 9-10	45 (4.2%)	69 (5.5%)	114 (4.5%)
+2	17 (1.6%)	31 (2.5%)	48 (2%)
University	2 (0.4%)	5 (0.6%)	7 (0.5%)
Primary Occupation of Head*◆			
Subsistence Farmer	450 (42%)	487 (38%)	937 (40%)
Commercial Farmer	237 (22%)	240 (19%)	477 (20%)
Unskilled Domestic Labourer	123 (12%)	179 (14%)	302 (13%)
Unskilled Migrant Labourer	78 (7%)	109 (9%)	187 (8%)
Skilled Labourer	49 (5%)	63 (5%)	112 (5%)
Small Business/Shop Owner	71 (6%)	86 (7%)	157 (7%)
Government Employee (Incl. Teacher)	52 (5%)	79 (6%)	131 (6%)
Other	9 (1%)	22 (2%)	31 (1%)
Household Composition (by Age Brackets) ◆◆			
Households w/ Infants (<1yo)	157 (15%)	145 (11%)	302 (13%)
Households w/Children (1-5yo)	555 (52%)	450 (36%)	1005 (43%)
Households w/Children (6-14yo)	756 (71%)	812 (64%)	1568 (67%)
Households w/Seniors (>60yo)	371 (35%)	444 (35%)	815 (35%)
Household Size◆◆			
≤ 5	471 (44%)	666 (53%)	1137 (49%)
6-10	560 (52%)	558 (44%)	1118 (48%)
> 10	38 (4%)	41 (3%)	79 (3%)
Mean Crowding Index (±SD)			
***Number of household members/room*	2.9±1.6	2.4±1.5	2.6±1.6
Annual Household Income (NRs***/yr.)◆◆			
≤30,000 NRs	339 (32%)	257 (20%)	596 (26%)
>30,000– 50,000 NRs	212 (20%)	207 (16%)	419 (18%)
> 50,000 – 70,000 NRs	121 (11%)	151 (12%)	272 (12%)
> 70,000 – 90,000 NRs	115 (11%)	192 (15%)	307 (13%)
> 90,000 NRs	282 (26%)	458 (36%)	740 (32%)

***** This data was tabulated for the primary household occupation only. Secondary and tertiary occupation data was collected as well, but this was not factored into the tabulations in this table ◆ **p<0.05 ◆◆ p<0.01 (chi-squared analyses)**

5.1b Illness Episodes Broken Down by Wards & VDCs:

Taking a step back from the household level and looking at illness episodes broken down by wards and VDCs reveals a similar trend. The households within the more developed wards were less likely to experience illnesses than those in the less developed wards. More specifically, if we look at the ward composite scores[3] households in the medium SES wards were 39% (95% CI: 36%-50%) less likely and households in the high SES wards were 36% (95% CI: 21%-48%) less likely to experience illnesses than those in the poorest SES wards. More, those in the medium or high SES wards were less likely to have more than one episode of illness per household than those in the low SES wards (figure 5.4).

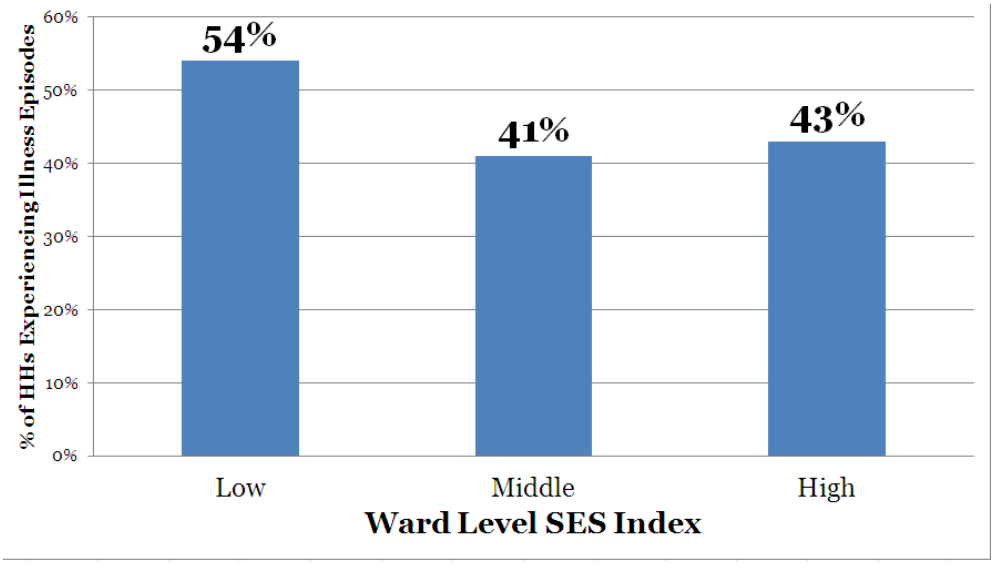


Figure 5.4 Breakdown of illnesses episodes experienced by ward-level SES index. As can be seen, a greater percentage of households in the low SES wards experienced illness episodes compared to those in the middle and high SES wards. The same pattern holds true if we look at the number of episodes experienced per households.

[3] For an overview of how the ward composite scores were created and what factors were taken into account, see **Appendix 3.13**

If we take yet another step back and look at the VDCs instead of the wards, it appears that at the aggregate level some VDCs experienced more illness than others. In the more remote, economically less well-off VDCs – Kalikatar, Khairang, Beteni and Manthali – more households experienced illness than not, whereas the opposite is true in the more developed, peri-urban VDCs closer to Kathmandu or the district municipality. In fact, in Khairang and Kalikatar, almost 70% of households had experienced some acute illness episode in the month prior to the survey (in this case, February 2011), whereas in Churiyamai and Bhainse only 30% of households experienced illness episodes in the month prior (in this case, May 2011; figure 5.5).

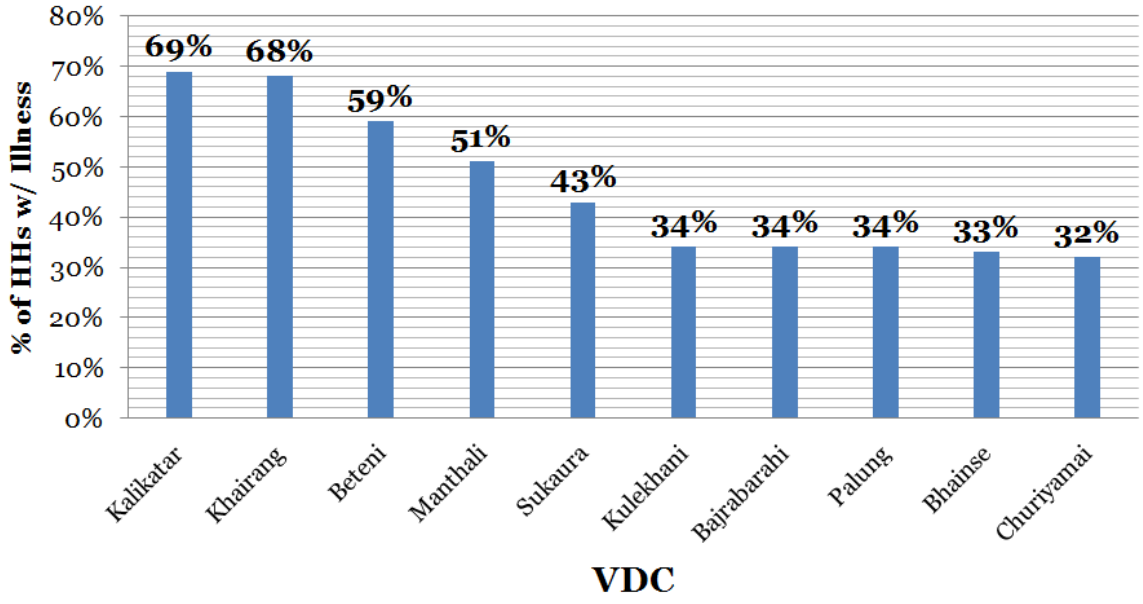


Figure 5.5 Percentage of households experiencing illness in the month prior to the survey broken down by VDC (n=2334). As can be seen there is a clear trend – the more developed the VDC, the less illness episodes experienced, whereas the more remote the VDC, the greater the number of episodes experienced.

Selected Illness Episodes:

Since several households experienced more than one episode of acute illness, a sample of these episodes – one per household – were randomly selected for the focus of the detailed portion of the surveys (see methods section for overview of survey design). From the 1,273 total illness episodes experienced, 1,069 episodes were selected, leaving 204 episodes which were not examined in any further detail. Sixty-one percent of the selected episodes were reported on by proxy respondents (ie. not the person who had experienced the episode). The majority of proxy respondents were parents reporting on illness episodes of children (82%), while the remainder used proxy reporting because the person who had experienced the episode was either unavailable at the time of the interview or still too ill to respond him/herself. Three cases were excluded from the sample because the person experiencing the illness episode was handicapped and adequate permission could not be obtained.

Patient Details:

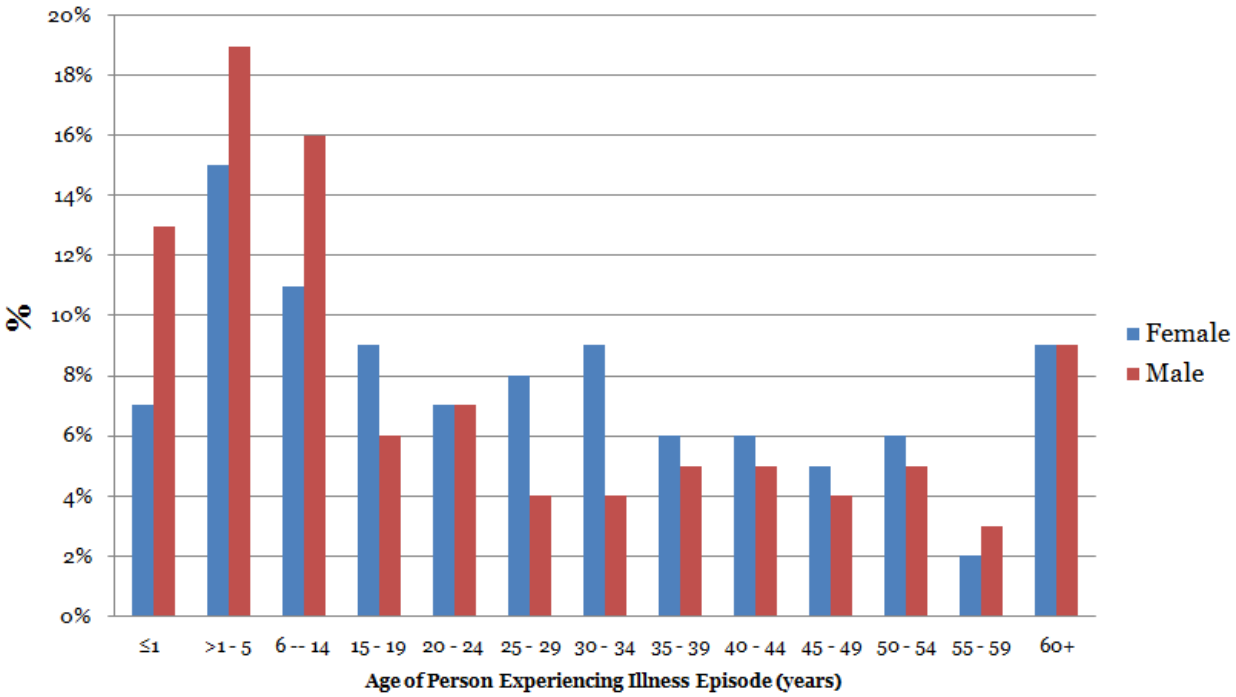
If we step down from the community level again and look more carefully at the characteristics of the individuals actually experiencing the selected episodes, it appears that females were slightly more likely than males to experience illness[4], as were younger people under the age of 14 years old. The female patients were slightly older on average than the male patients. Overall, the mean patient age was 25±22 years (range: 7 days – 92 years). The greatest percentage of patients

[4] It is possible that this result might be due to reporting bias and that women were simply more likely to report illnesses than men, but there was no way to control for this.

were between the ages of one and a half and five years old, while forty percent of patients were under the age of fifteen (table 5.3, figure 5.6). Eighteen percent of patients (n=194) were the heads of the households and 319 (30%) were the primary respondents (this result indicates that primary respondents were not more likely to report on their own episodes of illness than to report on episodes experienced by other members of the family).

Table 5.3 An overview of the mean and median ages of those experiencing illness in the sample.

Age (yrs)	Male (n=476)	Female (n=593)	Total (n=1069)
Mean ±SD	23.7±22.5	26.7±20.5	25.4±21.5
Median	17	25	22
(Min, Max)	(0.02, 92)	(0.17, 82)	(0.02, 92)



Female	7%	15%	11%	9%	7%	8%	9%	6%	6%	5%	6%	2%	9%
Male	13%	19%	16%	6%	7%	4%	4%	5%	5%	4%	5%	3%	9%
Totals	10%	17%	13%	8%	7%	6%	7%	6%	5%	4%	5%	3%	9%

Figure 5.6 The age and gender distribution of those experiencing illness episodes.

5.2 *Describing Need Factors:*
Illness Characteristics[5]

As important as it is to understand which individuals, households, wards and VDCs experience the greatest percentage of illnesses, it is comparably important to understand the characteristics -- illness type and severity – of the illnesses they actually experience. This section presents a description of those potential need factors that might ultimately influence care decisions. It is important to note here that while demographic characteristics are purely objective, illness factors are a combination of objective facts about the illnesses (ie. disease type or duration of symptoms) and subjective interpretations of these factors (ie. severity ratings or amount of concern brought about by specific symptoms). Since the objective factors influence these subjective interpretations, it is important to look at both of them together in this section rather than considering each in isolation. The difference between the subjective factors presented here and the subjective processes discussed as part of objective 2b is that these subjective judgements are based on objective characteristics of the illnesses themselves and are thus inextricably linked to them, while the subjective factors or processes discussed as part of objective 2b are linked to care decisions. So, while objective 2b looks at the ways in which illness severity is perceived to effect care decisions (bringing column 3 to bear on column two in the comprehensive model), this section looks at how objective illness factors are linked to illness interpretations (bringing

[5] Please note that all household survey data was collected in the period between April 2011 and August 2011. Data collection was discontinued mid-way through the monsoon season. As a result, this disease data does not reflect the annual disease burden of the district, but rather only reflects the seasonal diseases as experienced in the months of March through June 2011.

column 2 to bear on column 1 in the comprehensive model), which may ultimately drive care decisions.

5.2a Illness Types

The majority of available illness data in Nepal is collected at the health facility level[6] rather than at the household level, and therefore it only represents a fraction of the actual illness burden. It is important, then, to understand what the illness burden looks like from the household level not only because disease type may impact care choices, but also because the disease burdens themselves help to direct health programming and intervention efforts. Given that Nepal has not yet undergone an epidemiological transition, the majority of the disease burden is still due to infectious diseases. It is not surprising, then, that infectious and parasitic disease (A00-B99) were by far the most common causes of illness in the sample, accounting for 42% of all acute illness episodes. Diseases of the respiratory system (Joo-J99) were also common, accounting for 31% of the illness episodes experienced (figure 5.7). The most common infectious and parasitic diseases were bacillary dysentery, comprising 23% of all infectious disease diagnoses, and acute gastroenteritis, comprising 38% of all infectious disease diagnoses. The most common disease of the respiratory system were common colds, comprising 28% of all respiratory illness and upper respiratory tract infections (URTIs), comprising 40% of all respiratory illness. A complete

[6] Most national data on the disease burden in Nepal is collected from government health facilities via the monthly reporting through the Health Management Information System (HMIS reports). The data is collected from the peripheral level facilities and collated in the district headquarter. I have personally observed how often this data is fabricated to meet quotas.

breakdown of the illness types experienced, categorized by ICD codes, can be found in table 5.4 with a further breakdown by specific diagnosis in **Appendix 5.2**.

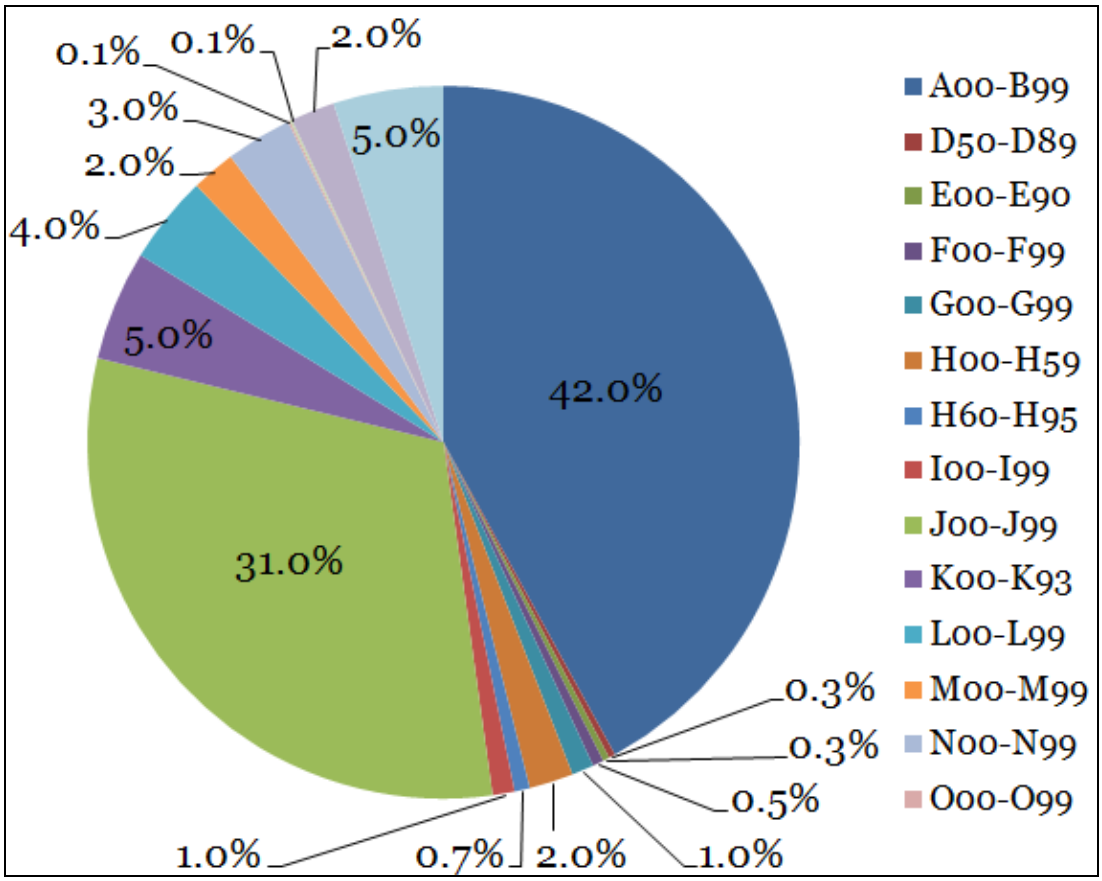


Figure 5.7 All selected illness episodes broken down by ICD code classifications. For ICD code descriptions see table 5.5.

An overview of the government HMIS data for these same VDCs, with a breakdown of the specific ICD codes, can be found in **Appendix 3.3.**

Table 5.4 An overview of the ICD classifications of the illnesses selected to be the focus of the household survey. See **Appendix 5.2** for a further breakdown of the illness episodes based on specific diagnoses.

ICD Code Descriptions	ICD Codes	Number of Cases (n=1069)	Percentage of Total Cases
Certain Infectious & Parasitic Diseases	A00-B99	444	**42%**
Neoplasms	C00-D48	0	0
Diseases of the Blood & Blood-Forming Organs	D50-D89	3	0.28%
Endocrine, Nutritional & Metabolic Diseases	E00-E90	3	0.28%
Mental & Behavioural Disorders	F00-F99	7	0.6%
Diseases of the Nervous System	G00-G99	14	1.3%
Diseases of the Eye & Adnexa	H00-H59	18	1.7%
Diseases of the Ear & Mastoid process	H60-H95	10	0.9%
Diseases of the Circulatory System	I00-I99	13	1.2%
Diseases of the Respiratory System	J00-J99	333	**31%**
Diseases of the Digestive System	K00-K93	50	4.7%
Diseases of the Skin & Subcutaneous Tissue	L00-L99	43	4%
Diseases of the Musculoskeletal System	M00-M99	18	1.7%
Diseases of the Genitourinary System	N00-N99	36	3.3%
Pregnancy, Childbirth & Puerperium	O00-O99	2	0.19%
Certain Conditions Originating in the Perinatal Period	P00-P96	1	0.09%
Congenital Malformations & Deformations	Q00-Q99	0	0
Symptoms, Signs & Abnormal Clinical and Laboratory Findings Not Elsewhere Classified	R00-R99	25	2.3%
Injury, Poisoning & Certain Other Consequences of External Cause	S00-T98	49	4.5%

5.2b Illness Severity:

Box 4.1
Overview of the Type of Illness Severity Data Collected:

Subjective Measures	Objective Measures
• Patient's pain ratings using VAS (1-6) • Patient's severity ratings using following scale: not at all severe, somewhat severe, very severe, extremely severe/life-threatening • Patient's ratings of amount of worry caused be illness using the following scale: none, some, a lot, and extreme amount • Doctor's ratings of severity using the same scale as patient's ratings	• Number of days in bed and unable to get out of bed due to illness • Number of days unable to work, attend school, play or perform normal duties (in addition to, but not including the number of days in bed) due to illness

Illness Severity: Subjective Measures (from the patient's perspective)

In order to understand why people make the health decision they do, it is also important to look not just at what diseases they are experiencing, but also how severe they think the disease is, how much worry the disease is causing them and how much pain they are experiencing as a result of the disease. These subjective measures of illness severity may in turn impact treatment decisions[7]. The vast majority of people (58%) understandably experienced "some" worry in relation to their illness, but only 51 people (4%) experienced an extreme amount of worry (figure 5.8). Male and female patients were similar in terms of the amount of worry an illness caused them (figure 5.9). There was no clear pattern to the types of diseases which worried households most.

[7] For an overview of the types of severity data collected via the household survey see **Box 4.1** above.

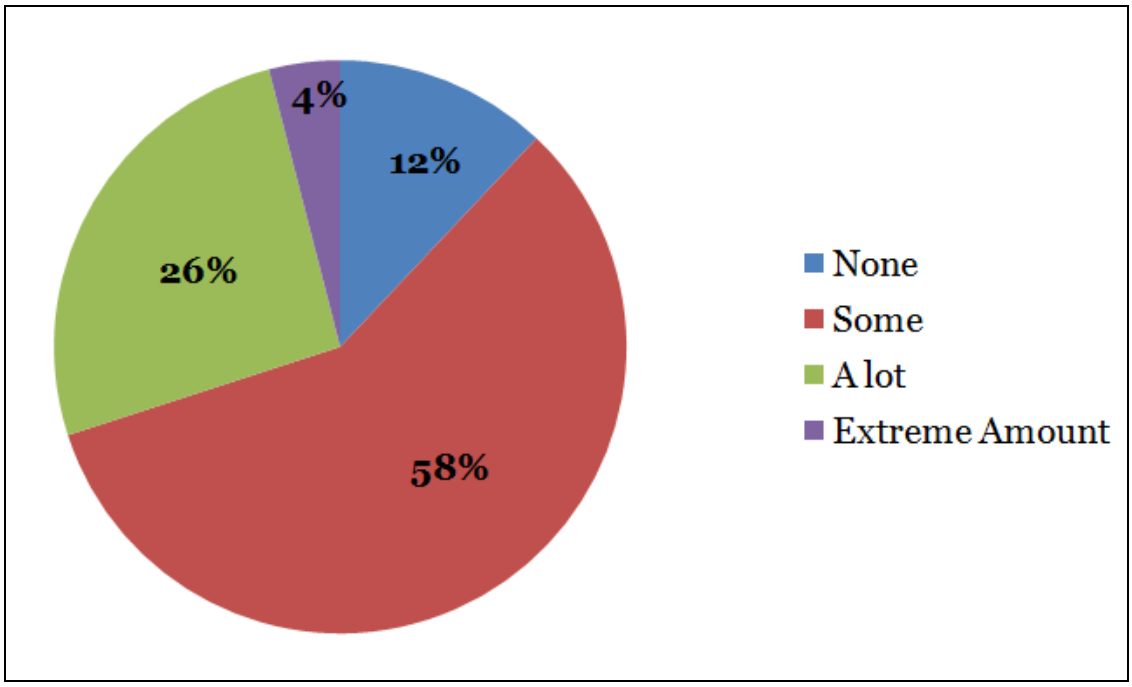


Figure 5.8 The amount of worry experience by patients/family members in response to the specific episode of illness (n=1065 because data was missing from 4 cases).

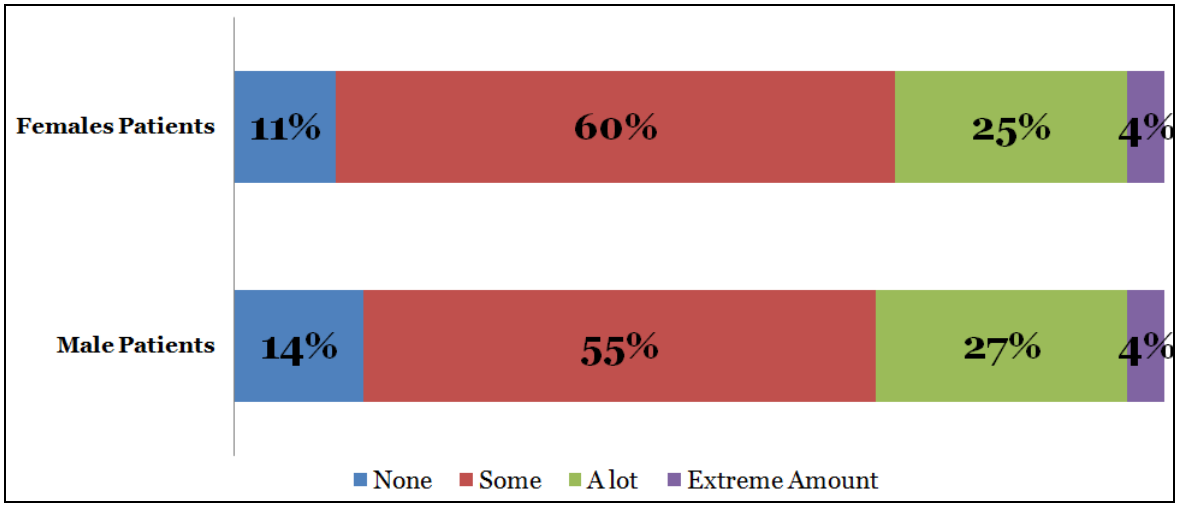


Figure 5.9 A comparison of male and female patients in terms of the amount of worry caused by the specific episode of illness. As can be seen there is very little difference between the genders.

In terms of patient ratings of severity (on a scale from not at all severe to life-threatening), it is also not surprising that the majority of illness episodes (54%)

were rated as "somewhat severe," while only 35 cases (3%) were rated as "life-threatening" (figure 5.10). Like the worry ratings, there were no statistically significant differences between the patient genders in terms of severity ratings (figure 5.11) or no clear pattern to the disease types which were considered to be severe.

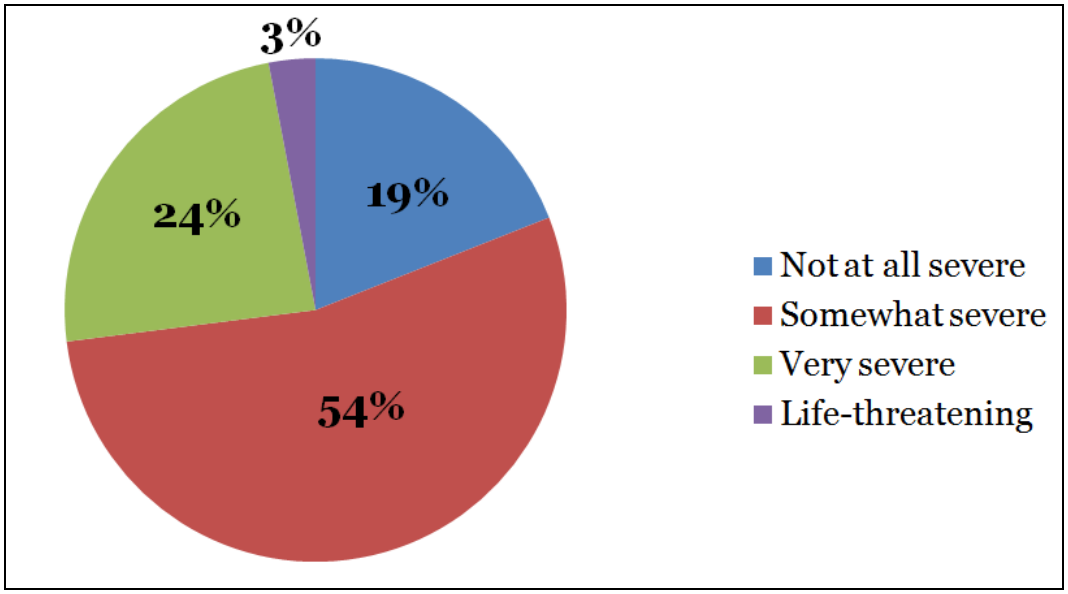


Figure 5.10 Patient severity ratings for selected illness episode (n=1065).

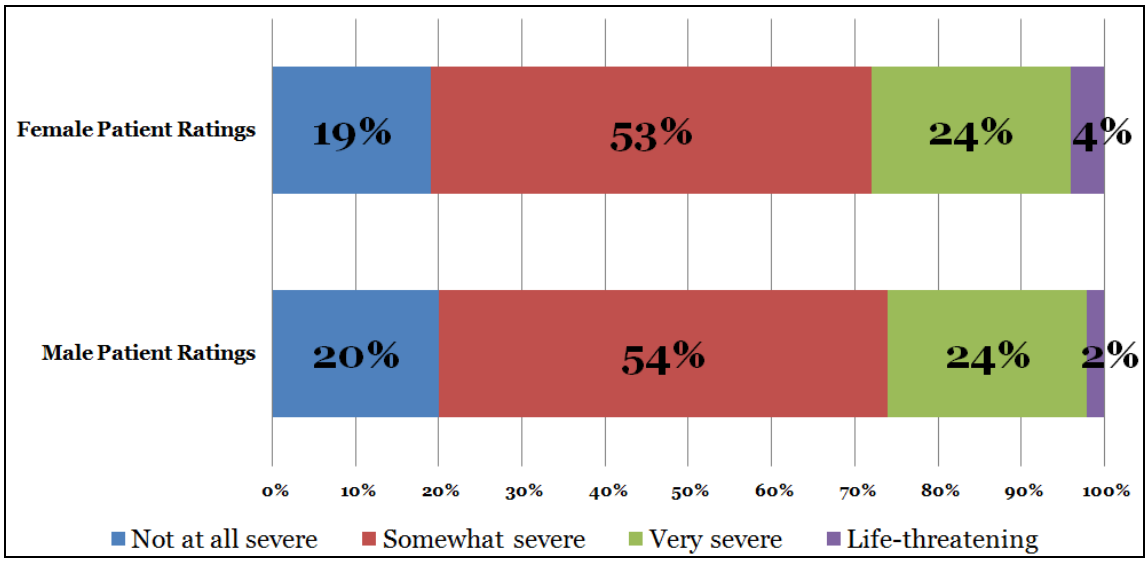


Figure 5.11 A comparison of male and female patient's severity ratings for the specific episode of illness. As can be seen there is little difference between the genders.

Finally, in terms of patients' ratings of the pain experienced (using a visual analogue scale ranging from 1-6)[8] during the given episode of illness, the majority of people (39%) rated the pain as a 4 ('hurts even more') out of 6 ('worst pain'). One-hundred and forty-three people (13%), however, rated the pain as 6 out of 6, while very few (1%) rated the pain as a 1 out of 6 (figure 5.12). The most severe pain ratings were for diseases such as chicken pox, viral fever, CVA, measles and typhoid.

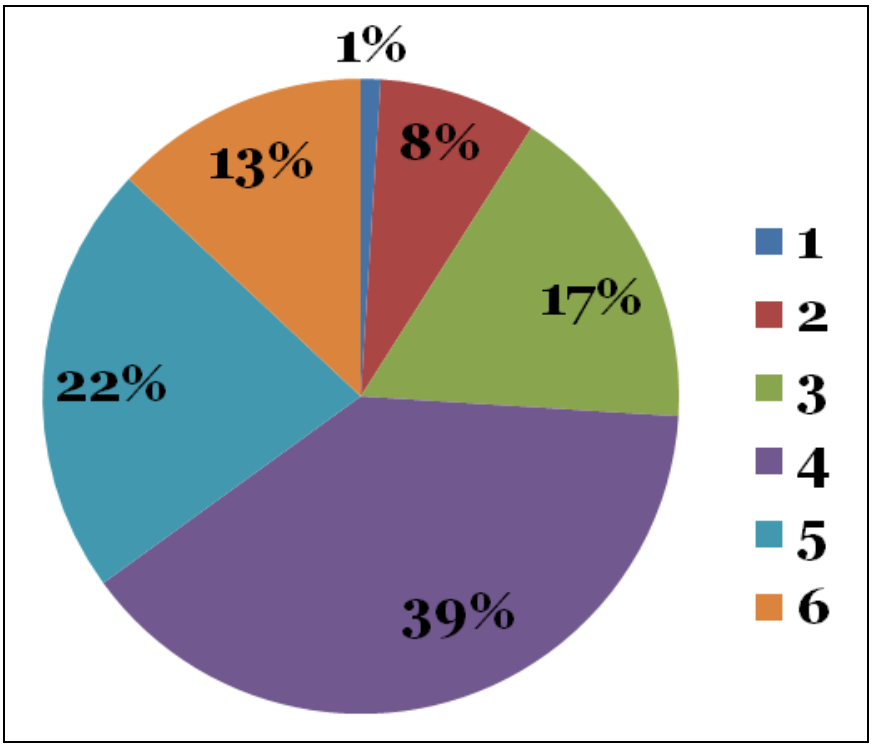


Figure 5.12 Patient pain ratings (using a VAS) for selected illness episode (n=1065).

Again, as with the worry ratings and severity ratings, there were no gender differences in terms of patient pain ratings (figure 5.13).

[8] For the VAS used, see **Appendix 5.3.** 1 = no hurt, 2=hurts a little, 3=hurts a little more, 4=hurts even more, 5=hurts a whole lot, 6= hurts worst

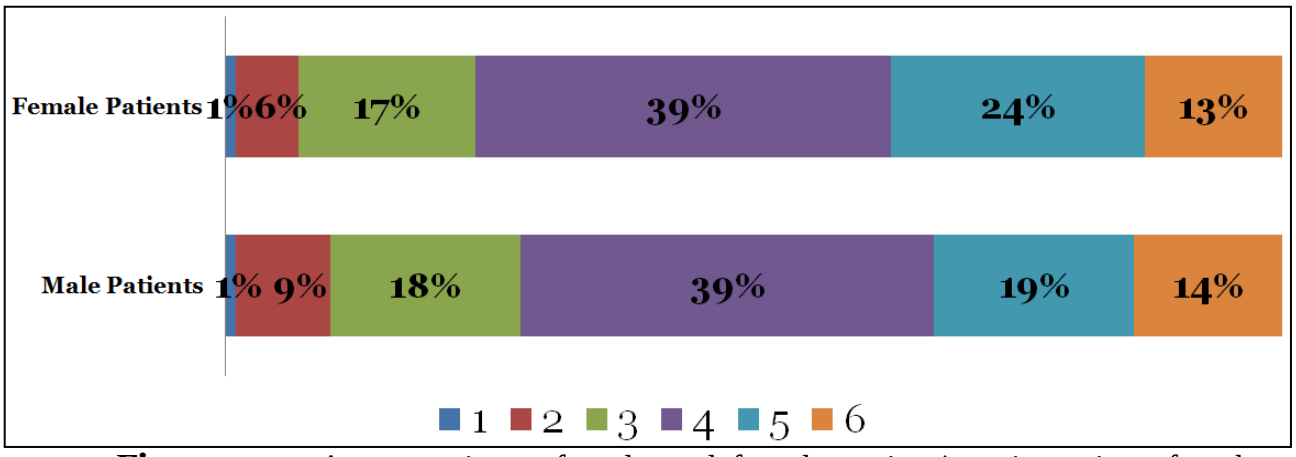


Figure 5.13 A comparison of male and female patient's pain ratings for the specific episode of illness. As can be seen there is very little difference between the genders.

Illness Severity: Subjective Measures (from the doctor's perspective)

Since several studies have shown that patients often tend to either over or underestimate the severity of their illnesses, it is also important to take into account the severity ratings as determined by a doctor (for an overview of how the doctors were asked to determine severity see **Appendix 3.8**). The doctor tended to rate illnesses as significantly less severe than patients with regard to the selected episodes. Overall, the doctor rated 61% of cases as 'not at all severe' and only 1% of cases as 'extremely severe/life-threatening' (figure 5.14).

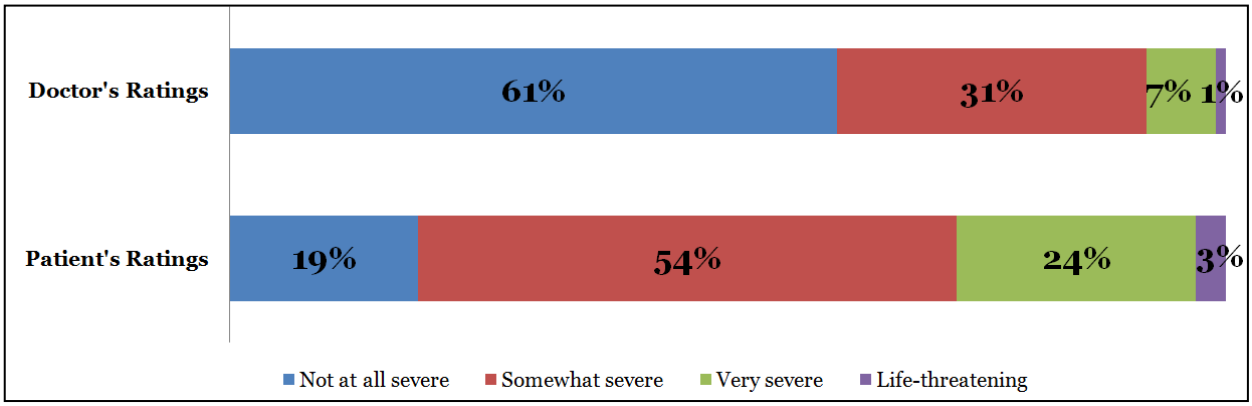


Figure 5.14 Comparison of patient's and doctor's severity ratings for the selected episodes of illness (n=1065). As can be seen doctors tended to rate patient illnesses as less severe than patient's ratings (these differences were statistically significant).

While patients and doctors seemed to agree overall on 54% of cases in terms of severity ratings when using the same scale, the inter-rater agreement (kappa score) was only 32%. Patients and doctors agreed 19% of the time for cases considered to be 'not at all severe,' 20% of the time for the cases considered 'somewhat severe,' 10% of the time for the cases considered 'very severe,' and only 3% of the time for the cases considered 'life-threatening/extremely severe (table 5.5). In short, the more severe the rating, the less the two groups tended to agree.

Table 5.5 A comparison of patient's and doctor's ratings of severity using following scale: '0= not at all severe', '1=somewhat severe', '2=very severe', and '3=extremely severe/life-threatening'. Overall, the two appear to agree on 54% of cases, the majority of which were rated as 'somewhat severe'.

Doctor's Severity Ratings	Patient's Severity Ratings				
	0	**1**	**2**	**3**	**TOTALS**
0	159	349	133	13	654
1	43	182	87	16	328
2	3	35	36	5	79
3	0	2	1	1	4
TOTALS	**205**	**568**	**257**	**35**	**1065**

Illness Severity: Objective Measures (reported by household)

While it is important to look at the subjective measures of illness severity, since they can provide insights into how a patient perceives his/her illness, it is also important to compliment these subjective measures with a more objective look at illness severity. Without having access to diagnostic tests, one way in which objective severity is document is by determining how incapacitated an individual was by an illness and how much the illness disrupted his/her activities of daily

living (ie. the number of days someone was bed-bound and the number of days someone was unable to perform his/her normal duties). The average number of days in bed due to illness in the sample was 1±3 days. The majority of illness cases (66%) resulted in no days spent in bed. The median number of days in bed was three (if the cases with no days spent in bed are eliminated). The maximum number of days a patient was bed-bound due to an illness episode was 28, due to a case of anxiety hysteria (although the doctor was very uncertain about this particular diagnosis). The average number of days unable to perform normal duties (ie attend school, do household chores, play etc.) once a patient was out of bed was 2±3 for the sample. Again, though, the majority of illness episodes (52%) did not result in any disruption of normal activities. The maximum number of days disrupted by illness was 15. Taken in combination, the average number of days bed-bound and/or unable to perform regular duties was 2±2. Forty-one percent of illness episodes resulted in no days in bed or no days of activity disrupted. The maximum number of days spent in bed plus the number of days unable to work due to illness was 30, which was the same case of anxiety hysteria. The other case resulting in the greatest number of days lost due to illness was a case diagnosed as pneumonia.

Despite the number of ways in which illness severity was measured – subjective and objective, from the patient and from the doctor – it is important to note that all of the different metrics were highly correlated with one another, and therefore need not all be considered individually in the final analyses (**Appendix 5.4)**.

5.3 *Describing Enabling Factors:*
Health System Characteristics

If the healthcare system is a supply and demand equation, then HSBs are not only dictated by demand side factors – the predisposing or need factors – but also by supply side factors as well – health system characteristics. While the focus of this research was on the demand side of the equation, because this has more often been overlooked in the Nepalese literature and health policy design, it is still important to look at the enabling or health service factors which inevitably also dictate HSBs and influence demand. While the comprehensive theoretical model does a good job of illustrating the relationship between objective factors, subjective processes, care decisions and outcomes, when it comes to capturing the relationship among each of the objective factors the model is inadequate. It must be acknowledge that this particular relationship might be better represented in another figure (figure 5.15). It is important to understand (and be able to visualise) that the predisposing and enabling factors sometimes work together to produce a care decision (up and down the columns rather than horizontally across). For example, household income is a predisposing factor that operates on the demand side of the equation while costs of health services is a enabling factor that operates on the supply side of the equation. It is only when these two are taken together that a decision about whether care is affordable enough to use is made (figure 5.15).

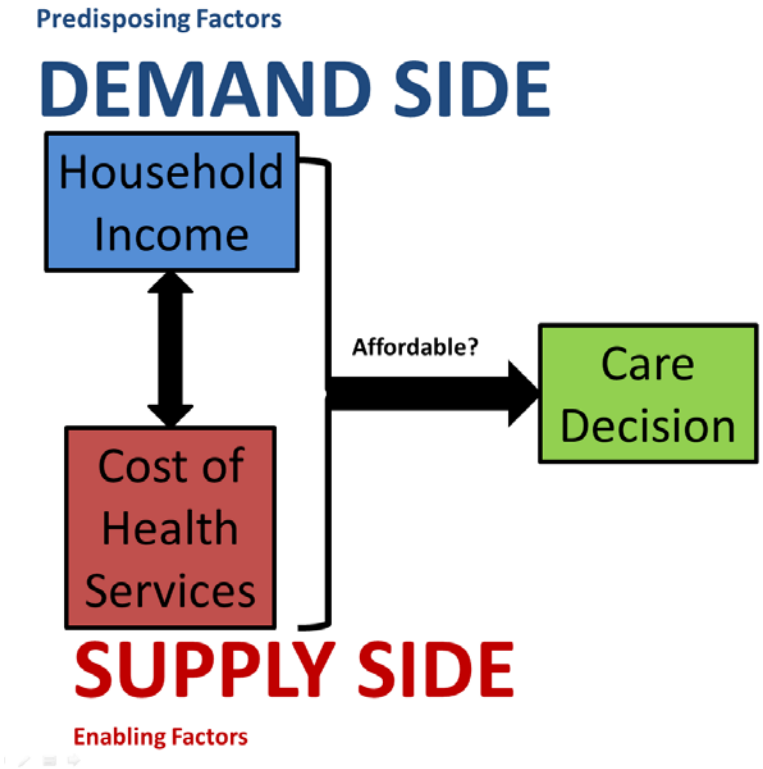


Figure 5.15 Another way of representing the relationship between some of the factors in the first column of the comprehensive theoretical model of HSBs. This figure uses costs and household income to illustrate how the two can possibly influence one another to produce a care decision.

It is also important to note, as we did for need factors, that while there are certain objective health service characteristics that exist (ie. the cost of services, the number of medicines at a facility) most health facility variables straddle the line between objective and perceptual (subjective). For example, while cost is objective, affordability is subjective; while distance is objective, accessibility is subjective. While many of these factors are quantifiable, there is a subjective perceptual component to this data as well which cannot be overlooked and is presented alongside the more objective facts about the quality of health services.

This section looks at the results of the health facility interviews, household surveys and household interviews to construct a picture of the functioning of the government health system in Makwanpur. The government health services were selected as the focus (rather than other provider options) because in theory every household should have access to a government facility and it is utilisation of government facilities that we most hope to improve at the outset of this study.

Table 5.6 presents an overview of the different government facilities which were included as part of the analyses in this section. As can be seen, not all wards use the facilities within their own VDCs. The factors that contribute to this choice will be explored further in the final models.

Table 5.6 An overview of different government health facilities utilised by the households in the sample study districts.

Government Health Facility (n=19)	VDCs (and wards) from Survey Sample which Utilise this Particular Facility
Kalikatar HP [A]	Kalikatar (wards #1-#9)
Khairang SHP [B]	Khairang (wards #1-#9)
Taldunga HP (Kavre District)	Beteni (ward #1)
Phapabari HP	Beteni (wards #2, #3, #5)
Gimdi SHP	Beteni (wards #8, #9)
Beteni SHP [C]	Beteni (wards #4, #6, #7)
Asrang HP (Lalitpur District)	Manthali (wards #1, #2)
Thingan HP	Manthali (wards #8, #9)
Manthali SHP [D]	Manthali (wards #3-#7)
Sukaura SHP [E]	Sukaura (wards #1-#9)
Phakel SHP	Kulekhani (wards #5, #8)
Markhu SHP	Kulekhani (wards #8, #9)
Kulekhani SHP [F]	Kulekhani (wards #1-#4, #6, #7)
Daman PHCC	Bajrabarahi (wards #5-#7, #9); Palung (wards #1, #2, #5, #7-#9)
Bajrabarahi SHP [G]	Bajrabarahi (wards #1-#4, #8)
Palung SHP [H]	Palung (wards #3, #4, #6)
Bhainse SHP [I]	Bhainse (wards #1-#9)
Padampokhari HP	Churiyamai (wards #1, #2)
Churiyamai SHP [K]	Churiyamai (wards #3-#9)

5.3a Distances to & Accessibility of Government Services[9]

As many previous studies have demonstrated, when it comes to health-seeking behaviours, accessibility of health facilities often matters, especially in a place like rural Nepal, where geography poses a unique challenge. In recent years, with a revived commitment to primary healthcare, the Nepalese government has made a concerted effort to increase accessibility of health services, and in Makwanpur their efforts seem to have been largely successful. Over half of the households in

[9] This distance data comes the GPS mapping of the district.

the sample had a government facility within 2.5km of their homes, while very few had to travel more than 5km to reach the nearest facility (figure 5.16)[10].

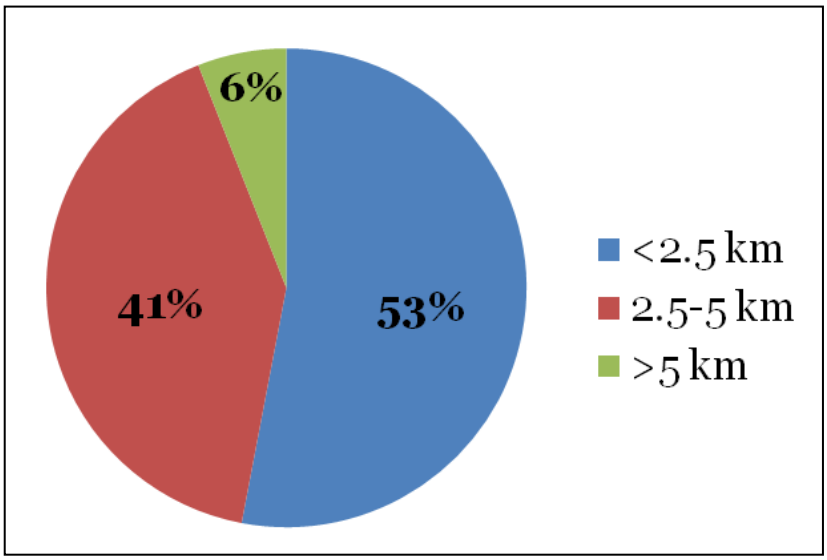


Figure 5.16 Distances between wards in the sample and nearest government health facilities (n=2334).

In terms of walking time, which is perhaps a more useful measure of accessibility when navigating hills, the majority of households had a health facility within an hour of their houses (88%) and only 291 households had to walk more than an hour to reach the nearest facility. For most people in rural Nepal, anything under several hours is considered nearby:

> *"It's not that far [to the HP]. It only takes 2-3 hours to get there from here."*
> *~S-MG-8.3 (26,F)*[11]

The average walking time between toles and facilities was 36±18 minutes. The minimum walking time was three minutes, and the maximum was 106 minutes

[10] This distance data comes the GPS mapping of the district.
[11] The code after each quote (ie S-MG-8.3) corresponds to the table in **Appendix 5.5** with an overview of each respondent's basic characteristics.

(table 5.7 breaks down the distances between toles and health facilities, and between primary and secondary care facilities in kilometers)[12].

Table 5.7 Distances (in km) between toles and nearest health facilities, between SHP/HPs and PHCCs and between SHPs/HPs/PHCCs and the District Hospital (DH) in Hetauda municipality.

Distances (in km)	From Toles to nearest SHP/ HP/PHCC	From SHP/HP to PHCC	From SHP/HP/PHCC to DH
Mean ±SD	2.4 ± 1	10 ± 6	20.6 ± 9
Median	2.29	10.5	21.95
Range (MIN, MAX)	0.22, 7.1	0.25, 23.5	6.07, 45.15

While most households felt primary care services were within a reasonable distance from their homes (89% rated physical accessibility as fair, good or excellent), for some, distance still poses a barrier to receiving adequate care (11% rated physical accessibility as poor; figure 5.17):

> *"The sir who gives the medicines had a look with the help of a torch light and had said that the infection was severe and hence I should immediately see the doctor. He asked me to wait, but I said that I didn't have any time because I had to reach home the same day...Then, he asked me to come back in five days. I told him I couldn't as I lived far away. So, he told me to see if it gets any better and if not, see a 'big' doctor." ~S-AB-2.4 (38, F)*

[12] Please note, this data only refers to the period prior to the monsoons. Once the monsoon season starts, the time and distances increase because alternative routes around the rising rivers must be found.

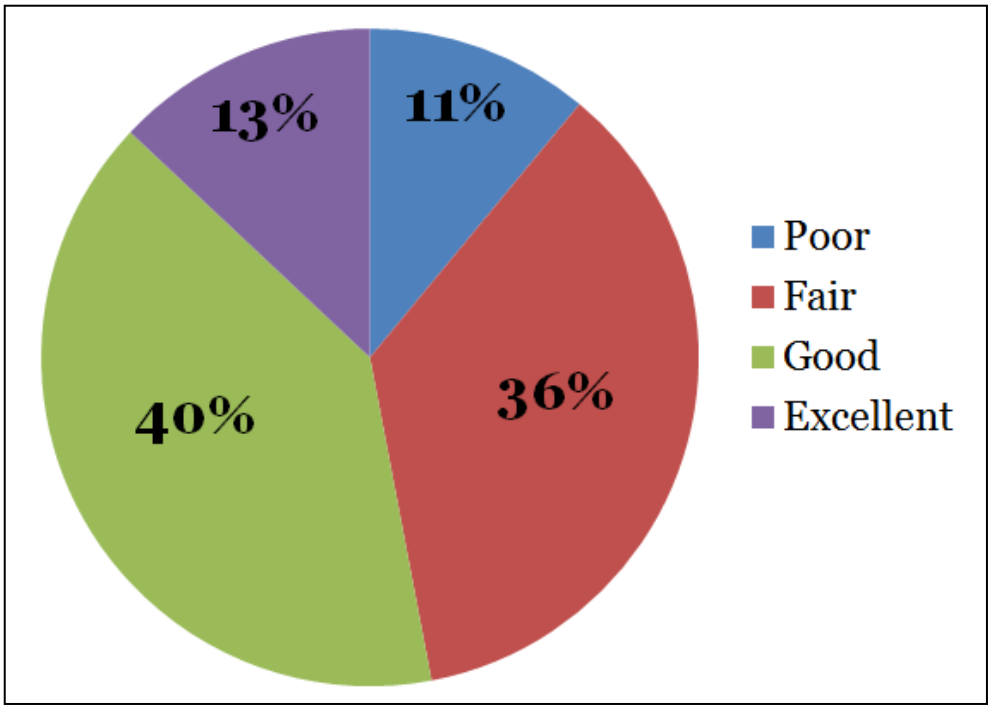


Figure 5.17 Ratings from the household surveys of the physical accessibility of government health services. (n=2082, excluding 19 missing cases and 233 'Don't Knows')

In terms of vehicular accessibility, of the nineteen different facilities utilised by households in the sample, 75% had some road (either paved or dirt) leading to them allowing vehicles to access the facilities if necessary (figure 5.18). In one qualitative interview in one of the more remote VDCs the respondent mentioned the road as increasing ease and accessibility of care:

> *"Now there is a road here. If you call a vehicle, they come. It's very convenient. Some years ago we had to carry patients until the next VDC. As it took so much time, some patients died on the way." – S-NK-5.3 (46, M)*

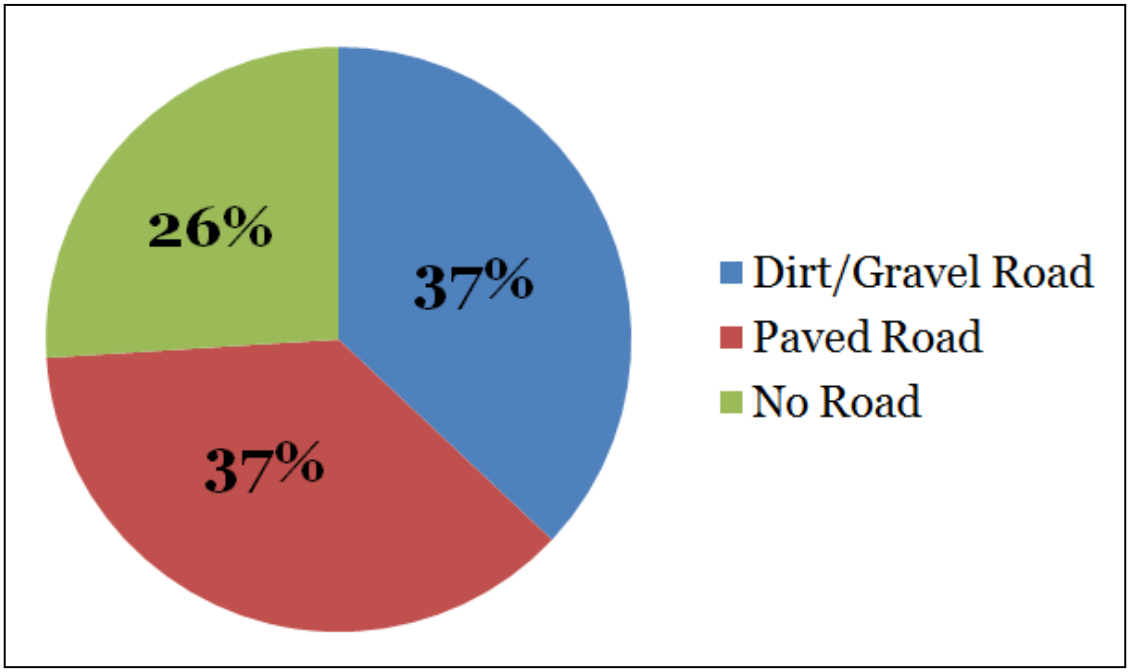


Figure 5.18 Road accessibility of health facilities utilized by households in the sample districts (n=19)

Despite the increased accessibility of care providers, navigating the landscape of rural Nepal is still no easy task given the frequent bandh's (strikes) resulting in road closures:

> *"I left home thinking I would go to Kathmandu but there was a bandh on the way. So, my son picked me up on his motorbike and took me to the community hospital [which was nearby, but did not provide the same quality care]." ~ S-NK-5.1 (42, F)*

Moreover, when a patient is sick and cannot walk, it can be a challenge to get him/her to even nearby facilities because of the hilly terrain and lack of vehicles:

> *"We don't have a vehicle, so we have to carry the patient. We make a bamboo basket or tie a bed sheet to a bamboo stick and make a hammock so that we can carry them. It would be more convenient if we had access to a vehicle. Sometimes the patients die on the way. A few days ago a four year old child died a little down the road, so they returned. It would be nice if they [the health facilities] were closer." ~S-AB-2.4 (38, F)*

> *"He is a two month old child. It is hard to carry him around, and we have to walk uphill and downhill [to get to a health facility]. So, I am trying to treat him at home as much as possible." ~S-MG-8.3 (26, F)*
>
> *"There is no transportation facility and it is hard to find people to carry patients to Hetauda as everyone is busy with their own work. Sometimes they carry you half way and leave. It gets really problematic." ~S-AB-5.1 (24, M)*

In fact, only six out of the nineteen health facilities (32%) in the sample had access to ambulance services for expedited patient transport, whereas the rest relied on public transport or walking for the transport of patients from the household to the health centre or from the health centre to the next level health facility.

In certain months of the year, right after the monsoon seasons, even able-bodied individuals have difficulty gaining access to health facilities because of the rising rivers which prevent people from crossing to a health facility located in wards on the other side of the river. This was mentioned as being a major barrier preventing access in half of the surveyed VDCs. Several households also mentioned the hills as barriers to accessing particular facilities.

5.3b *Costs & Affordability of Government Services*

While many studies have found distance to health services to be a very important factor in dictating care choices, so too have many studies found cost of health services to be comparably important in shaping people's care trajectories.

In Nepal, as mentioned earlier, the vast majority of medicines and all essential care at the SHP, HP and PHCC level of the system are supposed to be provided free of cost, so overall, most households rated the affordability of government health services as good or excellent (71%), while very few people rated affordability as being poor (3%; Figure 5.19). Of the 2,334 household surveyed, 253 households (11%) said they were unable to rate the affordability of services, mostly due to the fact they had not utilized services within the past five years, and data was also missing from 18 households (~1%).

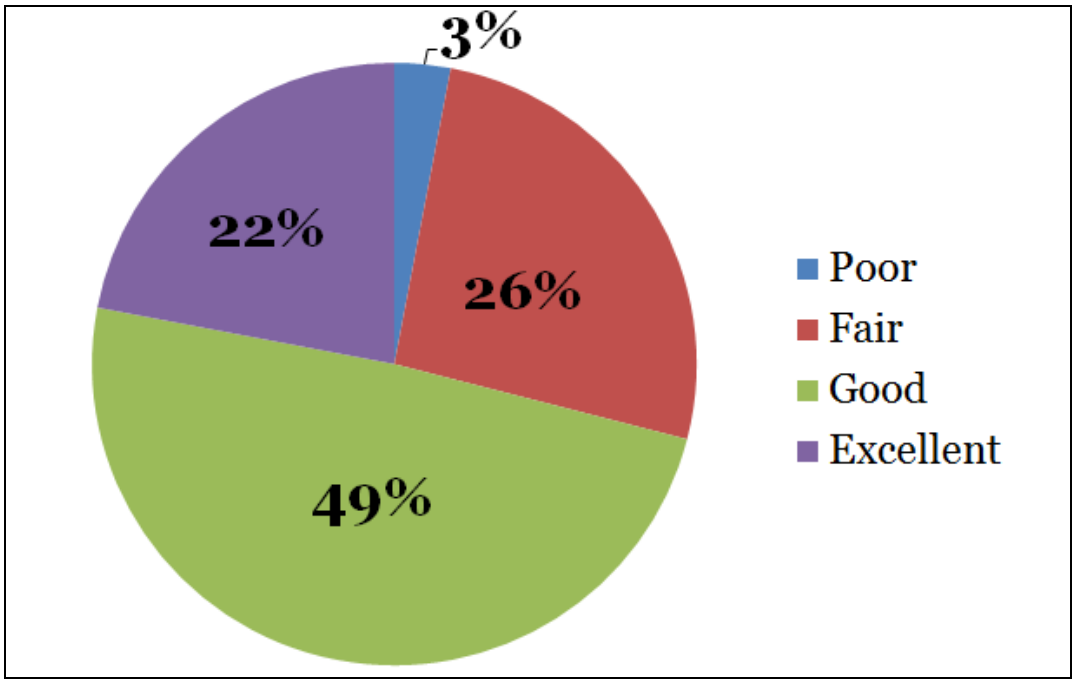


Figure 5.19 Affordability ratings of government health services in Makwanpur district (n=2063)

Consistent with the household ratings of affordability, only two of the 19 government primary care facilities being utilised by households in the sample charged a registration fee for the facility, and of those two facilities which did, one required 5 NPRs per visit as a way to encourage patients from stocking up on

free medicines when they didn't need them, and the other required a 30 NPRs annual registration fee. Of the four facilities offering ER or inpatient services, the bed costs ranged from 25 NPRs to 50 NPRs/night. Of the sixteen facilities offering pregnancy tests, the fees varied drastically, from no cost to 100 NPRs/test, while of the two facilities offering other lab tests (ie sputum blood, urine etc.), one offered the services for free, and the other charged between 30-50 NPRs depending on the specific test required. Perhaps the most costly aspect of government services were the ambulance fees required to get to the district hospital, the regional hospital or Kathmandu. Of the six facilities offering ambulance services, the costs ranged from 25 NPRs to get to the DH from a nearby VDC, to 5,000 NPRs to get to Kathmandu. Getting to Kathmandu was the most expensive, with an average cost of 4,125 NPRs; Getting to Bharatpur hospital (Zonal Hospital) costs an average of 2,050 NPRs, while getting to the district hospital in Hetauda cost an average of 1,670 NPRs.

Still, despite the purported affordability of government services in Makwanpur, many households when interviewed complained about the overall costs of medicines and the fact they were often not provided free of cost:

> *"They gave medicines [the HP staff]. They took money too....For an injection and some tablets it cost 295 rupees and the next time I bought medicines worth 500 rupees...We can't get medicines for free. They charge us money...Nothing is free. The MCHW used to give cough syrup for free, but the AHW is charging for that now. He took 500 rupees from me for an injection and tablet. All they ask for is a bundle of money. Moreover, it is probably expired medicines that they give us and we have to pay even for those!" ~S-NK-5.3 (46, M)*
>
> *"It is the same at all government facilities. You end up having to pay for medicines anyway." ~S-AB-2.4 (38, F)*

While some complained about the costs of other services or tests:

> *"They charge 100 rupees for urine tests. The needle [for pregnancy tests] only costs 25 rupees in Kathmandu, isn't it? They buy those needles from Kathmandu and use that to test urine here and that is why they charge 100 rupees." ~S-AB-2.4 (38, F)*
>
> *"Sometimes they give us saline water and charge us for it – shouldn't it be free too?...They charge 200 rupees for just one saline" ~T-AB-1.4 (21, F)*

In some cases, the costs of services were even mentioned as a direct barrier to utilization (this will be discussed further in the next chapter):

> *"I can't go to the health post now; It costs money [20 rupees] early in the morning. It doesn't cost anything after 12 noon, so I will try to go later." ~T-MG-3.2 (40, F)*

In cases where health facilities were not charging money directly themselves, households complained about often having to purchase medicines at a cost from a nearby medical or pharmacy[13]:

> *"What is free here? We have to take a ticket for five rupees. Then they write a prescription on a piece of paper and we are asked to but that from the medical. The only give 6 to 7 medicines and the rest all we have to get from the medical. Maybe the medical sells the medicines from the health post, god knows. They refer to a certain medical and maybe that belongs to them"~P-RS-7.2 (44, F)*
>
> *".....They don't give proper medicines, they just ask us to get from elsewhere. Those who can buy, buy, those who cannot afford to have to take out a loan. We have to buy medicines, they don't give them free of costs." ~P-RS-7.3 (68, F)*

Further, many households mentioned systemic corruption in which the health workers sold government medicines in their pharmacies at a cost or tried to con patients out of money:

[13] For an overview of the costs of medicines at some of the pharmacies in the study districts please see **Appendix 5.6**

> *"The medicines given at the health post by the government are kept in the medicals. But even though they do that, they should look after the village. But, they can't manage it. Medicines given by the government should be given for free...Even though they bring medicines, they sell them" ~T-AA-1.2 (58, M)*
>
> *"They say that the workers at the health post bring medicines for free and then charge us for those free medicines." ~T-AB-1.4 (21, F)*

For the number of people who complained about the affordability of services, there were still a few who mentioned the value of the free services and free medicines and their overall satisfaction with the systems' costs.

5.3c *Availability of Staff at Government Facilities*

Health facility quality is not only predicated on how accessible and how affordable a facility is, but it is also a function of man power and staff availability, so it stands to reason that health service utilisation might also be predicated in part on availability of staff and services as well.

Staff availability itself is a function of a variety of different factors, one of which is simply the overall health facility hours. The government regulations state that peripheral health facilities are supposed to be open for six hours per day (exclusive of Saturday) from 10am until 4pm. In reality, however, only two of the health facilities in the sample abided by these hours. Most of the facilities (68%) were opened for only five hours and the rest (21%) were opened for only four hours per day. Overall, households seemed pretty dissatisfied with the health facility opening hours:

"In government hospitals, the doctors show up at 10:30am instead of 10am. Then, they leave at 2pm. That trend is here too [at SHP]. ~S-AA-4.4 (68, M)

"They [SHP] should open daily and stay open throughout the official time...But, it is closed or there is no one there. Hence, the people tend to think they are always closed. If they would be opened regularly, people would be motivated to go there first and then only go somewhere else if necessary." ~S-AB-1.6 (25, F)

"They only open the HP when they feel like it. I recently had an argument. Who wouldn't be angry to see the HP closed when one travelled from far to seek treatment?" ~S-RS-2.6 (50, M)

Households also often mentioned that health facilities were not only opened for fewer hours than required on a daily basis, but were often closed for long periods (up to several weeks) during holidays or the monsoons:

"There was no one at the health post. No nurses, no doctors. At the time it was Dashain [festival season]. They all had gone home and didn't come back for weeks." ~T-AB-1.3 (33, F)

"During the monsoons this year, he [AHW] didn't come for 3 to 4 months. So many people fell ill then. We called him many times and requested for him to come and open the facility, and then finally he came." ~S-NK-1.1 (24, M)

While facility hours are obviously important in determining staff availability, so too is the actual manpower at a given health facility. According to government regulations, the SHP should have at least four staff members, the HP should have at least seven and the PHCC should have at least twelve (**Appendix 2.3**). Overall, 53% of the facilities in the sample were understaffed (with vacant posts) by at least one person, and of these, three facilities were missing the facility "in charge" (ie the HA, AHW or senior AHW), two were missing office assistants, three were missing AHWs and two were missing VHWs/vaccinators (Figures

5.20). All of the facilities, however, had at least one female provider, and more than half had two or more female providers (either ANMs or MCHWs).

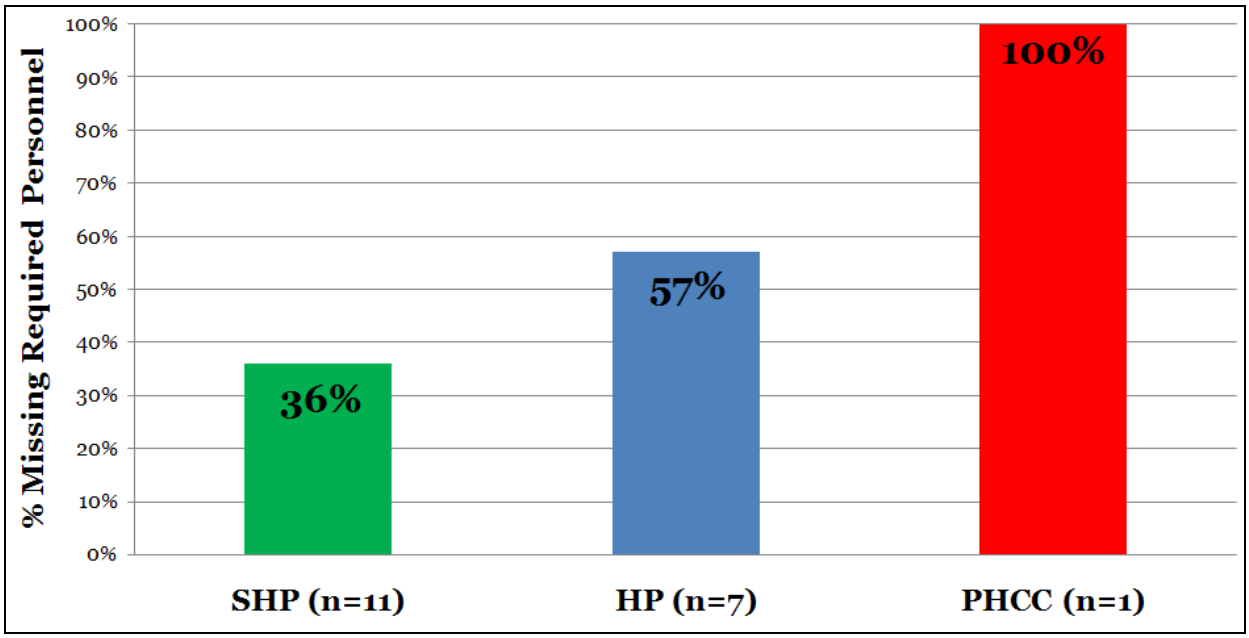


Figure 5.20 Percentage of health facilities in the sample missing at least one required staff member (broken down by health facility type).

If we look instead not at objective manpower requirements, but rather household's subjective ratings of staff availability, the vast majority of households in the survey sample seem to be satisfied overall (figure 5.21):

> *"I feel the SHP is convenient. If there was no SHP, I wouldn't have known where to go. Here when I go there is an MCHW and a doctor [AHW], so I go there ~S-AB-5.3 (28, F)*

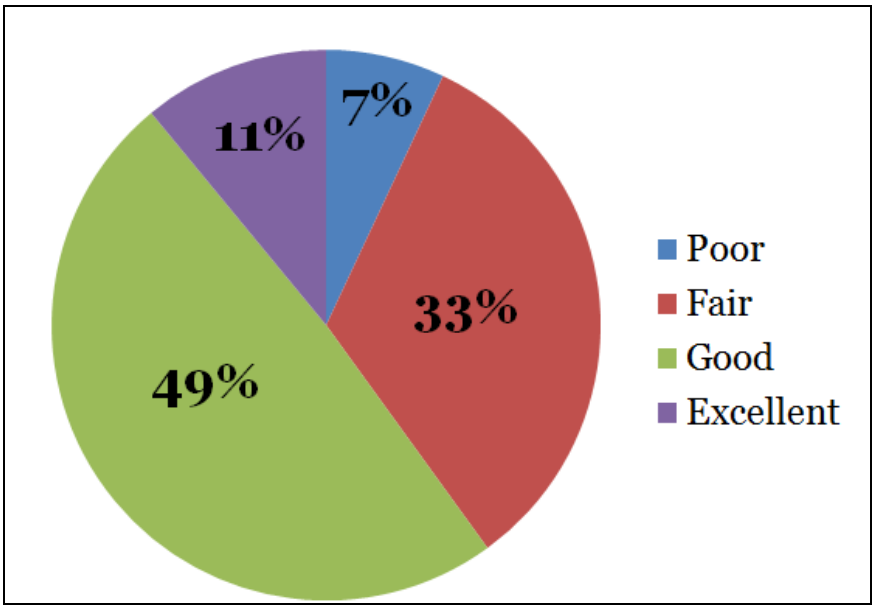


Figure 5.21 Overall staff availability ratings for government health services in Makwanpur district (n=2058).

Similarly, households overall seemed pretty satisfied with the availability of female providers in the government health facilities:

> *"Nowadays we can say whatever is in our mind as there are sisters [ANMs/MCHWs] at the health post. Before we couldn't say as there were only males. It is bashful to say to males. But as sisters are like us, it is easier to talk to them." ~ T-AB-1.1 (30, F)*

On the other hand, a few households mentioned dissatisfaction with the fact that sometimes *only* female providers were available when care was sought. In part this dissatisfaction stemmed from the beliefs that female providers were inferior to their male counterparts:

> *"Sometimes here only sisters are present. And it's not the same as having a sir [HA/AHW] in the health post. Sometimes we need health workers capable of going to the village urgently if necessary. Capable doctors should be present." ~T-AA-7.6 (20, F)*
>
> *"There [HP] the doctor [HA] doesn't stay there. Only nurses [ANMs/MCHWs] stay there, and they can't treat serious cases. So, we have to think about that." ~T-AB-1.5 (57, M)*

Finally, while facility hours and manpower requirements are extremely important in determining overall staff availability, perhaps the area where most households appeared dissatisfied with staff availability was with regard to rampant absenteeism and the subsequent necessity for task shifting onto unqualified personnel. Although the facilities may be opened, and the staff may be "stationed" there, many households complained about the likelihood of actually finding the qualified government staff at the government facility (this is also indicated somewhat in some of the quotes above):

> *"When the in-charge is there, it [SHP] remains opened until 6pm. However, he doesn't come for more than two days a month. That is a big problem we have. The people who can recognize medicines don't stay here. Because only the people who don't know the medicines stay, the medicines are going bad without their knowledge...If he [AHW] would stay, the children wouldn't die from diarrhea, typhoid, epilepsy...2 to 4 children are dying right now." ~S-RS-2.6 (50, M)*
>
> *"Sometimes I find him [AHW], sometimes I don't. He doesn't stay here too often. He comes once a month, stays for around 2 to 3 days and then goes back...The AHW should be present at the HP in a regular manner. Sometimes patients with minor illnesses have to be taken to Hetauda. The AHW doesn't stay, perhaps he is frustrated. Sometimes, there are no patients at the HP. That's how it is in a village. When there are patients, there is no doctor and when there is a doctor, there are no patients." ~S-NK-1.3 (35, F)*

The profound impact of this absenteeism is best exemplified by one household's account:

> *"There are seven staff members assigned to the HP and we are lucky if we find a single one. I would have been dead if I had visited the HP only a day later because I would not have met the doctor [HA]...Many patients went to the HP, but there were no doctors. There were supposed to be 6 to 7 of them. I wonder where the other doctors went?..They don't stay in the hospital on a daily basis – people return without seeking doctors. It would be good if at least a doctor stayed behind." ~T-RS-4.6 (38, M)*

It is not just general absenteeism that results in lack of available providers, but also the constant provider turn-over which affects care and obviously impacts providers sense of personal responsibility to the communities they are placed in:

> *"The health workers there [at HP] are always changing every month. So different people are always coming here...none of them stay." ~T-AB-1.2 (26, F)*

So, while people tended to rank provider availability as good, when probed deeper, the problems with absenteeism, facility hours and lack of man-power emerge.

5.3d *Quality of Health Workers & Care at Government Facilities*

Even when health providers are available, they are not always adequately qualified, nor do they always provider good quality care. Although the vast majority of households rated health providers at government facilities quite well in terms of respect for patients, quality of explanations provided regarding illnesses and overall attitudes (figure 5.22), and although the majoriy of families rated the overall quality of care as good (figure 5.23), when asked in greater detail, several trends emerged:

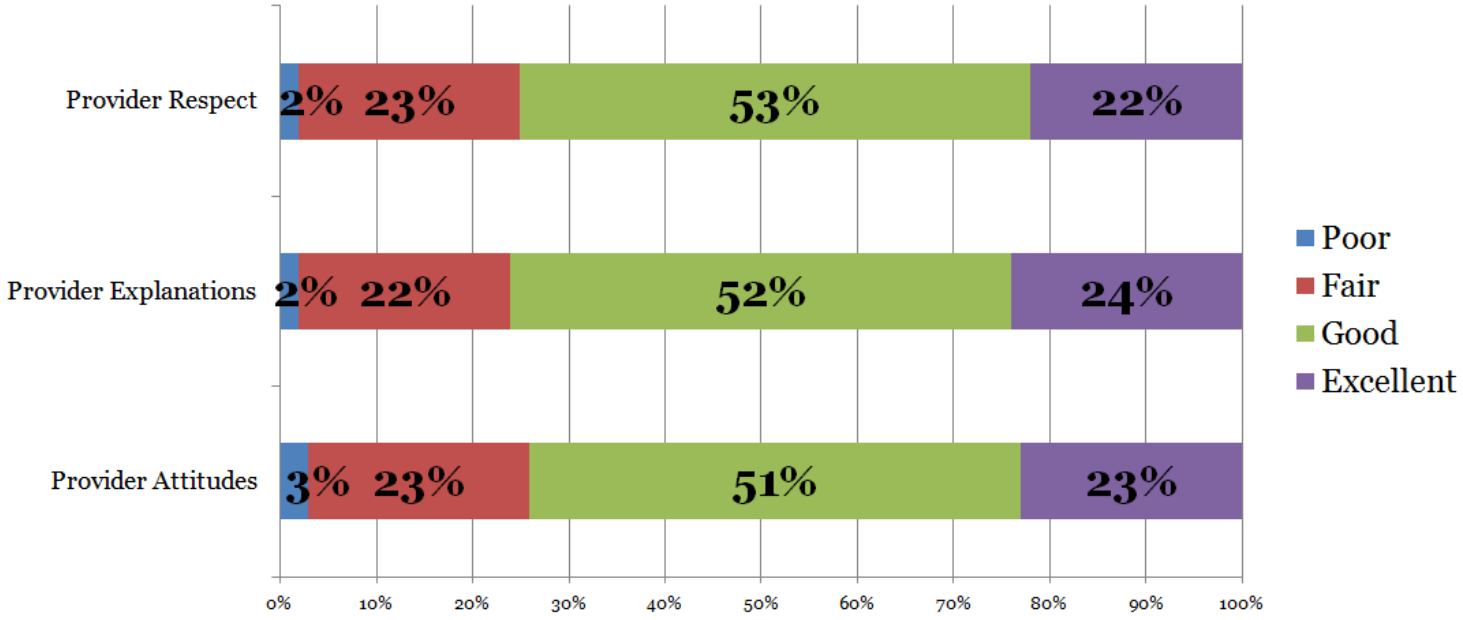


Figure 5.22 Ratings of health provider quality (attitudes, explanations and respect) from household surveys (n=2066).

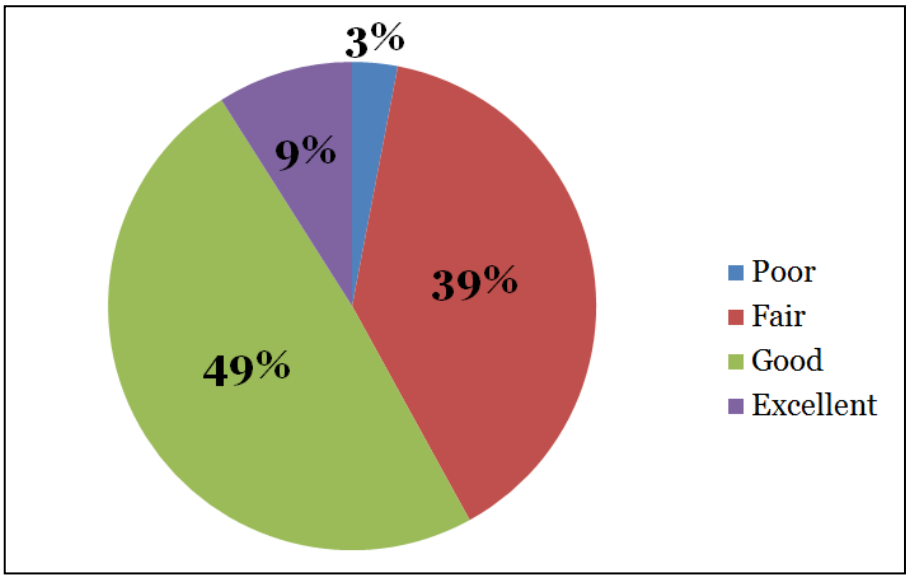


Figure 5.23 Ratings from household surveys of quality of care at government health facilities (n=2050).

Firstly, the majority of health providers do not spend adequate time examining patients or explaining patient diagnoses. The majority of households interviewed

mentioned either a very rushed or cursory physical exam in the hopes of getting through more patients quickly:

> *"HA examined him [son] for about 10-15 minutes. What can really come from spending so little time with the baby? I should take him for a proper check-up and if I think the child is developing something else, then I should bring him back again." ~T-NK-9.2 (21, F)*
>
> *"There's so many patients waiting. So, the doctors hurry as they can make more money if they finish examining all patients. It would be better if they took their time, gave it due thought and diagnosed my illness as per their qualifications. They give a certain medicine saying that it will cure my illness and ask to return if not. The next time I go, they're again done in two minutes." ~S-AB-5.1 (24, M)*

Or, even worse, no physical exam at all:

> *"Checking?....they [government health workers] do not examine us even if we need to examined! ~ T-AB-1.4 (21, F)*
>
> *"He [AHW] hasn't examined me. When I tell him I have a headache, he says it is probably weakness and give me a tablet. That is all he does...why would they spend time examining us? They take a moment and put something around the arms. After doing that, they say I am weak and give me a tablet and send me away." ~S-RS-1.5 (41, F)*

This lack of proper examination understandably frustrated several households:

> *"We ought to go to the HP, but what should we do?! They don't examine when my child is serious, so why should we go?! There's treatment for small children there, while older children can't get any. What can I say?...They discharge us as soon as we get there." ~P-NK-4.1 (19, F)*
>
> *"I feel they [government health workers] are selfish, but like how I cannot explain. They don't examine with all their attention, they are somewhat selfish." ~P-NK-1.3 (77, M)*

Even when households have to wait all day for service, the provider still examines them hastily:

"They [government health workers] just sit there holding a pen. We can't sit and hold a pen like that, we need to cut grass. We don't have a gas stove, so the food is late if we spend too much time. We tell them to move quickly, but the sisters [ANMs] say we have to wait our turn. And so, we have to sit there the whole day….but, when he [AHW] checks us, though, he does it in haste."
~T-AB-1.5 (21, F).

More than just in-adequately examining patients, several households mentioned dissatisfaction with the overall provider communications regarding treatment, care or diagnoses. Several households complained that providers don't explain things properly or at all:

"There are some [government health workers] who don't explain things to patients properly. They get irritated if we ask. We like doctors who explain things well to us." ~S-RS-1.2 (37, F)

"They asked me to go here and there. I am not an educated man and I didn't know anyone there [at DH]...They shouldn't talk irrationally, they should make us understand nicely, but he [health worker] didn't ask to come again after taking the medicines...If he had made me understand properly where I should go, that would have been better." ~P-AA-1.5 (58, M).

Other households mentioned the lack of provider concern for patients and their rudeness or lack of respect:

"They should speak politely; they should ask about our problems properly. They usually don't ask and they don't care. They just pick up medicine and give it to us." ~S-RS-2.6 (50, M).

"I haven't found any doctor who carefully listens to the patients. They should take more time with them, listen to their history and concerns and determined exactly what the illness is. But, they are always in a hurry, like the saying, 'work for the government and do nothing but wait for the sun to set.'"
~S-AB-5.1 (24, M).

This lack of concern sometimes results in patients not being able to fully share their symptoms with the provider:

"I would have told her [ANM] if she had asked about my back pain and knee pain and anorexia. But, why would I tell something they didn't ask for?" ~T-RS-4.5 (60, M)

Two household even mentioned how the health workers admonished patients or called them troublemakers for asking for medicines:

"He [HA] scolds us if we don't take the medicines. He says, 'you take the medicines from here [HP] but you don't consume it; why do you do so?" he yells like this." ~T-AB-1.4 (21, F).

"I didn't ask anything because the one [ANM] who gave me the medicines, she called me a troublemaker. They called me a troublemaker [for asking for medicines]." ~T-MG-3.2 (40, F)

While others mentioned health provider greed as one of their primary motivating factors for their services:

"They [government health workers] are just staying here for the sake of money. Even if we go there for a checkup they don't treat us well."~P-RS-7.3 (68, F).

"They [government health workers] prescribe medicines for headache, stomachache, but they are not concerned about really healing. They are only concerned with medicine sales." ~P-MG-8.2 (41, F).

Even though the majority of households interviewed expressed dissatisfaction with provider communications and interactions, there were a few households who mentioned their satisfaction with the providers and their services:

"I like the way the MCHW talks to people; I like that she examines and inquires about our problems. She gives advice regarding where we should go and what we should do, and also gives her contact number just in case there are problems; I like that about her as well. They usually spend adequate time if there aren't too many patients waiting. However, if there are other people waiting, one has not to be selfish and let other's be examined as well." ~S-MG-3.5 (22, F)

"The doctor [HA] who treated me was really nice. He took good care of me throughout the night and also administered normal saline. He kept asking me how I felt and whether I was feeling any better. I am really satisfied. I was about to die and he saved my life." ~T-RS-4.6 (38, M).

Still, overall, most households felt health providers at the government facilities were of low caliber (especially when compared to doctors in cities):

> *"The staff at the HP aren't qualified at all. What could we do?" ~S-AB-1.5 (50, M)*
>
> *"The doctor here is less well educated than the city doctors and only knows how to write a few medicines." ~P-MG-8.2 (41, F)*

One household mentioned they felt the health providers were no better than the villagers when it came to prescribing medicines:

> *"They [SHP staff] could explain if they knew anything at all. I feel like the staff there are the same as us. We also know what a 'cetamol' is, probably because we use it frequently. They also mostly give that. There is no service that they give that is new or complex." ~S-AB-1.6 (25, F)*

Another household described how provider's inexperience resulted in an improper diagnosis:

> *"This time I went to the HP. Pus was being discharged due to an infection in my ear. I, as the person experiencing the illness, know what is happening to me. The doctor at the HP told me that there was no infection in my ear and that it was completely clean. I thought to myself, 'you clearly don't know how to examine patients.' I had myself seen the pus in my ears and there he told me there was nothing! I asked him to give me the medicines anyhow and then he gave me some tablets. He was new there, so poor guy didn't know how to examine patients. I laughed to myself when he told me my ear had no infection as I myself could see the pus there. I suspect he didn't know how to do his job....I didn't' argue with him. I am just saying one should have some experience." ~S-RS-2.2 (42, M)*

Similarly, another household mentioned the over-prescribing of medicines which can be attributed to provider's inadequate training:

> *"Here they [government health workers] don't give any specific medicines. They give around four to five medicines [for each disease] because they are not sure which medicines to give." ~P-RS-7.1 (50, M)*

One household even referred to the government services and providers as fake because of their inadequacy:

> *"As for service, we need better service. We have fake service here....Health workers here understand a bit, but not really that much." ~P-NK-1.6 (28, F)*

Most of these subjective opinions from the household interviews are corroborated by more objective measures of health provider quality measured by adherence to standard treatment protocols for peripheral level facilities as set out by the government of Nepal. When asked about treatment for fever, cough, diarrhea etc., the majority of health workers (68%) in the sample VDCs only abided by 50% of the correct procedures and the remaining 42% weren't even able to abide by that much. Moreover, 60% of health providers advocated for the prescription of multiple different antibiotics for uncomplicated cases easily treated with one antibiotic.

So, again, while the rankings of provider behaviours and attitudes and overall quality of care were mostly good, a more in-depth analysis revealed both subjective and objective inadequacies.

5.3e *Physical Infrastructure & Cleanliness of Government Facilities*

In taking a holistic approach to health facility quality, it is also important to take into account the physical facilities themselves. While physical infrastructure and cleanliness of the health facilities may not directly impact care-seeking decisions as much as costs, access, staffing or quality of service providers does, the physical infrastructure and overall appearance of a facility is often used in conjunction with other metrics as an indication of facility quality. As a result, it is also

important to consider this aspect of health facility quality in the interest of a comprehensive assessment.

Like most other ratings, when asked to rate the health facility cleanliness, more than half of the households rated the cleanliness as 'good' or 'excellent,' whereas very few rated the cleanliness as 'fair,' and even fewer as 'poor' (figure 5.24).

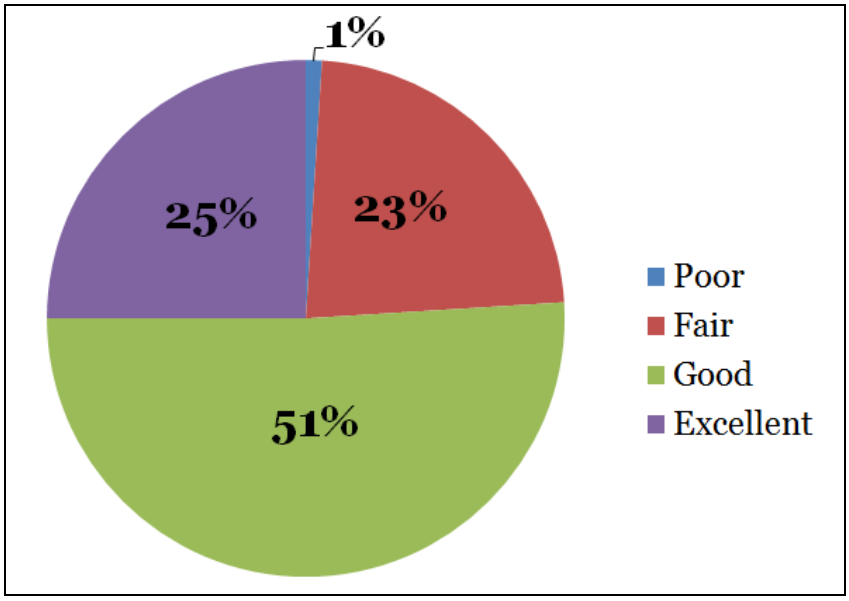


Figure 5.24 Ratings from household surveys of health facility cleanliness (n=2053).

This objective cleanliness rating data is pretty consistent with the more objective cleanliness data obtained from the health facility surveys using the NLSS II Health Facility cleanliness checklist (table 5.8). Overall, 80% of the facilities in the sample were rated as clean, whereas only 20% were rated as dirty.

Table 5.8 Health Facility Cleanliness Checklist [adapted from NLSS II: Health Facility Survey]

	FLOORS: Swept, no obvious dirt or waste
	COUNTERS/TABLES/CHAIRS: wiped clean; no obvious dust
	EQUIPMENT: broken equipment, paper boxes, clutter around areas
	WALLS: reasonably clean
	DOORS: minor or no damage
	ROOF: minor or no damage
	SHARPS: needles or sharps outside containers
	SHARPS CONTAINERS: containers overflowing/broken
	OTHER TRASH: bandages, non-sharp infectious waste observed outside trash
	RATING: rate overall cleanliness on scale from 1-5 (1 is most dirty, 5 is most clean)

Although it did not come up in the majority of interviews, one household did explicitly complain about the cleanliness of the health facilities and the lack of hygiene when treating patients:

> *"They also don't have enough equipment for sterilization. I don't know much about these things but there seems to be a lack of cleanliness, especially during the dressing of wounds." ~ S-RS-1.3 (28, F).*

All government health facilities are required not only to maintain certain standards of hygiene, but also provide bathroom facilities for patients. Of the health facilities being used by people in the sample, 17 facilities had functional toilets, while 2 did not. Similarly, all facilities are supposed to have running water in or near the facility complex. Three facilities had piped water inside the facility, eleven had piped water on the facility grounds, three had a public tap nearby (within three minutes), one had access to an open well nearby and one had no water. Despite having access to water, 70% of facilities mentioned there were portions of the year when water was scarce.

In terms of electricity, most facilities (n=10) were connected to the grid, while the majority of the remaining facilities had solar power only (n=6). Two facilities had no electricity (one of the facilities had the power shut off because of unpaid bills) and one facility had access to an inverter for the periods when there was load-shedding[14].

Not only is important to consider the cleanliness of the facility and the availability of electricity, water and bathroom facilities, but it is also equally important to consider the actual physical facility in terms of the number and privacy of the available rooms. It is important to bear in mind, however, that the expectations regarding privacy in the medical setting may differ from one country to the next. Less than half of the facilities in the sample (n=8; 42%) had the government required number of rooms. The majority of facilities were missing separate waiting rooms or store rooms. Still, despite being short a few rooms, the majority of facilities (n=14; 74%) had separate private exam rooms, and overall households seemed satisfied with the privacy afforded them (figure 5.25).

[14] Given that all of the power in Nepal is hydroelectric, and given that the country does not have enough reservoirs for the increasingly urban population, there are long stretches of the year (leading up to the monsoon seasons) when power is cut off for up to eighteen hours a day. Some facilities and families have generators or batteries and inverters to enable power during these periods of "load-shedding," as it is called.

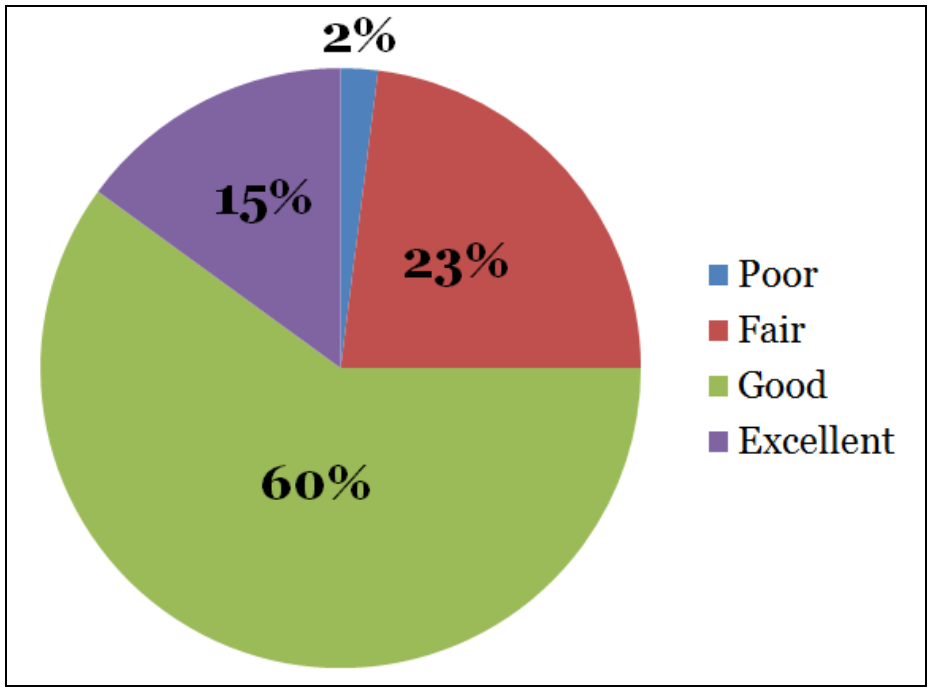


Figure 5.25 Ratings from the household surveys of the privacy of the exam rooms at the government facilities (n=2020).



Figure 5.26 A contrast between the physical infrastructure of some of the health facilities in the sample (both inside and out). For more images of the health facilities see **Appendix 5.7**.

Table 5.9 An overview of health facility physical infrastructure variables (n=19)

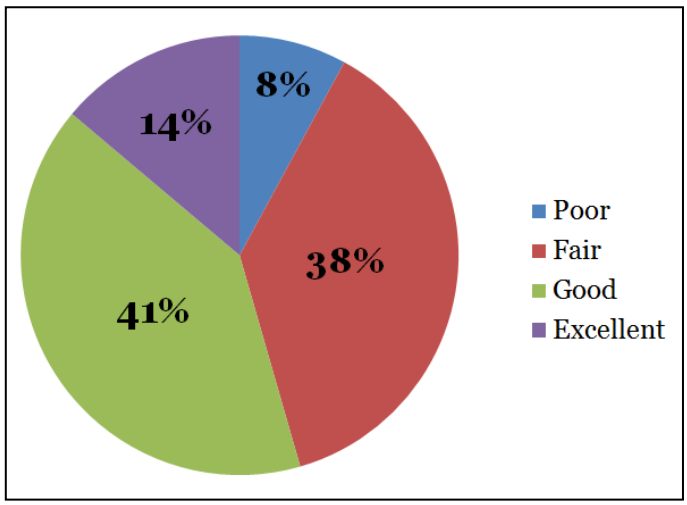
Facility Label	Facility Type	No. of Rooms	No. of Beds	Electricity Type	Water Type	Amount of Land Occupied
A	HP	5	2 – IP/ANC 2 –Delivery	Solar	Piped on grounds	0.07 hectares
B	SHP	3	None	Solar	Piped nearby	0.04 hectares
C	SHP	5	3 - ANC	Solar	Piped on grounds	0.07 hectares
D	SHP	5	1- Delivery	Solar	Piped nearby	0.05 hectares
E	SHP	6	1 – IP/ANC 2 -Delivery	Connected to Grid	Open Well nearby	0.05 hectares
F	SHP	5	1 –IP/ANC 2 – Delivery	Connected to Grid	Piped on grounds	0.02 hectares
G	SHP	5	9 – IP/ANC 1 – Delivery	Connected to Grid	Piped on grounds	0.08 hectares
H	SHP	4	1 – Delivery	None	None	0.07 hectares
I	SHP	6	3 –IP/ANC 1 –Delivery	Connected to Grid	Piped on grounds	0.1 hectares
K	SHP	5	2 – IP/ANC 1 –Delivery	Connected to Grid	Piped nearby	0.07 hectares
L	HP	7	1 –Delivery	Connected to Grid; Inverter	Piped on grounds	2 hectares
M	SHP	6	1 – IP/ANC 1 – Delivery	Solar	Piped on grounds	0.07 hectares
N	HP	7	2 – Delivery	Connected to Grid	Piped on grounds	0.07 hectares
O	HP	6	None	None – unpaid bills	Piped on grounds	0.07 hectares
P	SHP	5	2 – Delivery	Connected to Grid	Piped on grounds	0.02 hectares
Q	PHCC	12	3- IP/ANC 1 –Delivery	Connected to Grid	Piped into facility	1 hectare
R	HP	6	3 – IP/ANC 1-Delivery	Connected to Grid	Piped into facility	0.2 hectares
S	HP	5	2 – IP/ANC 1 - Delivery	Solar	Piped on grounds	0.07 hectares
T	HP	6	2 –IP/ANC 1-Delivery	Connected to Grid	Piped into facility	0.2 hectares

5.3f *Availability of Services, Medicines & Equipment at Government Facilities*

If the physical infrastructure of the facilities matters, so too does the equipment, services and medicines available within them in terms of dictating facility quality and potential care choices.

Availability of Medicines:

Like most of the other ratings, half of the households surveyed felt the availability of medicines were good (41%) and that medicines were relatively easy to obtain from the government facilities (figures 5.27a & 5.27b).



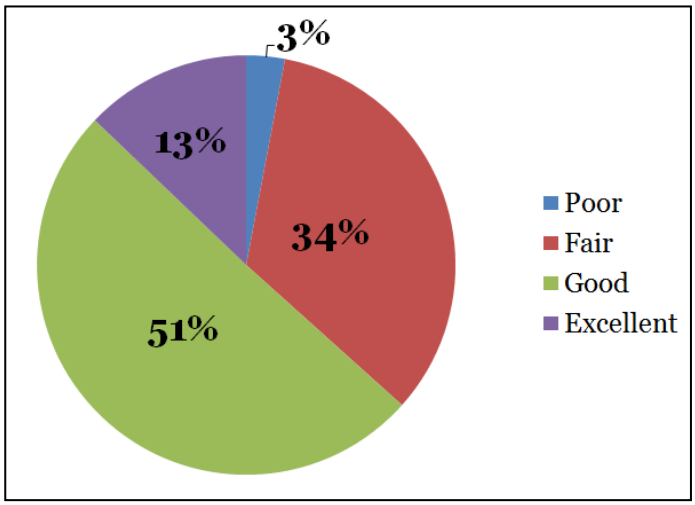


Figure 5.27a (*left*). Household ratings of the availability of medicines in government facilities in the sample (n=2048).

Figure 5.27b (*right*). Household ratings of the ease of obtaining medicines from government facilities in the sample (n=1975).

If we dig beneath the surface again and ask for descriptions beyond the ratings, a different picture of drug availability emerges. In fact, a lot of household actually complained about the lack of available medicines and the fact that they often had

to go elsewhere to get the necessary drugs (this was also mentioned in some of the earlier quotes regarding affordability of meds):

> *"Sometimes when we visit [PHCC] for treatment, they reply that the medicine is out of stock, and then we have to go somewhere else. It is very frustrating" ~P-AB-2.7 (42, F)*
>
> *"Sometimes medicine is out of stock, sometimes expired...Medicines should be on the authority of the doctor; no one else should be allowed to use in the absence of the doctor, but they do [and so it runs out]" ~P-AB-2.1 (18, M)*

One household blamed the inadequate drug supply on the remoteness of their VDC:

> *"The reason they run out of medicines at our HP is because it's remote; there's no transport facilities. It takes comparatively more time to get them here, so sometimes we cannot get the medicines when we are ill. They don't have any syrup based medicines. When the doctor [AHW] comes, he brings them to sell occasionally. Otherwise, it's not available here..Even if they have vitamins here, they run out most of the time. ~S-RS-1.4 (40, F)*

One household accused the health workers of prescribing too few medicines or prescribing the same medicines for different illnesses because of lack of availability, while other households mentioned that most syrup medicines for young children were not available at the government facilities:

> *"I feel like adequate amounts of medicines aren't available [at HP]. Even when I ask for a 'cetamol', the only give me four to six tablets when there is no doctor. When the doctor is here, he prescribes a little more medicine. If the doctor gives a medicine for wound infection, the ANM gives the same one for stomach ache. There are no cream based medicines for ear infection. They give tablets and ask us to soak it and then apply it on the infection. That's how it is. I think antibiotics aren't available in government hospitals; they are not available here either. We have to go all the way to Hetauda [4-5 hours] for cough syrup. There are no medicines and the doctors don't come regularly." ~S-AB-5.1 (24, M)*

One household attributed the loss of faith in the government health facilities to the shortages of medicines which often necessitated that households seek care elsewhere:

> *"It is not like that we don't have a health post here, but there aren't adequate treatment and doctors. We are lacking. That is why the patients and parents have negative ideas towards the health post. There are no medicines, so patients have to go other places for medicines. After that, they feel that they should have gone to that other place in the first place. Then, the confidence of patients decreases." ~ P-AA-1.6 (23, M)*

If we move away from subjective measures, and look purely at the objective availability of essential medicines as reported by staff at the government health facilities, all facilities in the sample were missing some of the required essential medicines (table 5.10). In fact, 42% (n=8) of facilities in the sample were missing more than 50% of the required medicines (these statistics include both essential and non-essential medicines which are supposed to be available at all peripheral government facilities; figure 5.28). One health facility was missing up to 60% of the required medicines.

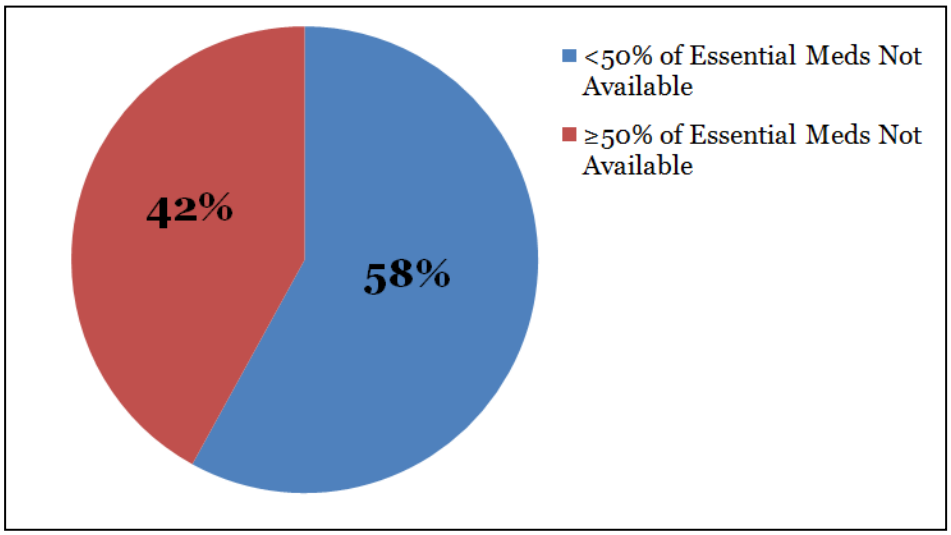


Figure 5.28 Availability of essential medicines at government health facilities in the sample area.

In terms of drug supply, eighty percent of the facilities in the sample indicated that the supply was regular and that there was rarely a period during which they were without necessary medicines (although this data does not comport with the

data on the availability of essential medicines unless the health workers are unaware of what medicines are supposed to be readily available).

Table 5.10

Availability of essential medicines in the ten VDCs where household surveys were carried out

Essential Meds	VDCs (Letters correspond to table 4.11)									
	A	B	C	D	E	F	G	H	I	K
Lignocaine Inj	Y	Y	Y	Y	Y	Y	N	N	Y	Y
Paracetamol Tab	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Chlorpheniramine Tab	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Pheniramine Inj	N	Y	N	N	Y	Y	Y	N	Y	Y
Albendazole Tab	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Metronidazole Tab	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Amoxicillin Cap/Tab	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
Sulphamethoxazole & Trimethoprim Tab	Y	Y	Y	Y	Y	N	Y	N	Y	Y
Folic Acid +Ferrous Sulphate Tab	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Calamine Lotion	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
Gamma Benzone Hexachloride Lotion	Y	Y	Y	N	Y	N	Y	N	Y	Y
Povidone Iodine	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Aluminium Hydroxide + Magnesium Trisilicate Tab	Y	Y	Y	Y	Y	N	Y	N	Y	Y
Hyoscine Butylbromide Tab	Y	Y	Y	N	Y	Y	Y	Y	N	Y
ORS	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
Gentamycin Eye/Ear Drop	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
Tetracycline Eye Ointment	Y	N	Y	N	Y	N	N	N	N	Y
Chloramphenical Eye Applicap	N	Y	N	N	Y	N	N	N	N	N
Chloramphenical Cap	N	Y	N	N	Y	N	N	N	N	N

Clove Oil	Y	Y	Y	N	Y	Y	N	Y	Y	Y
Vit B Complex Tab	Y	Y	N	N	Y	Y	Y	Y	Y	Y
Sodium Chloride Sol	N	N	N	N	Y	N	N	N	N	Y
Ringer Lactate Inj	Y	Y	Y	Y	Y	N	Y	N	Y	Y
Dextrose w/ Sodium Chloride Inj	Y	Y	Y	N	Y	N	Y	N	N	Y
Atropine Sulphate Inj	N	N	N	Y	N	N	N	N	N	N
Ciprofloxacin Tab	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Amoxycillin Tab	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Benzoic + Salicylic Acid	N	N	Y	N	N	Y	N	N	Y	Y
Aminophylline Tab	N	N	N	N	N	N	N	N	N	N
Frusemide Tab/Inj	Y	N	Y	N	N	N	N	N	Y	Y
Promethazine Tab	N	N	N	N	N	N	N	N	Y	N
Dexamethasone Sodium Phosphate Inj	N	Y	Y	N	N	N	N	Y	Y	Y
Dexamethasone Tab	N	Y	Y	N	N	N	N	Y	Y	Y
Salbutamol Tab	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Oxytocin Inj	Y	Y	N	Y	Y	Y	N	N	Y	Y
Diazepam Inj	Y	N	N	N	Y	N	N	N	N	N
Gentamycin Sulphate Inj	N	N	N	N	Y	N	N	N	Y	Y
TB Drugs	Y	N	Y	N	Y	Y	Y	N	N	Y
No. Of Drugs Missing	**11**	**11**	**11**	**19**	**7**	**17**	**18**	**21**	**10**	**6**
Percentage of Total Missing	**30%**	**30%**	**30%**	**50%**	**18%**	**45%**	**47%**	**55%**	**26%**	**16%**

KEY: Y = yes, available at the time of survey; N = no, not available at the time of the survey; Inj = injection, Tab = tablet, Cap = capsule

Availability of Equipment & Instruments:

Similar to availability of medicines, when asked to rate the availability of equipment at the government facilities, most households rated availability as

'good' or 'fair' (figure 5.29), but when probed further it was readily apparent how inadequate most households found the equipment to be (especially regarding x-ray availability):

> *"There aren't many supplies. There's probably not enough budget to afford supplies and facilities. It's a remote place. There is no x-ray machine here. We have to spend around 100 rupees to go to Hetauda to get an x-ray. It would be great if there was one here." ~S-AB-5.1 (24, M)*
>
> *"We are forced to visit Hetauda in order to take a video x-ray. Some are poor and it is ridiculous to visit Hetauda for just one video x-ray. That equipment should be here." ~P-AA-1.4 (33, F)*

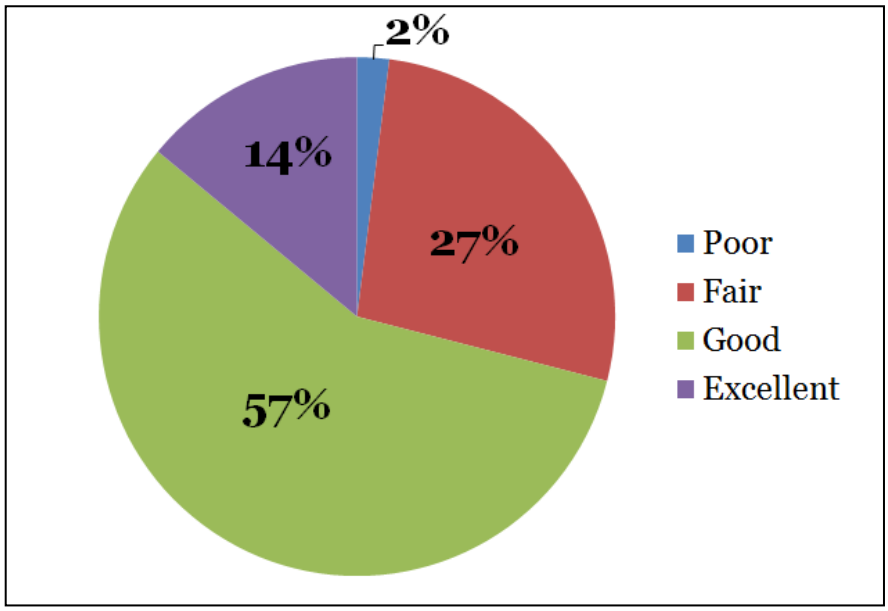


Figure 5.29 Ratings of the availability of equipment at government health facilities from household surveys (n=1745).

Because the equipment isn't available, many of the health workers rely on guess-work in making their diagnoses:

> *"He [the Doctor] was there; he checked my blood pressure and examined around my chest. There was no x-ray or other equipment, so it's all guesswork." ~S-AB-5.1 (24, M)*
>
> *"What to do, my illness was of that kind [severe]. Here [at SHP] they can't go inside my body, they just treat based on their guess." ~P-AB-2.5 (30, F).*

When looked at objectively, many of the health facilities were missing necessary equipment including gloves, catheters, test tubes, sutures, needles, syringes, measuring tape, soap, icepacks or autoclaves. More specifically, only ten out of the nineteen facilities had autoclaves for sterilization of instruments and only nine had a fridge available for storing vaccines. In fact, only four facilities had more than 50% of the required equipment according to government regulations. Instruments, such as forceps, surgical blades, scissors, stethoscopes, otoscopes, tongue depressors, etc., were also missing from some of the facilities. Fourteen out of the nineteen facilities had more than 50% of the required instruments according to government regulations.

Still, even if the equipment or instruments were available, there was often no health personnel capable of using it.

Availability of Specific Services: ORC, tests, preventive health services:

If medicines are lacking, and equipment is lacking at government health facilities in the sample, it stands to reason that other services would also be lacking:

> *"The services here are just limited to saline water, nothing further."*
> *~P-MG-8.2 (41, F).*
>
> *"There aren't any services for pregnant women here at the health post. Some time ago there was a notice that those services would be available, but we need them now. When children are sick, there isn't even IV fluid available. Why would we have to take pregnant woman to Hetauda to give birth? It would be better if the services that we need to go to Hetauda for were available here; we wouldn't have to pay transport costs and lose a day's worth of work."*
> *~S-MG-2.7 (33, F)*

If we look objectively at the availability of services, while many are lacking, the majority of health facilities in the sample actually offered the requisite services. In terms of outreach services, 63% of facilities had at least three outreach clinics (ORCs) per month, and of those, six facilities (32%) had at least five per month, which is more than the government requirements. In terms of availability of diagnostic tests, while only one health post and the PHCC offered sputum/TB tests, and while the PHCC was the only facility to offer liver function tests and X-rays, 77% of facilities offered pregnancy tests and 42% offered slide preparation for malaria diagnoses. So, approximately half of the facilities in the sample were providing the required diagnostic services, and the PHCC in the sample was offering all of the required services.

While diagnostic services were somewhat lacking, preventative health services were almost non-existent when it came to HIV/AIDs, prevention of severe

malnutrition, STI prevention, malaria and environmental health. Only 11% of facilities offered HIV and STI services, no facilities offered severe malnutrition services or environmental health services and only one facility purported to offer preventative education related to malaria.

In short, the availability of diagnostic and health educational services in the district were also lacking -- falling short of government requirements.

5.3g *Quality of Medicines at Government Facilities*

While all of the other subsections up to this point used a mixture of subjective ratings and quotes and more objective variables to assess health service quality, this particular section uses solely subjective metrics to assess the quality of medicines. I felt it was important to still include something about the quality of medicines even though I was unable to assess it objectively.

The factor which surprisingly seemed to influence households' feelings about the health services the most was their feelings about the quality of medicines provided by government services. While most households rated the quality of medicines as 'good' or 'excellent' (not surprisingly given that there is almost always a central tendency when it comes to rating scales; figure 5.30), even when medicines were readily available for free at the health facilities, the majority of households, when probed deeper, were dissatisfied with the quality of the medicines provided.

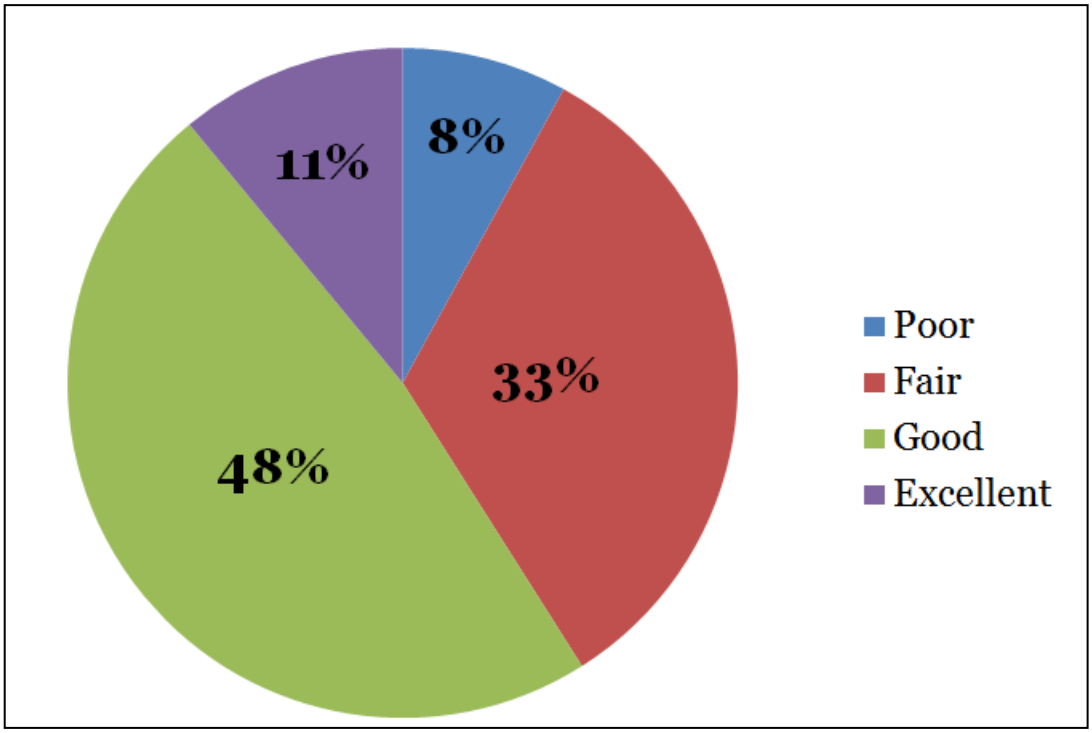


Figure 5.30 Ratings of the quality of medicines at the government health facilities from the household surveys (n=2003).

Of those households surveyed, many of them (5%) spontaneously, without any directed questioning, mentioned that medicines in the government health facilities were of low quality or were expired.

These same concerns emerged in many of the household interviews. Many households mentioned that they thought the medicines at the government health facilities were ineffective or simply did not work:

> *"The medicines from the SHP don't work. So, even after I bring them, I don't take them, I throw them out...They give the same medicines for headache and fever. After you take that, you feel dizzy the next day; it makes a health person fall ill." ~S-RS-1.5 (41, F)*
>
> *"The problem here is that quality medicines aren't available here. They give the medicines, but their effect is not long-lasting." ~S-AA-8.1 (18, F)*

"I don't think the medicines are that good there [at HP]...We bring the medicines from uphill [HP] but they don't cure us...The medicines that are brought from the medical work, but the medicines, especially for children, which are brought from the health post don't work at all." ~T-AB-1.4 (21, F)

Even when households were satisfied overall with the provision of services at the government health facilities, they were still not happy with the medicines provided:

"The patients are getting good service there [SHP] but they don't have medicines available. The ones they give us for free don't work." ~S-RS-1.3 (28, F)

Several households blamed the inferior quality of the medicines on the fact they were free medicines, and there was a distinct difference between the quality of those medicines you have to pay for and those which are provided for free:

"To tell you the truth, there is a difference between the medicines we get for free and those that we pay for." ~T-AA-7.6 (20, F)

"The medicines they [government health workers at HP] give us for free don't work. I didn't feel any better after taking the medicines given for free." ~S-AA-1.3 (56, F)

Several other households were disappointed with the short-term effects of government medicines:

"They [the government medicines] help for a few days. Then you feel the same again." ~S-NK-1.3 (35, F)

Free medicines were often equated with expired medicines:

"I have heard people say that the medicines are better in a medical than they are in the health center [government PHCC]. Medicines costing money are better than those free of cost. I have heard they give expired medicines, that's why." ~P-AA-1.4 (33, F)

> *"You can only get 'cetamol'....At the SHP even headaches aren't treated. Their medicines are expired, even the ones for stomach ache. They only have medicines for minor illnesses. Perhaps it's that way because it's a government facility and they provide their services free of cost....I had noticed once that the medicines they gave me were expired. They told me to take it and I had taken it." ~S-NK-1.2 (18, M)*

One household blamed the illiteracy of some of the health workers and their inability to recognize numbers as a reason for the prescribing of expired medicines:

> *"Some [health workers] give expired medicines there [PHCC]. The person who gives the medicines can't even recognize digits. If we go to a medical, they give the same cetamol. I went to the health post in Chattiwan. There was a group of five to six un-educated lads. I complained of this and that just to see what they would do. They gave me the same medicines for all of the cases. Even if the government medicines are free, it shouldn't be done so. So, I threw all of the medicines off the ledge." ~P-NK-1.6 (28, F)*

So, even when medicines are available and affordable, households don't really trust them because they are given for free and thus must be inferior quality, or at least, expired.

An examination of each of the facilities' drug registers and medicine supply rooms, however, did not reveal any evidence to substantiate that expired medicines were being kept.

5.3h *Satisfaction with Government Services*

Assessing patient satisfaction is one way of pulling each of these health service components (examined in the subsections above) together into a single metric.

After all, each of the aforementioned criteria impact satisfaction, which in turn may impact care decisions. So, while satisfaction with health services may not be an enabling factor in our comprehensive model, it does provide us with an overall picture of how services are functioning from the user's perspective.

As was revealed in each of the preceding sections, a look beneath the surface of the household ratings of government health services reveals a deeper-seated dissatisfaction with the provision of government services in the district. It stands to reason, then, that very few households were overwhelmingly satisfied with the provision of government services in their area, and that the majority of households when asked said they were only satisfied with government services 'some of the time' (67% according to figure 5.31).

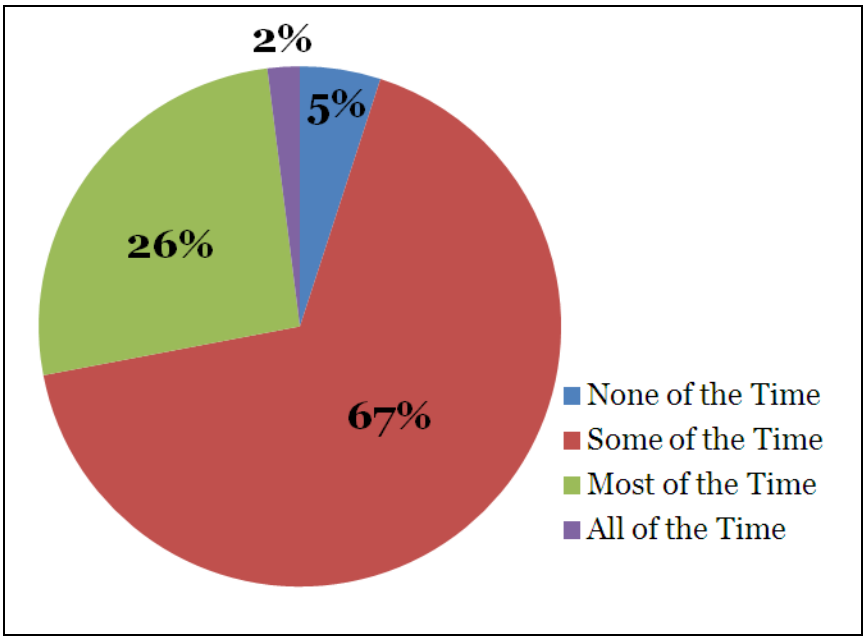


Figure 5.31 Household survey responses to the question, "how often are you satisfied with the provision of services at the government facilities in your area?" (n=2057). Two hundred and three households were unable to respond to this question.

5.4 *Describing Household Knowledge of the Health System:*

Finally, before trying to understand care decisions it is also important not only to examine the quality of health services, but household knowledge of its overall functioning, as this is also one of the potential factors which might ultimately influence care choices (from our theoretical model). Although disease-specific knowledge is usually what is assessed in other HSB studies as a determinant of care-seeking, this particular study focused exclusively on health service and health system knowledge: knowledge of the type of facility nearest to the household, knowledge of the lowest level facility provided by the government, knowledge of the referral system of government facilities, knowledge of availability of free health services, knowledge of availability of medical doctors in the system and knowledge of the roles and responsibilities of the female community health volunteers. Overall, the majority of households surveyed seemed to lack awareness of or knowledge about government health services and health system functioning. Households were most knowledgeable about the facility closest to their homes, but still less than half of the households were able to identify the facility by type (ie. as a SHP, HP or PHCC). An overview of household knowledge of health services and the system can be found in table 5.12.

** For additional quotes see **Appendix 5.8**

Table 5.12 Overview of knowledge of the government health care system, broken down by category, from the household survey data (n=2,334).

Knowledge Variables *Households with knowledge of the:*	**Number of Households with Some Knowledge (% of Total Households)**
Nearest Government Health Facility Type (i.e. SHP)	839 (36%)
Lowest Level of Government Care	742 (32%)
Government Referral System (HP Upwards)	664 (28%)
Availability of Free Services in the Government System	180 (8%)
Roles & Responsibilities of Female Community Health Volunteers	414 (18%)

Summary of Key Findings for Objective 1a:

Predisposing Factors

- Almost half of the households in the sample had experienced at least one episode of illness in the prior month. Higher likelihood of experiencing an illness was associated with lower household and ward level socio-economic status, a greater number of children in the household and specific caste

Need Factors

- The most common illnesses in the sample are parasitic/infectious diseases and respiratory diseases
- Households tend to overestimate the severity of their illnesses when compared to the ratings of medical doctors

Enabling Factors

- Government services that are supposed to be free are in fact not free because corruption is rampant and there are always hidden costs
- A major problem in the government healthcare system is provider absenteeism
- The majority of government facilities in the sample were missing necessary equipment and supplies
- During certain times of the year, government health facilities are inaccessible to some households primarily because of weather and floods
- There is a disconnect between household ratings of the government healthcare system using a standardised rating scale and their feelings towards it when probed in greater detail (using qualitative methods)

Knowledge Factors

- Most households have very low knowledge of the government health system functioning, availability of free services and availability of medical doctors in the system

II. Discussion of Objective 1a:

Describing the Factors which may Govern HSBs

While the last section presented an overview of the main findings from objective 1a, this section will discuss those findings in greater detail, and draw on necessary literature to explain them. The implications of these findings are discussed at the end of the section.

5.5 *Overview of Illnesses*

Almost half of the households in the sample had experienced at least one episode of illness in the one-month prior to the survey. Although this is a much higher proportion of households than the 10% of households experiencing illness reported on the Nepal Living Standards Survey for the entire country (Pokhrel & Sauerborn, 2004), and although it is much higher than the illness burden as indicated by the Ministry of Health and Population (MOHP, 2011), it does roughly comport with data from other smaller-scale studies of HSBs in rural Nepal and the rest of South Asia, which indicate that more than half of the sample population experienced an illness at least once in the previous year (Jimba, Poudyal & Wakai, 2003; Deshmukh et al., 2009). It is also almost identical to the illness burden established in a study of HSBs in rural Kenya, which observed illnesses in 53% of the surveyed children (Mbagaya, Odhiambo & Oniang'o, 2005). Several of the reasons for the higher reporting of illness in our sample could have been the fact that all illnesses, no matter how minor, were documented, a list of tracer conditions was used to probe people and trigger their memories (to reduce recall bias), and only a one month recall period (rather than an entire year) was considered (also to reduce recall bias), which made it much

more likely for a household to recall an episode and report on it, no matter how minor. Many of these other studies used much longer recall periods (Acharya & Cleland, 2000; Ager & Pepper, 2005; Luque, Whiteford & Tobin, 2008; Issakidis & Andrews, 2006). In addition, since this study did not include any major urban centres, the results are predicated solely on the disease burdens of more rural areas, where the disease burden is usually higher and not counterbalanced by the lower burden of more urban areas. Moreover, most illness burden data collected by the government itself for programmatic purposes is obtained from health facility data via HMIS reports. This government data only represents the very tip of the iceberg since not all households who experience illnesses actually make it to health providers for care and not everyone who makes it to a health facility is actually documented in the registers and not every case that is documented in the registers actually makes it onto the reports. Attrition happens at every stage, resulting in an under-representation of the actual household-level disease burden. As a result of all of this, we would expect to see higher numbers of illnesses reported in our sample than for other surveys with longer recall periods and higher thresholds for what constitutes an illness and higher incidences than for government data which doesn't account for individual, household-level illnesses.

5.6 *Discussion of the Types of Illnesses Experienced*

Despite the higher overall illness burden established by our data, which does not comport with the illnesses burdens established by other surveys or other data sets in this context, the types of illnesses experienced by most households in our sample do comport with other studies within the region and from other similar contexts. The majority of households in our sample experienced either infectious/parasitic diseases (42%) or diseases of the respiratory system (31%). The most frequent parasitic/infectious diseases were amoebic and bacillary dysentery, while the most common respiratory diseases were common colds or URTIs. The next most frequent diseases were those of the digestive system (~5%), predominantly gastritis, or injuries (4.5%). These findings are consistent with government data from Nepal that showed that diarrhoea, gastroenteritis (presumed infectious), pneumonia, typhoid, and LRTIs were among the top reasons for hospitalisation in 2009 (MOHP, 2009; MOHP, 2010; Rai et al., 2002). These findings were also consistent with other household-survey data from the country and other countries with similar demographic profiles, which indicate that infectious disease and respiratory diseases continue to be a huge problem in many developing countries worldwide (Suleman, 1996; Uzochukwu & Onwujekwe, 2004; Weller, Ruebush II & Klein, 1997).

That being said, the types of illnesses experienced and the frequency with which they are being experienced is important because it ultimately impacts the types of health-seeking decisions households make, and while this decision-making may

differ somewhat depending on the time of year, because the disease profiles may differ depending on the season, it is still useful to understand how disease types for a finite period influence care-seeking for that same period.

5.7 *Discussion of the Factors Associated with Higher Likelihood of Illness: Socioeconomics*

Given the profile of illness types in the sample and given that the sample was predominantly rural, it stands to reason that the illness burdens would be higher in the less developed areas and amongst the poorer households. At the household-level, as was seen in our results, poorer households were more likely to experience illnesses. This household-level data was also echoed at the ward-level – households in wards with lower infrastructure were more likely to experience illnesses than households in wards with higher infrastructure. While these results are actually contradictory to the findings from the Nepal Living Standards Survey 2003/04, which indicated an almost linear trend with higher rates of acute illness reporting from households in the wealthiest quintiles (CBS, 2004), these results are consistent with other studies from Nepal, which indicate a strong relationship between household wealth quintiles and certain parasitic diseases (Sharma et al., 2004), other illnesses (Adhikari, 2005), children's nutritional statuses or childhood mortality rates (RTI, 2010; Wagstaff, 2000). These types of findings are not unique to Nepal. In fact, many studies across the globe have established the relationship between wealth and health (Adler &

Oxtrove, 1999). This relationship, as other studies have intimated, could be due to a number of factors depending on the illness types and specific local conditions, the most likely of which in this context could be the poorer general sanitation and hygiene in poorer households and the higher likelihood of exposure to indoor air pollution (Ashbolt, 2004; Feachem et al., 1983; Leon & Walt, 2001). Given that the majority of illnesses in this sample were parasitic and infectious diseases, and given that most poorer households in the survey VDCs did not have access to latrines or safe drinking water, it would stand to reason that poorer households would be more likely to get sick than more well-off households with access to latrines, soap and safe drinking water. The specific mechanisms for this relationship have been detailed elsewhere (Adler & Ostrove, 1999; Wagstaff, 2000; World Bank, 1980).

While poorer sanitation and poorer knowledge about preventative care can explain the reasons for greater likelihood of infectious disease and other illness more generally, when it comes specifically to respiratory illnesses, of which there were many in the sample, other research has demonstrated an established relationship between indoor air pollution and greater likelihood of contracting respiratory disease (Dhimal et al., 2010; Joshi, Pandeya & Dhakal, 2009). Given that poorer households in the district often have poorer ventilation in their houses and given that they are less likely to have smokeless stoves or access to clean fuels, this could also explain the greater likelihood of respiratory illness in people living in poorer households with exposure to more indoor air pollution (Bhagowalia & Gupta, 2011).

Obviously, these are only two of the many potential mechanisms that could explain these relationships, and obviously the relationship between disease and SES is not such a simplistic one; it is a relationship compounded by and mediated by a number of different factors (Bourne & McGrowder, 2009; Deaton, 2006; Wagstaff, 2002). The relationship could be due not only to the physical environment or housing factors (Haan, Kaplan & Camacho, 1987), but to social factors (Stansfeld & Candy, 2006), psychological factors (Chandola, Brunner & Marmot, 2006; Gallo & Matthews, 2003), behavioural factors (Kenkel & Ribar, 1994) etc., but since the factors that contribute to a greater likelihood of illness in Nepal were not the primary focus of this dissertation, and since many other studies have been conducted on the relationship between household SES and illness and economics and health (Paalman, 2004), we will not touch on it in any greater detail here.

Not only were poorer households and households in poorer communities more likely to experience illnesses, but so too were certain castes more likely than others to experience illnesses – specifically Chepang and Biswokarma families were more likely than Brahmin families to experience illnesses even when controlling for other household SES factors. These results are actually not surprising given that several studies in contexts outside of Nepal have shown relationships between ethnicity and illness burden (Alegria et al., 2008a; 2008b; Miller, 2000). Similarly, a handful of Nepalese studies have revealed a relationship between specific illnesses such as xeropthalmia (Khantry et al.,

1995), anemia (Siegel et al., 2006), Kala Azar (Adhikari, Supakankunti & Khan, 2010), intestinal parasitic infestations (Sharma et al., 2004), COPD (Bhandari & Sharma, 2012), depression (Kohrt et al., 2009) or other non-communicable diseases (NHRC, 2010) and caste. Other studies revealed a relationship between general health indicators (ie. immunization rates, antenatal care rates, morbidity rates, mortality rates) and caste (Bennett, Dahal & Govindasamy, 2008; RTI, 2010). Many of these previous studies have used SES factors as the mediator between caste and illness prevalence, so in abiding by that same logic, it stands to reason that households of castes of traditionally lower SES, such as Chepang and BK families, might be more likely to experience illnesses because they are more likely to live in areas with lower infrastructure, are more likely to have higher rates of malnutrition, are more likely to be uneducated and more likely to lack knowledge about preventative care when compared to other castes of traditionally higher SES, such as Brahmins or Chhetris (Bennett, Dahal & Govindasamy, 2007; Nielsen, 2004; Ahmed et al., 2009). Still, after controlling for other SES factors, this discrepancy remains, so it may be attributable to behavioural differences as well (certain castes may be more likely to engage in preventative behaviours than others). That being said, recent data has indicated that the gap between castes has been decreasing with specific regard to diarrhoeal disease control and treatment for acute respiratory infections, so while the disease burdens may have differed somewhat by caste, in our study we can assume that this discrepancy is decreasing and will continue to do so (RTI, 2008).

More than just household wealth and caste being associated with higher likelihood of illness, household composition also seemed to make a difference. Households with more children in them were more likely to experience an episode of illness. This stands to reason given that a sizable proportion of the illnesses in the sample were experienced by young children with greater susceptibility to respiratory and diarrhoeal disease. Therefore, it also stands to reason that the more children in a household, the greater the likelihood that one of them will fall ill. More, the greater the number of children in a household, the greater the likelihood of transmission of infectious illnesses from one member to the next. These findings were consistent with the existing literature, which indicated that young children are more likely to experience these types of illnesses (Black, 1993; Hoge et al., 1995; Pandey et al., 1989; Smith et al., 2000).

Finally, somewhat counter-intuitively, households that owned more land and were commercial farmers were also more likely to experience illnesses than those with less land or those who were solely subsistence farmers. While this relationship appears to contradict the findings on the relationship between caste and the likelihood of illness (Niraula, 1994), and while these findings seem to indicate the opposite relationship between economic status and illness likelihood, there are several potential explanations for these results that are still consistent with previous findings. Since these results indicate a relationship between land ownership and illness and not land value and illness, and since households of lower SES are more likely to own more land of a lesser value than those households of higher SES, who often own less land, but in a more expensive area

for greater value, this result still aligns with the previous result that households of lower SES are more likely to get ill, and therefore is subject to the same reasoning. Alternatively, households that own more land, must also tend more land, increasing the likelihood of illness and injuries associated with physical labour and greater toil. This is consistent with other studies that have indicated a relationship between physical labour and illness (Cooper & Marshall, 2011; Krause, Scherzer & Rugulies, 2005). This would also make sense when considering the fact that commercial farming households were also more likely to report illnesses than subsistence farming households.

5.8 *Discussion of the Severity of Illnesses Experienced*

Of course the frequency of illness tells us nothing about the severity of the illnesses. While most households rated their illnesses as only somewhat severe, and while, unlike previous studies of illness severity ratings in Nepal which have indicated a gender differential in perceived illness severity (Pokhrel et al., 2005; Pokhrel and Sauerborn, 2004), the results of this study did not indicate any statistically significant differences between male and female patients in terms of illness severity ratings. This may have been due to the fact that unlike previous studies, this study did not solely deal with childhood illnesses, where parental perceptions of severity take precedent over objective illness characteristics. By including adult illness ratings, which are predicated more on actual symptom

experiences or articulation of those experiences, and by asking the females in the households to partake in the surveys whenever possible, thus ensuring the ratings were being made by the person experiencing the symptoms first hand, all gender differentials disappeared. In other words, in this context men and women do not tend to perceive their own symptoms differently, although this has been noted in other studies of illness perceptions (Bendelow, 1993; Anson et al., 1993). Given that we did not stratify the analysis by patient age, however, it is still possible that in this study as well, parental perceptions of childhood illness differed by gender (although this is not something which was analysed specifically here). Despite the fact that perceptions did not differ by patient gender or patient age, there were minor differences between household perceptions of severity and doctor's perceptions of severity for the same episodes of illness. Overall, patients tended to rate their illnesses as more severe than the severity ratings ascribed to them by the doctors based on symptom lists and patient characteristics alone. This discrepancy between the patient's and doctor's severity ratings has been found in other studies, but the particular reasons for this finding in our study could be two-fold (Barton et al., 2010; Kroenke et al., 2006; Larue, Fontaine & Colleau, 1997; Macintyre & Pritchard, 1989; Sarkin et al., 2010; Stephens et al., 1997; Zurayk et al., 1995). For one, the doctors may have actually under-rated the actual severities since the doctor's assessments of severity were predicated solely on verbal autopsies rather than on direct observation of the patients. While an attempt was made to follow clinic algorithms in order to elicit a complete list of symptoms at the interview phase, some critical details of the illness may have been omitted and therefore would not have factored into the doctor's assessment.

If we assume, however, that the doctor was predicating his assessment on complete and accurate information, it is also possible that individuals tend to overestimate the severity of their illnesses because they are either unfamiliar with them, which results in greater uncertainty and greater concern, leading to a more severe assessment than is warranted, or because they assess them solely on how they feel rather than any objective clinical facts (Barton et al., 2010; Sarkin et al., 2010; Stephens et al., 1997). That being said, there was still a strong correlation between doctor's and patient's ratings, indicating that while the absolute magnitude of the ratings may differ, the relative severities are similar.

5.9 *Discussion of the Government Healthcare System*

While the epidemiological data on illnesses within this context highlights the discrepancies between government data and household level data, the data on the health services also illustrates a discrepancy between the ideals of the system and the realities of it. Unfortunately, despite the promise of a better system, and despite the investments that have been made to make the government system more accessible and more equitable, there still appears to be a disconnect between the ideals of health system functioning and health service delivery and the realities of those. This disconnect is certainly not unique to this study, but can potentially be explained by a lack of system oversight and accountability for such a decentralised system, a lack of community ownership, a lack of adequate

community-level leadership, a misallocation of resources, and an inaccurate reporting system among many other potential sources. Other studies of health services and health facilities in Nepal have come to similar conclusions as this study about the poor, albeit improved, operations of the system (RTI, 2008; RTI, 2010; NHRC, 2009; UNDP, 2002). According to Alberts et al. (1997) and Andersen (1973) it is important to examine these supply-side factors because they may be even more important than demand side factors in determining volume of health service usage.

It is important, however to be mindful of how data on health services is actually collected. Studies that elicit information solely through rating scales, as the quantitative portion of this study did, miss out on people's true perceptions. In fact, simple ratings of health services in terms of accessibility, affordability, quality, availability etc. did little to reveal people's true dissatisfaction with services. As previous studies have shown, respondents tend to respond favourably to questions related to perceived quality or satisfaction, so in order to elicit more detailed information about people's true feelings, we really needed to dig beneath the surface with qualitative questions (Baltussen et al., 2002; Bitran, 1995; Haddad et al., 1998; Newman et al., 1998;Wouters, 1995).

5.9a Accessibility of Facilities

The one area in which health facilities seem to have really improved is in terms of physical accessibility, which several scholars have argued should be one of the primary ways in which we assess government service distribution (De Winter, 1992). Unlike in the past, most health facilities in the sample were within 2.5km of all of the households surveyed and about three-quarters of the facilities were road accessible (via either a paved or dirt road). In other words, government facilities appear to be quite accessible. These results are consistent with other surveys (NLSS, 2011). Despite their accessibility, and the fact that many households rated accessibility as 'good,' several households still struggled with geographic and topographical barriers to usage – hilly terrain, lack of public transport options and river crossings (which were actually cited by several households in the surveyed region as posing a major barrier during some of the months).

5.9b Affordability of Services

Unlike the improvements seen in accessibility, affordability of government services still have a long way to go. While most services were allegedly free in the sampled VDCs, there were some fees associated with beds, labs and ambulance usage. The fees for ambulances were also beyond the means of many families, resulting in very infrequent usage by families. A few facilities charged a

registration fee to prevent people from hoarding medicines for their own personal use. Also, while most surveyed facilities said they provided all of the essential medicines free of cost, many households mentioned that those in charge of health facilities were taking the government medicines and selling them as part of their personal stocks. So, while services were said to be free, they often were not. This charging for government medicines and services has been observed in other contexts across Nepal (Hotchkiss et al., 1998; Sharma, 2010). Other studies outside of Nepal have also observed similar trends in 'informal' payments for allegedly free services. For example, such informal payments were found to be common in Bulgaria (Balabanova & McKee, 2002), Peru (Kristiansson et al., 2009) and Tanzania, where it actually negatively impacted access to health services and the quality of the health system (Stringhini et al., 2009). In some studies costs have been cited as the primary reason for not utilising allopathic services altogether (Bichmann et al., 1991).

5.9c Availability of Providers

While government services were still a long way from being completely free of costs, so too were they lacking in availability of personnel and regular services. Almost none of the facilities in the sample were open for the fully-required six hours, although the majority were open for at least five hours. That one hour makes a difference to some households who must travel to reach health facilities and who cannot afford to leave work to do so (Luque, Whiteford & Tobin, 2008;

Rahman et al., 2011). Despite the hours of operation, more than half of the facilities were understaffed and sixteen percent were missing their facility heads. Even when facilities were fully staffed, many households cited rampant absenteeism on the part of the providers, which meant that only the office assistants were available for patient consultations. Again, these findings are not particularly surprising. Human resource shortages and absenteeism have also found to be problems in other studies of the government healthcare system in this context (Mesko et al., 2003; RTI, 2010; Sauerborn et al., 1989; Simkhada et al., 2006).

It should be noted that while most facilities were lacking in personnel, most facilities did offer the required number of outreach and epi-clinics.

5.9d Quality of Health Workers

Even when health providers were available in the facilities, they were not always of good quality and did not spend time cultivating a relationship with their patients. Often they did not examine them or adequately explain their illnesses to them. Other studies have found similar problems in patient-doctor communications in Nepal (Kattel, 2010) and elsewhere in terms of staff attitudes (Attah, 1986; Bichmann et al., 1991; D'Ambruoso, Abbey & Hussein, 2005; Sauerborn et al., 1989).

5.9e Infrastructure and Cleanliness of Facilities

While most health facilities had power and water within their compounds, most households mentioned that there were times of the year when water was scarce. All facilities were missing some of the required rooms, but all had a separate, private exam room. All facilities, however, were clean overall although several did not have a well-organised drug supply room or cabinet.

5.9f Availability of Equipment, Medicines & Services

One area in which health facilities fared particularly badly was in terms of availability of equipment and instruments. All facilities were missing some of the government required equipment and instruments. In fact, only 21% of facilities had greater than 50% of their required equipment, and 26% were missing more than 50% of their required instruments. Perhaps more shocking, however, was the fact that many facilities (42%) were missing more than 50% of their essential medicines, and several had expired medicines. These findings were similar to the findings from GTZ's study on the availability of essential drugs in health facilities in Nepal, which found that a lot of facilities were lacking essential drugs and many of the other available medicines came from uncertified pharmaceutical companies (GTZ, 2009). Many studies in other contexts have shown that drug supply is a very important determinant of the utilisation of health services and

that often government facilities run out of essential medicines (Abu-Zaid & Dann, 1985; Baltussen et al., 2002; Bitran, 1995; Haddad & Fournier, 1995; Ikoh et al., 2008; Litvack & Bodart, 1993; Parker & Knippenberg, 1991; Waddington & Eniymayew, 1989). Households also complained of being given very limited and expired medicines for most of their illnesses, and most households mentioned a general distrust of the drugs provided. Similarly, very few health facilities were able to offer the full range of diagnostic test they were supposed to offer, and even fewer offered the full range of preventative services.

The actual quality of the government health services is very important in part because if we want to understand reasons for under utilisation, it helps to start by looking at the facilities themselves – as one article on Nepal HSBs indicated, quality of services ultimately matters more than distance in determining utilisation (Acharya & Cleland, 2000). Health facility quality matters a lot in the context of HSBs because it is both perceptions of government services and objective quality indicators that can impact whether or not people use them to address their illnesses (and both the quantitative and qualitative findings illustrate the impact of government health facility quality on choice of providers and the order of their usage).

5.10 *Discussion of Health System Knowledge*

Yet another factor in HSBs is knowledge of the health care system. Overall, very few households in the survey had knowledge of the government health services available to them or of the broader government healthcare system. Almost no households were aware of where in the government system they would have access to certified medical doctors, and only roughly a third were aware of the availability of free essential services and medicines at every level of primary care. Further, less than a quarter of households had adequate knowledge of the roles and responsibilities of FCHVs. While these findings are significantly lower than in some of the other reports on FCHVs, which found that high proportions of women in the hills knew about the FCHVs in their communities, these results do not allow for a direct comparison because they did not ask the same types of knowledge questions, they did not sample from the same populations and they included urban areas, where knowledge tends to be higher and people tend to be better educated about health services (NFHP II, 2010; NHRC, 2006; Subba, 2001). Moreover, it is difficult to tease apart knowledge of ideal government system functioning from the realities of what households experienced. Households surveyed did not seem to report so much on their knowledge of the system as much as their actual experiences with it. So, for example, when asked about the availability of free services, few households were aware of them because in their experiences, corruption often resulted in their having to pay for purportedly free services. So for those households, few to no services were actually free.

But what differentiates why some households are knowledgeable while others are not? Knowledge of health services could also be seen as a proxy for system usage. In other words, those households that tend to avail themselves of government services demonstrate greater knowledge of system workings. This has been found in other studies with regard to disease-specific knowledge. Households located in disease endemic areas are more knowledgeable about those diseases than those living in areas of lower endemicity (Ahmed et al., 2009).

Still, many households were simply unable to distinguish between AHWs, HAs and medical doctors, making it difficult for them to discern where in the healthcare system medical doctors actually were available.

All of these results do align with studies from other countries, which indicate overall low knowledge of government health service functioning, specifically with regard to availability of free treatments and services (Abodunrin, Akande & Osagbemi, 2010; Suganthi et al., 2008).

Chapter 6:
Results & Discussion for Objective 1b

This chapter provides: ***(1)*** *An overview of the main study results for objective 1b;* ***(2)*** *A more in depth discussion of each of the main research findings for objective 1b, comparing them to relevant literatures and attempting to explain them within the context of Nepal;* ***(3)*** *A summary box of the main implications of the research findings for objective 1b.*

I. Objective 1b Results

Describing Households' Health Pathways

OBJECTIVE 1b:

To describe households' health pathways in terms of the length of delays before seeking care, the modalities of care they use (ie. the types of providers), the sequences they use them in (ie. the order of care) and the frequency of transitions from one provider to the next

Understanding the objective characteristics which may influence HSBs is only part of the equation. Before we can fully delve into the factors that actually influence care decisions, it is important to also understand what those care decisions actually are. Just as the previous section described each of the objective characteristics in turn, this section describes household care decisions in Makwanpur. More specifically, this section describes delays in care-seeking, the modalities of care used, the sequences in which they were used and the frequencies with which households transitioned between providers. This description takes us one step closer to a comprehensive understanding of HSBs in this context.

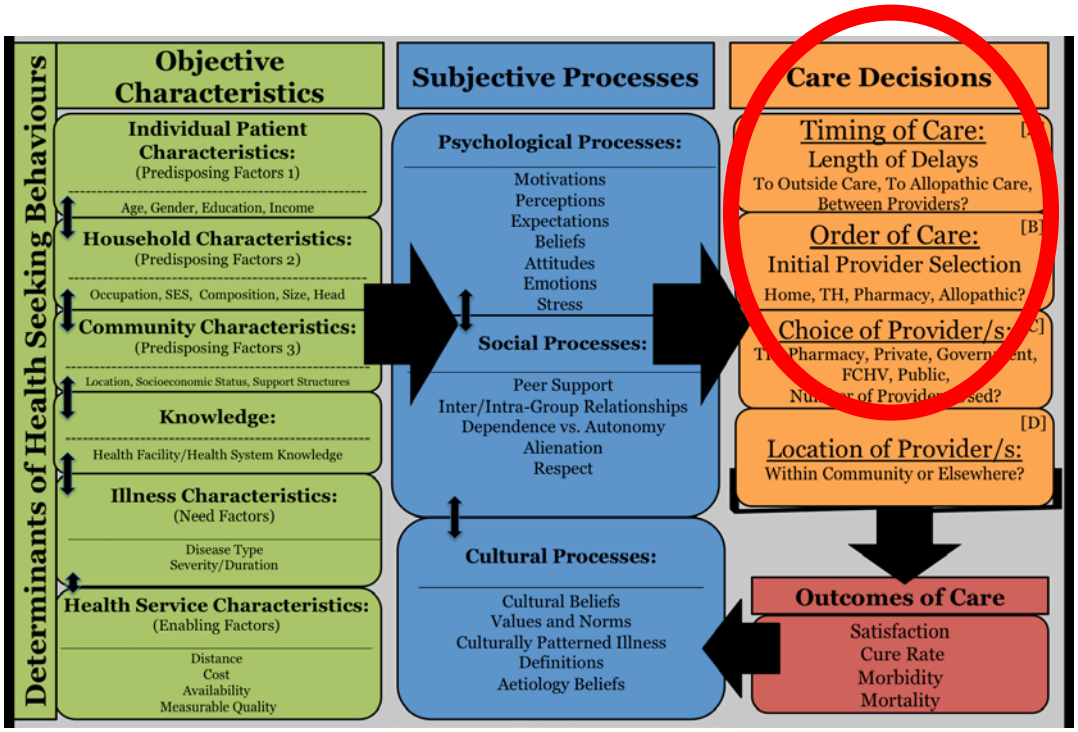


Figure 6.1 This objective (1b) will deal with this portion (circled in red) of the comprehensive theoretical model discussed in Chapter 2.

6.1 *An Overview of Treatment Decisions*

Before looking at each care option or care pathway in turn, let's start by simply taking a look at the entire picture of where households go for care (figure 6.2). Starting with the 894 households who chose to seek some sort of care, figure 6.2 helps us to visualise what care choices people make as they move from the most basic decision – whether or not to use home care – up through more fine-tuned decisions – whether or not to use a SHP or PHCC. This helps us to also visualise what modalities of care are most popular at an aggregate level (figure 6.3).

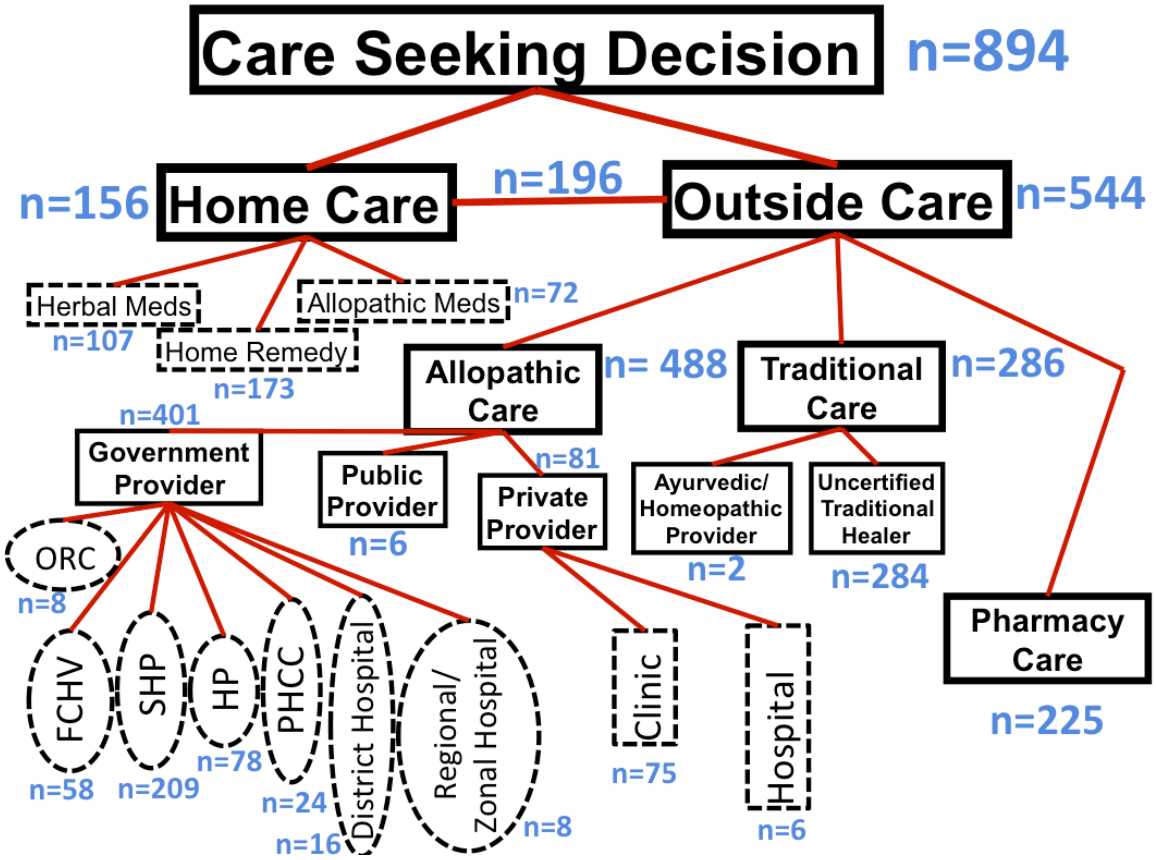


Figure 6.2 An overview of the care-seeking process starting with the 894 households who chose to seek some sort of care. The numbers in blue represent the number of cases utilising each of the various care options. Obviously there are a number of households which used more than one option; hence the total numbers exceed 894 when summed together. Please note: for allopathic care, however, if multiple allopathic providers were used by a single household, only the first allopathic provider used was documented as a case. In other words, although 101 households ultimately use private providers only 81 were documented as using them as a first outside step, while 20 used them as a later step in their pathways after seeking another allopathic care provider first.

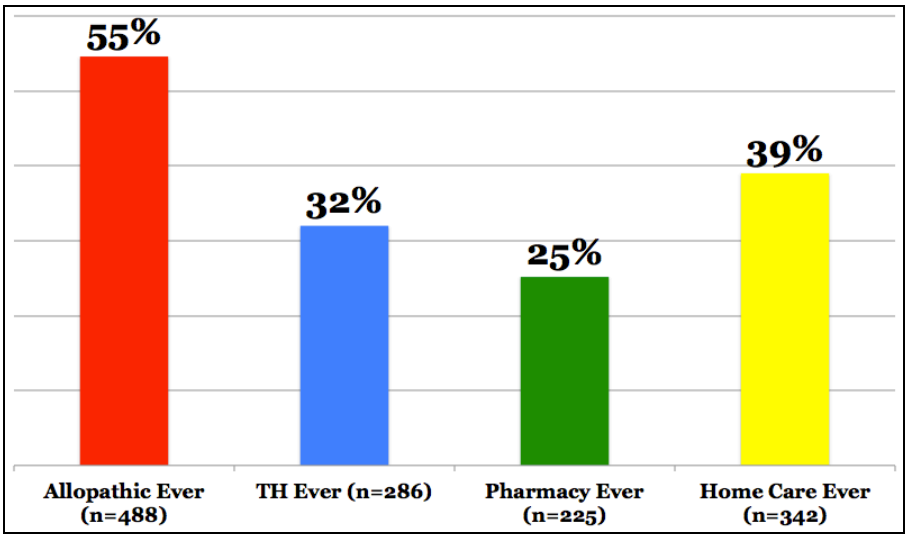


Figure 6.3 Percentage of households that sought some care using each of the different modalities of care at least once in their care pathways. [Note the percentages do not add up to 100% because some households used more than one provider type in their care-seeking process] (n=894).

6.1a Care-Seeking Inside the Home

Not everyone chooses to seek care in response to an episode of illness. As can be seen in the figure above, of the 1069 episodes of illness experienced, one-hundred and seventy-five households did nothing in response, while 894 households (84%) sought some type of care. Those households which did nothing in response to their illnesses cited lack of resources, lack of time and lack of severity as the predominant reasons for not seeking care. For those households which did something to deal with their illnesses, home-based care appeared to be a resort for less than half of them. More specifically, of the 894 households who sought some type of care, three-hundred and fifty-two households (39%) used some form of home-based care while only 156 of those households (45% of all those using home-based care) used home-based care alone. The majority of home-based care involved some form of local 'home remedy' ranging from rubbing ghee[1] or mud on wounds, oil massages for children or hot water mixed with salt, which was used frequently for URTIs or other illnesses involving respiratory problems. Some households used herbs obtained from the surrounding forest (see **Appendix 6.1** for an overview of the types of herbs utilised and their major indications), or allopathic medicines already available in their homes from either a previous episode of illness or from stock obtained via a previous visit to a health provider prior to falling ill (figure 6.4). A few Christian households used prayer as a form of home-based treatment.

[1] Ghee is a class of clarified butter commonly used in South Asian cuisine: http://en.wikipedia.org/wiki/Ghee

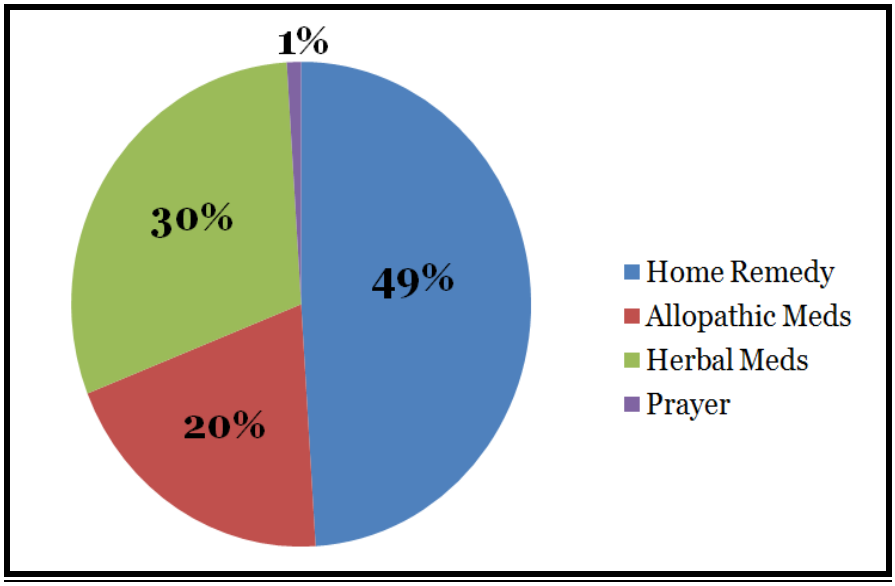


Figure 6.4 Breakdown of the types of home-based care utilized by households in the sample (n=352).

While the majority of households seemed to feel that the home-based care helped 'a little' (47%), a lot of households felt it didn't help at all (22%) and only 13% felt the home remedies helped completely. Given the fact that the vast majority of households felt that the home care did not help completely, it is no surprise that 83% also sought some form of additional care from either an allopathic government, non-government or private provider, a pharmacy, a traditional healer or another type of provider/facility. This outside care is discussed in the next section.

6.1b Delays in Care-Seeking Outside of the Home

Delays in care seeking are often overlooked as part of the care process, but they are every bit as critical to understanding HSBs as whether or not care is sough or where care is sought once a decision is made to seek care. In order to improve the delivery of health services and ensure necessary care is sought in at timely manner, it is critical to also look at how long people wait before seeking care and their reasons for these delays.

Of the 740 households who sought outside care, seven percent didn't delay at all, while the average length of delay before seeking care outside the home for those households in which some delay was involved was 68±79 hours (range: 15 minutes - 648 hours). Of those 488 households who sought allopathic care, five percent didn't delay at all while the average delay time for those households in which some delay was involved was 88±100 hours (range: 1 - 648 hours). The delay decreases somewhat to 83±93 hours (ranging from 30 minutes to 648 hours) if pharmacies are grouped with other allopathic providers, but the percentage of households with no delay prior to allopathic/pharmacy care-seeking remains unchanged (5%). A further breakdown of delays by specific facilities/providers reveals that households delay longest (70±92 hours) before seeking care from a private facility, and delay slightly less (64±78 hours) when seeking care from a government facility. The differences in delays across the facility and provider types, however, were not statistically significant ($\chi^2 = 4.91$, $p=0.555$). Further, there are no statistically significant difference in mean delay

times between those who use home care first and those who go straight for outside care (Z = -1.41, p=0.16, 95% CI: 57.8, 69.0)[2].

More than just understanding how many households delay care-seeking and the length of these delays, it is critical to understand the reasons households cite for these delays (based on self-report data from the household surveys), which may ultimately differ from the variables which the regression models indicate as being important (see section 4.3c). For those households which delayed seeking allopathic care, the majority (45%) mentioned they delayed because they felt the illness was not serious enough and they were waiting to see if it would improve without treatment. Thirty-eight per cent of households mentioned they delayed because they had sought care elsewhere first and were waiting to see if that care would work prior to consulting an allopathic provider. The remaining households mentioned lack of time, lack of funds, lack of transport and fear as reasons for delaying allopathic care.

Similar to allopathic treatment delays, the majority of households using pharmacies, traditional healers or other care options cited waiting to see first or waiting for home care to work as the major reasons for delaying care seeking from these providers. Lack of funds, lack of time time, and lack of available transport options were also mentioned as reasons.

[2]Since the dependent variable was positively skewed a non-parametric Mann Whitney U test was used on this data.

In short, when explicitly asked about reasons for delaying care, it appears that households cite the lack of perceived severity of an illness as the primary reason for delaying care seeking (ie. waiting to see if things improve on their own), but it is also critical to see if illness severity is also subconsciously dictating delays or if there are also other external variables involved which households may be unaware of when asked to report their reasons.

6.1c Care Choices Outside of the Home

Since care seeking pathways involve complicated sequential data, it is useful to break the process down even further and consider the following three dimensions of the decision: the modalities of care utilised (ie. the individual provider types most frequently consulted), the sequences of the care pathways undertaken and the transitions undergone as people move from one care option to the next. By understanding each of these three things in turn, as they are each discussed in this section, and by deconstructing this complicated behavioural process, a better overall understanding of health decision-making can be achieved.

Modalities of Care:

Allopathic care was the most common care sought outside the home. Sixty-six percent of households who sought outside care used at least one allopathic provider in their care pathways (figure 6.5).

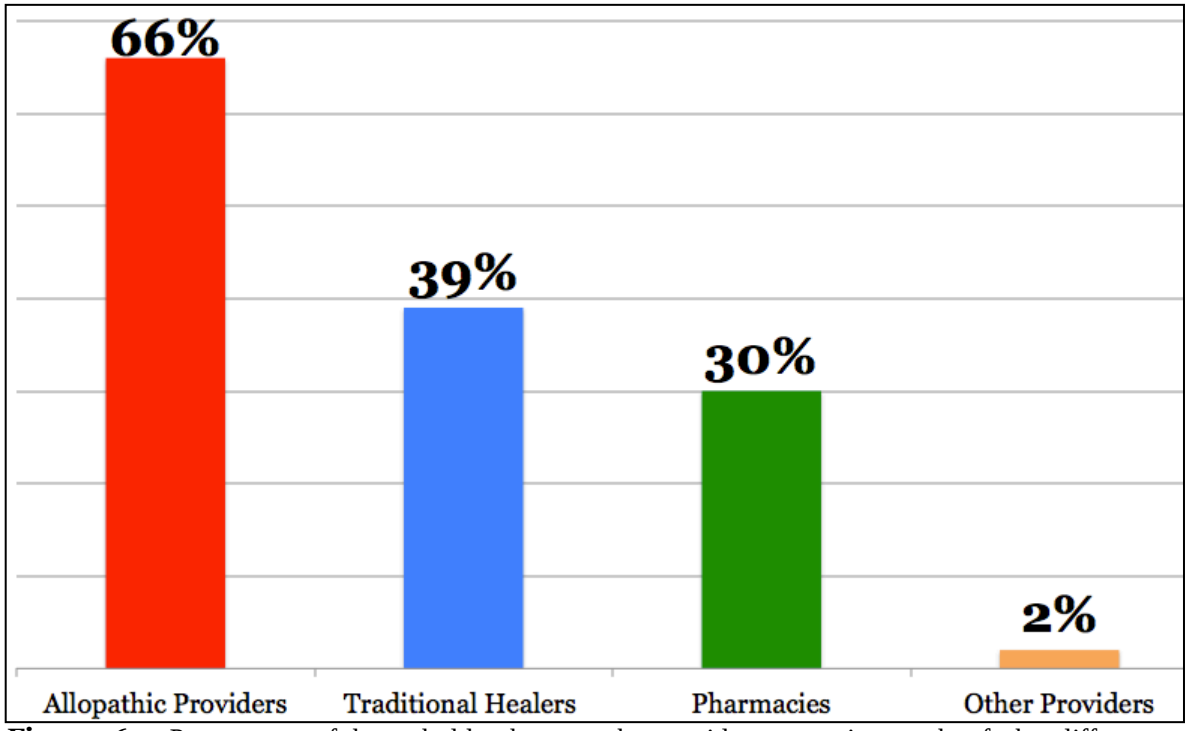


Figure 6.5 Percentage of households that sought outside care using each of the different modalities of care at least once in their care pathways (n=740).

For those who used only one provider in dealing with an episode of illness, again the majority used allopathic care, while utilization of pharmacy care and traditional healers was about even (109 and 101 cases respectively; figure 6.6).

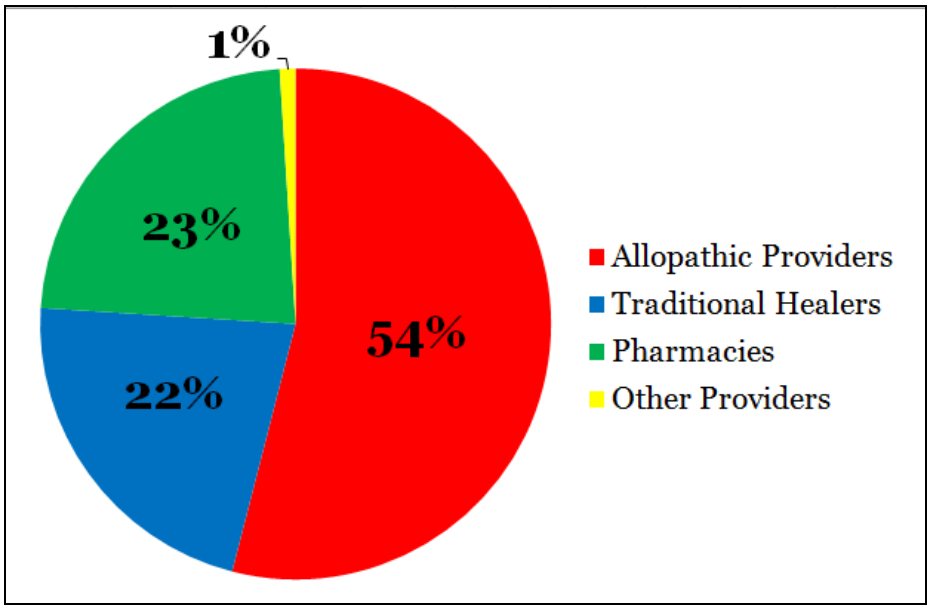


Figure 6.6 Different modalities of care selected by households utilizing only one care provider in their care pathways (n=471).

Not only were households most likely to use allopathic providers at least once in their treatment plans, but if a household had utilized an allopathic provider at least once, there was a 10% chance they would use an allopathic provider again later in the treatment sequence. In terms of numbers, thirty-eight households used more than one allopathic provider for a single episode (22 of them as part of the first three steps in the care process; Sixteen of those households used only two allopathic providers and no other care modalities). This likelihood of repeated utilization is not found for traditional healers, which only have a 1% chance of repeated use, pharmacies, with a 0.4% chance, or other providers, which a 0.9% chance. These care sequences are discussed in further detail in the next subsection.

If we delve further into the specific types of allopathic providers utilised, it becomes obvious that the majority of households relied on government primary care facilities (65% of all of those using allopathic care options) at least as a first allopathic step. Conversely, only 17% of households using allopathic providers relied on private providers initially (and most of those were private clinics rather than private hospitals). Even fewer households (1%) used public, non-governmental hospitals initially (figure 6.7).

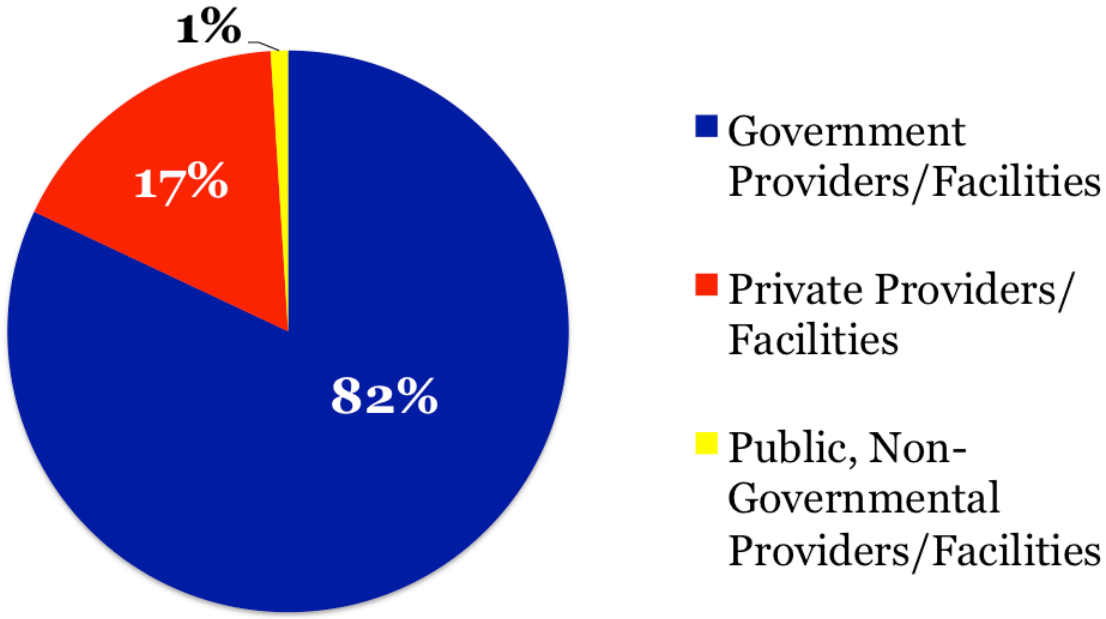


Figure 6.7 Breakdown of allopathic provider usage. Note these percentages are only for first choice of allopathic providers and do not include second and third allopathic care choices if a household opted for more than one allopathic provider in their care trajectories, which at least 22 households did (n=488).

If we break this down even further to look at the different types of government providers most households used, most households opted for SHPs or HPs initially, which stands to reason given that most households in the survey sample were located in VDCs with SHPs (figure 6.8). A fair number of households (14%)

also used FCHVs as an entry point into the system, while very few (6%) opted for tertiary care facilities right away. It appears that the system is actually functioning quite efficiently given that the majority of households were entering via primary care government facilities.

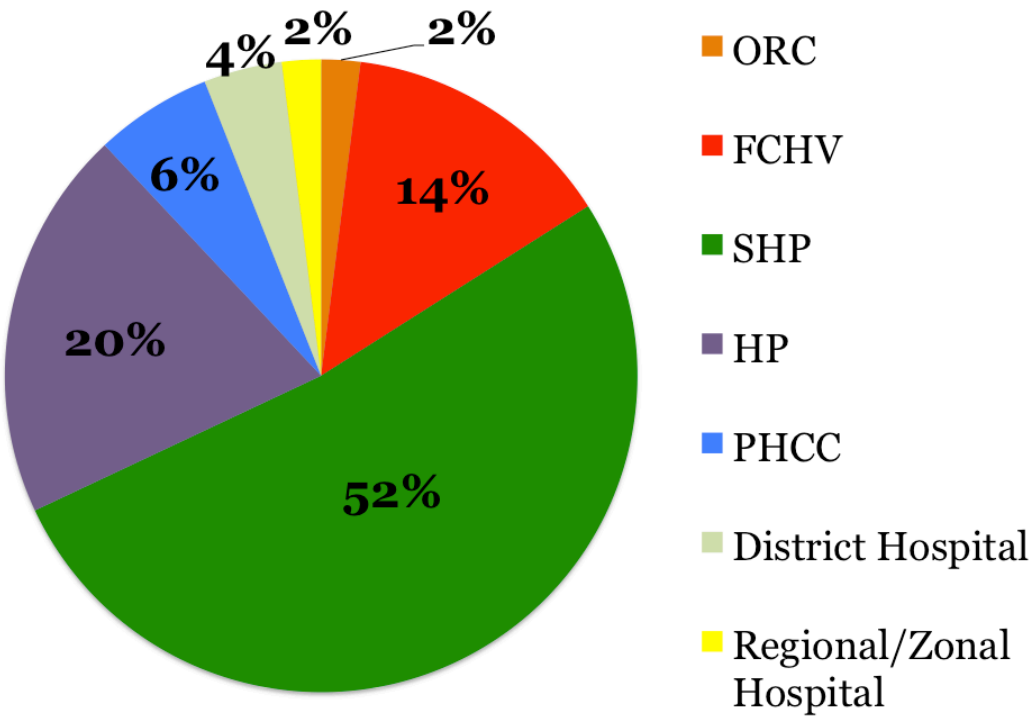


Figure 6.8 Breakdown in the types of government providers households used as a first allopathic step in their care pathways (n=401).

For an overview of how household's initial treatment choices break down according to patient gender, household wealth quintile, household occupation, household head education, caste, government health facility quality, ward level SES, knowledge level, government health facility type, illness type and illness severity see **Appendix 7.1 **

Care Sequences:

While the vast majority of HSB studies look at a single mode of treatment –the first outside care choice – in order to fully understand treatment-seeking

behaviours it is important to look beyond the individual treatment modalities and also look more broadly at the gestalt –the multiple different care pathways people utilise. These pathways tell us not just people's initial gut reactions to an illness, but their overall approaches to health and the convoluted ways in which they navigate entire health systems. It is this type of understanding on which policies should be devised rather than a simplistic look at one care choice.

Not only do we find patterns if we look at the frequency with which individual care modalities are utilised, but similar patterns emerge when we look at the pathways in their entirety – just like certain care modalities are preferred over others, certain pathway sequences are preferred over others (table 4.15).

Table 6.1 An overview of the different care pathways households utilized to deal with their acute illnesses. A total of 29 different unique pathways were used. As can be seen, the majority of households used only one care option and allopathic providers were more frequently used than other options. The percentages in each column are calculated using the totals at the bottom of each column, while the percentages next to the totals are calculated using the number of households who sought outside care (n=740). T = traditional healer, A = allopathic provider, P=pharmacy, O=other.

Pathway	N (%)	Pathway	N (%)	Pathway	N (%)	Pathway	N (%)
T	101 (43%)	A	256 (69%)	P	109 (87%)	O	5 (50%)
T-A	94 (40%)	A-A	16 (4%)	P-A	3 (2%)	O-A	2 (20%)
T-A-T	1 (<1%)	A-A-P	3 (1%)	P-A-T	2 (2%)	O-A-P	1 (10%)
T-A-A	1 (<1%)	A-T	24 (7%)	P-T	10 (8%)	O-T	1 (10%)
T-A-P	14 (6%)	A-T-A	1 (<1%)	P-P	1 (1%)	O-P	1 (10%)
T-T-T	1 (<1%)	A-T-P	3 (1%)	TOTAL	125 (17%)	TOTAL	10 (1%)
T-P	23 (10%)	A-T-O	1 (<1%)				
T-P-A	1 (<1%)	A-P	54 (15%)				
TOTAL	236 (32%)	A-P-A	1 (<1%)				
		A-P-T	6 (2%)				
		A-O	4 (1%)				
		TOTAL	369 (50%)				

While more than half (64%) of the households which sought care outside the home used just one provider for a given episode, thirty-one percent used two providers and 5% used three providers or more[3] (figure 6.9).

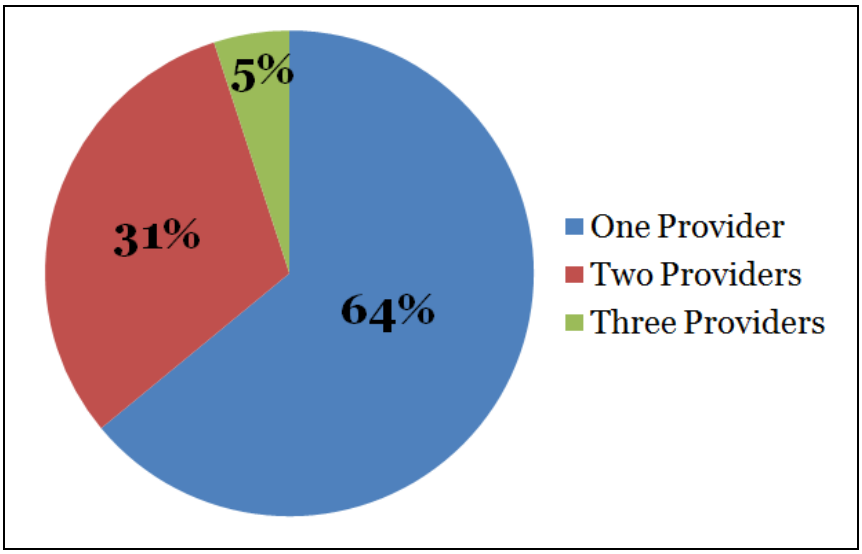


Figure 6.9 Percentage of households utilising different numbers of providers to deal with the selected illness episodes (n=740).

Out of the 85 possible care sequences,[4] only 29 different sequences were observed, and 11 out of those 29 sequences only occurred once. This suggests that certain care sequences are preferred over others, while some are left out completely. The most common sequences are those with single providers, but if we look at pathways involving more than one provider, traditional healers followed by allopathic providers are the most commonly used. In fact, just four sequences– T-A, A-P, T-P and A-T-- account for 72% of all care pathways involving more than one provider:

[3]For the purpose of this section – to keep the analyses from becoming overly complicated, I have restricted my analyses to the first three outside care options only (although several households sought more than three outside care options).

[4] 4+16+64+1= 85 sequences

MOST COMMON SEQUENCES:

Traditional Healer → Allopathic Provider (n=94)

Allopathic Provider → Pharmacy (n=54)

Traditional Healer → Pharmacy (n=23)

Pharmacy → Traditional Healer (n=10)

In terms of overall care pathways, it is not difficult to see that certain providers are more frequently utilised at different stages of the care process. The majority of households utilized allopathic providers as their first source of outside care, while the majority of the 36 households using at least three care options utilised pharmacy-based care most frequently as a third care option (figure 6.10a & 6.10b).

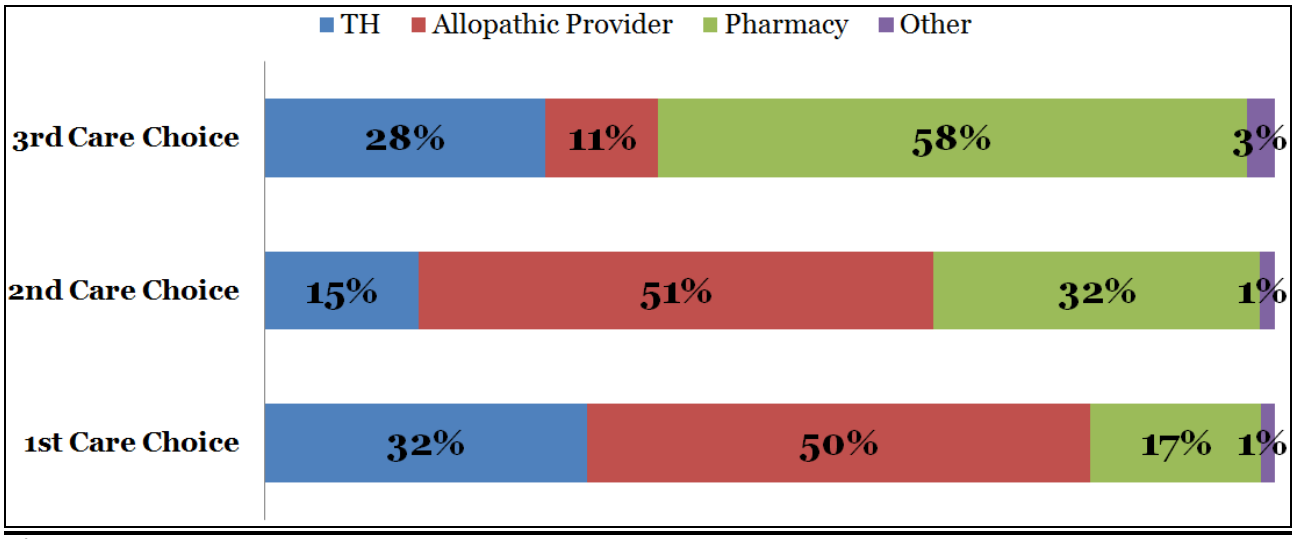


Figure 6.10a A breakdown of utilisation of different care options for first, second and third care choices in the overall care pathways (including all households, even those only using one provider). Seven-hundred and forty households used at least one care provider, 269 used at least two and 36 used at least three (n=1045).

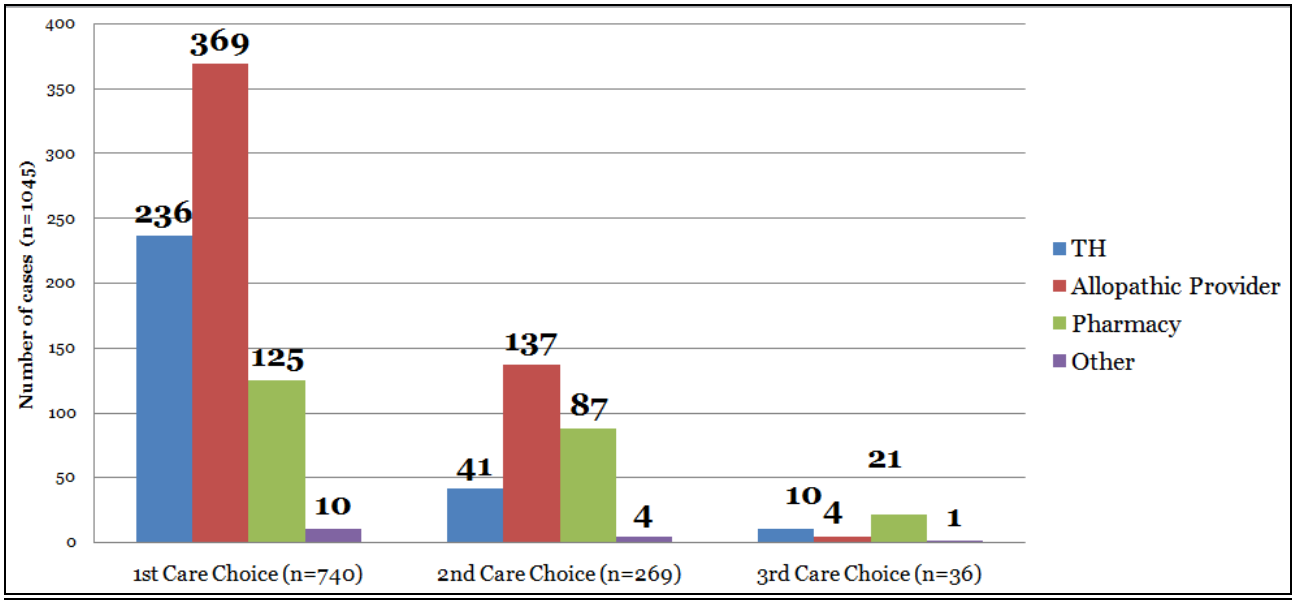


Figure 6.10b A breakdown of the number of households utilising each of the various care options for their first, second and third outside care choices (n=1045).

If we examine *just* the pathways involving multiple different care options (more than one provider), again a very clear pattern emerges as to which modalities are preferred as a first choice option and which modalities are a last resort after other care options have been exhausted. For those households which utilised

traditional healers as part of a longer pathway (n=182), they were much more likely to use it as a first step (74%) than a last step (24%). Conversely, those households which utilised pharmacies as part of a longer pathway (n=122) were much more likely to use it as a last step (81%) than a first step (12%). Unlike for traditional healers or pharmacy care, which favour these modalities either as first or last choices, households which utilised allopathic care or other modalities as part of a longer health pathway (n=214) were equally likely to use it as a first step (45% or 50%) or a last step (47% or 50%) in the care process (figure 6.11).

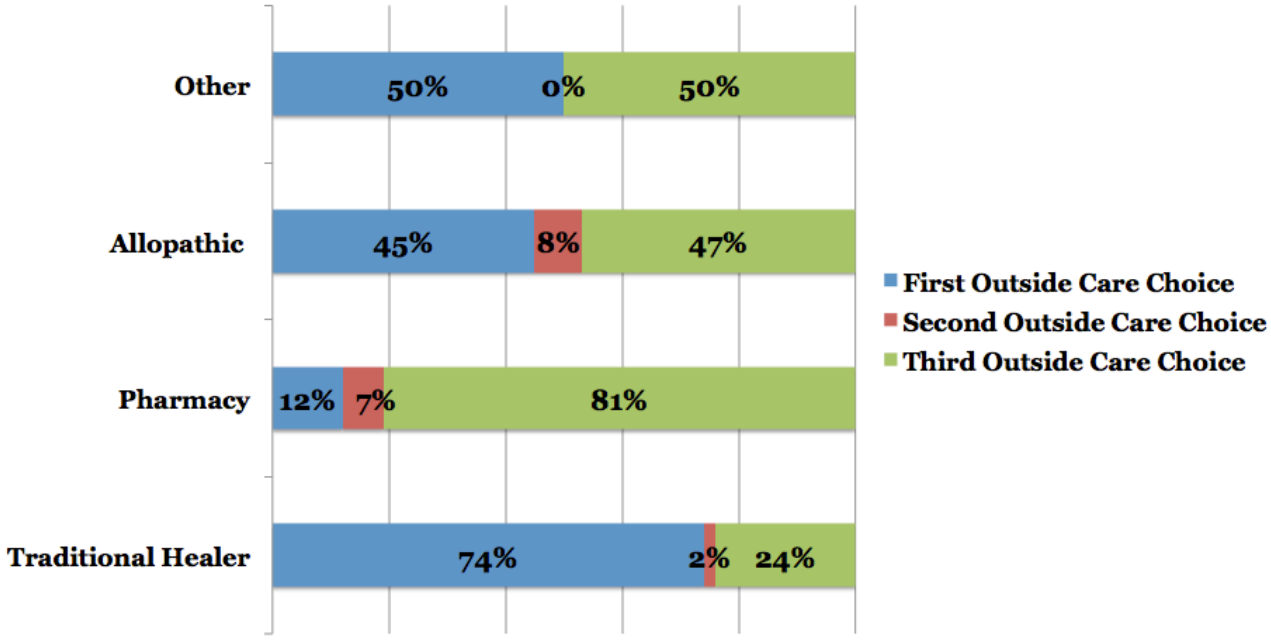


Figure 6.11 Differences between care modalities in terms of where in the overall care pathways they are utilised. As can be seen, traditional healers are most often utilised as a first care option while pharmacies are most often utilised as a last option. Allopathic and other modalities are utilised equally as first and last care options. These differences were statistically significant (χ^2=22.15; $p<0.05$). Please note: the graph only represents those care pathways which involved more than one different care modality.

Transitions between Care Options:

Finally, in order to fully understand care trajectories and HSBs we cannot just examine the utilisation of individual modalities of care or overall treatment sequences, we must also scrutinise the transitions made from one care provider to the next as this will give us a sense not just of where in the pathways certain modalities are being utilised but how households navigate from one care option to the next. This in turn will help us to turn an extremely complicated pathway into a series of more manageable transition frequencies and probabilities, and thus offer a way of understanding how households not only choose care options, but how they prioritise them and move amongst them.

An investigation of the transitions from one care provider to the next reveals that households not only tend to avoid transitioning from one treatment provider to the next, but also that previous treatment choices influence subsequent choices in the sequences. Of all of the pathways which involved allopathic providers as a first outside care option (in cases where more than one care option was sought), fifty-four percent of households chose to go to a pharmacy afterwards, as a second care option. Of all of the pathways which involved traditional healers as a first care option, an overwhelming majority (81%) sought allopathic treatment as a second care option. Of the few pathways which involved pharmacy care as a first option, sixty-three percent followed it with care from a traditional healer (table 6.2). A clear pattern emerges in which certain care options are grouped together more frequently in succession than other care options (figure 6.12a &

6.12b). Still, other care transitions are avoided completely. In transitioning from first to second care options, three out of sixteen possible transitions were avoided completely (namely those involving 'other' as a second care option when starting with traditional healers or pharmacies), and four others were used only once (namely those that involved the repetition of traditional healers or pharmacies after they had already been used once). It stands to reason that households maximize the different types of providers they use in dealing with a single episode.

Table 6.2 Transitions (in terms of the number of cases) between different care options for first, second and third outside care options. Those transitions with the highest frequencies are highlighted in grey.

Second Outside Care Choice

First Outside Care Choice	A	T	P	O	TOTALS
A	19	29	61	4	**113**
T	110	1	24	0	**135**
P	5	10	1	0	**16**
O	3	1	1	0	**5**
TOTALS	**137**	**41**	**87**	**4**	**269**

Third Outside Care Choice

Second Outside Care Choice	A	T	P	O	TOTALS
A	1	3	18	0	**22**
T	1	1	3	1	**6**
P	2	6	0	0	**8**
O	0	0	0	0	**0**
TOTALS	**4**	**10**	**21**	**1**	**36**

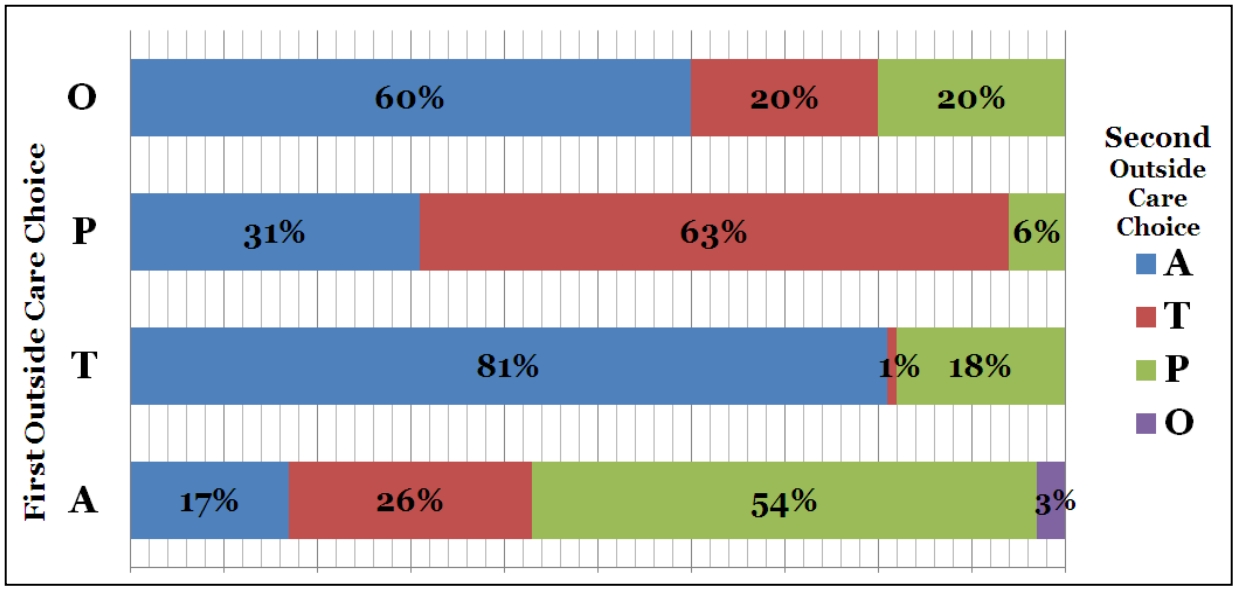


Figure 6.12a Graphical representation of the transitions between first and second care options. Second care options are represented by the different colours. A-allopathic, blue; T - traditional healer, red; P-pharmacy, green; O-other, purple. For example, those who use a traditional healer as a first outside care option are most likely to then use allopathic care as a second outside care option.

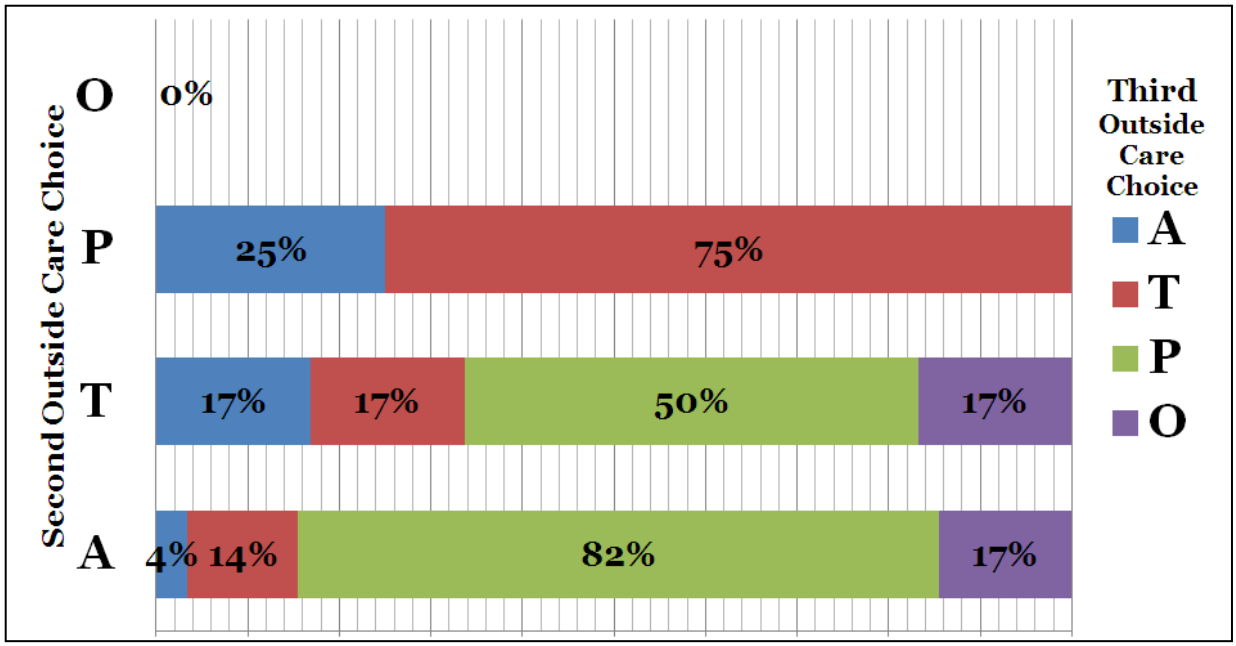


Figure 6.12b Graphical representation of the transitions between second and third care options. Third care options are represented by the different colours. A-allopathic, blue; T - traditional healer, red; P-pharmacy, green; O-other, purple. As can be seen, when transitioning from second to third care providers, those who have used allopathic care as a second option are most likely to then use pharmacy based care as a third option.

When transitioning from second to third care options, only nine out of the sixteen possible transitions were observed, the most common of which was to transition from an allopathic provider to a pharmacy for care (figure 4.49b).

While there are clear patterns in terms of households' transitions between providers, there are also patterns in terms of how people navigate just allopathic provider options. Of the 38 households who used more than one allopathic provider in their overall health trajectories (not necessarily in succession), most households used FCHVs (39%) or SHPs (32%) before any other allopathic options. This stands to reason given that these providers are most readily available in the surveyed VDCs.

While most households initially used government allopathic providers, if they chose to use more than one allopathic provider in their care sequences, the majority of households ended by seeking private allopathic care (42%) or care at the district or regional hospital (24%). So, the transition from facility based government care at the SHP level, to private allopathic care was at a rate greater than would be expected due to chance alone (21% percent compared to 14% based on chance). In short, if households use more than one allopathic provider in their care-seeking processes, and they use government providers as a first step, they will most likely use private allopathic providers as a last resort (figure 6.13).

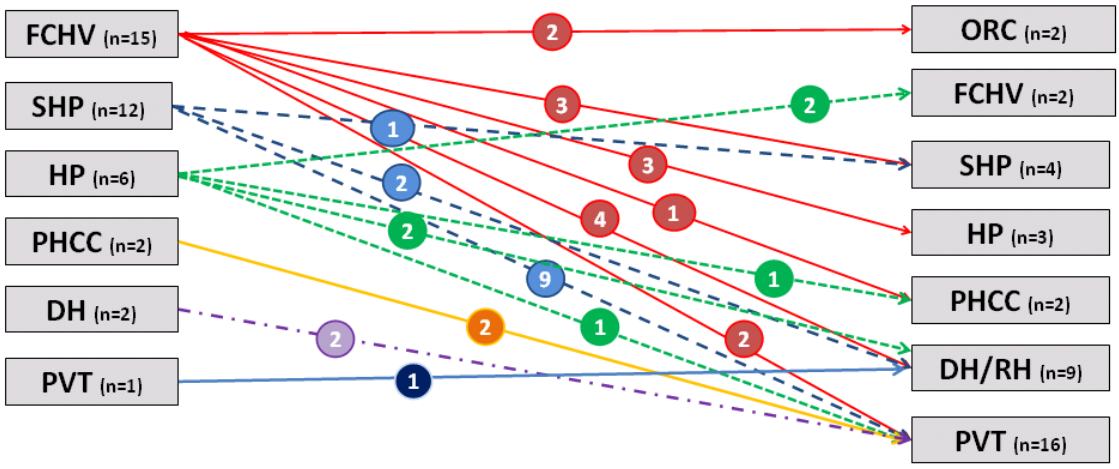


Figure 6.13 Transition frequencies between different allopathic providers for those households which sought care from more than one allopathic provider at some point in their care trajectories (not necessarily in immediate succession; n=38).

In sum, if households have four different care provider options avaiable to them, they have a 25% chance of selecting each as a first care choice based on chance, but compared to chance, traditional healers were selected 32% of the time and allopathic providers were selected at a rate twice that of chance, while pharmacy based care and other options were selected at a rate much lower than chance. If we look, then at subsequent care decisions, the likelihood of transitioning between allopathic and pharmacy care is greater than what would be predicted based on chance, as is the likelihood of transitioning from traditional healers to allopathic providers or pharmacy care to allopathic providers or traditional healers (table 6.3). In short, when examined statistically, certain transitions are more common than chance, while others are much less common than would be predicted based on chance. There is a clear patter to the way in which households

navigate from one care option to the next. The transitional frequencies make sense in light of the findings on care sequences presented in the previous section.

Table 6.3 Transitions between different care providers.Those represented with a '+'are seen at rates greater than would be predicted by chance (n=4), while those with a '--'are seen at rates less than those predicted by chance (n=11). A= allopathic provider; T = traditional healer; P = pharmacy care; O = other provider

Initial Care Providers \ Subsequent Care Providers	A	T	P	O
A	-	-	+	-
T	+	-	-	-
P	+	+	-	-
O	+	-	-	-

6.1d Delays between Outside Care Providers

It is important to look not just at the types of care providers households transition between, but at the length of the transitional delays between them as well. More specifically, for those households that use more than one outside care provider, it is also important to look at how long those households delay in between the initial outside provider at the second outside provider they use. Overall, seventeen percent of households do not delay at all between providers (compared to the 5% who didn't delay before seeking outside care). In other words, once a household has sought at least one outside provider, they are not as likely to delay before seeking a second outside provider. The average length of the delay between outside providers, for those households with some delay, was 60±82 hours (range: 1-600 hours).

Summary of Key Findings for Objective 1b:

- **Delays to Outside Care:** Most households delayed before seeking care outside their homes or before seeking care from allopathic providers. The average length of delays before seeking outside care was a little less than three days and was longest for those seeking private care first and slightly less for those seeking government care. The differences in delays across facility types used first were not significant.

- **Reasons for Delays:** Those households that delayed before seeking outside care cited lack of severity as their primary reason; Other reasons included, waiting for home care to work, lack of funds, lack of transportation or fear. Those households that delayed before seeking allopathic care also mentioned lack of severity and waiting to see if alternative care options would work first as their primary reasons for delaying

- **Outside Care Usage:** Eighty percent of households did something to address their illnesses, and a little more than two-thirds of the households experiencing illnesses opted for care outside of their homes

- **Home Care Usage:** Most households attempted home care first before seeking outside care

- **Government Provider Usage:** Despite the problems mentioned in the previous section with government facilities, of those households which sought outside care, most used allopathic government providers – for every third episode of illness a government allopathic provider is consulted

- **Traditional Healer Usage:** Most households that used THs used them as a first step in their care trajectories and rarely in isolation

- **Pharmacy Care Usage:** Most households that used pharmacy care used it as a last resort, after allopathic providers had been consulted

- **Number of Providers Used:** One-third of households used more than one provider for a single episode of illness

- **Order of Care Choices:** There was a certain order in which most households chose to navigate through the pluralistic medical landscape indicating a hierarchy of choices

- **More than One Allopathic Provider:** For households which used more than one allopathic provider, the majority consulted FCHVs as an initial step and private providers as a final step

- **Maximization of Providers Used:** Once a household opted for a specific provider, they rarely used that provider type again in sequence. In other words, they maximized the different types of providers they consult for a single episode of illness

- **Delays Between Providers:** Seventeen percent of households which consulted multiple outside providers did not delay in between them, and those that did delayed an average of 2.5 days in between

II. Discussion of Objective 1b:

Describing Delays, Care Modalities, Care Sequences and Provider Transitions

While the last section presented an overview of the main findings from objective 1b, this section will discuss those findings in greater detail, and draw on necessary literature to explain them. The implications of these findings are discussed at the end of the section.

Once we identify factors that may have affected HSBs, we need to know how people actually behaved. The majority of households in this study did something to deal with their illnesses, and of those who did, a lot attempted home-based care (herbal medicines, modern medicines stockpiled from previous illnesses or other home remedies) before anything else. This finding was consistent with other studies of HSBs from Nepal and elsewhere which stress the importance of home care as a first step along the care pathway regardless of other factors (Asens-Okyere & Dzator, 1995; Bichmann et al., 1991; Chibwana et al., 2009; Hang & Byass, 2009; Jimba et al., 2003; Meska et al., 2003; Partha & Sheway, 2002; Shankar, Partha & Shenoy, 2002; Suleman, 1996; Weller, Ruebush II & Klein, 1997). The use of home-based care first makes sense given financial and logistical constraints of outside care-seeking, making home-based care the easiest option. Why bother spending money and time to go elsewhere if home care can cure? This was found to also be the case in Ghana for example, where households increased use of self-medication to save costs (Asenso-Okyere et al., 1998),

In fact, most households hesitated for some time before seeking outside care, and of those households that did, the majority mentioned they did so because they felt

their illnesses were not very severe and they were waiting to see if home-based care would work or if the illness would resolve on its own. This is relatively consistent with the results of other studies on delays before seeking care (Ahmed et al., 2009; Chibwana et al., 2009; Malik et al., 2006; Tan et al., 2006; Yimer et al., 2009). Although most households indicated they delayed because of home care, statistical analyses revealed there were no significant differences in delays between those households which used home care first and those that did not use home care first. Even though households often attempted home care first, if they did not get better within 72 hours, an illness moved from being considered not severe to moderately severe, and outside action was usually taken. Other studies have attributed this wait-and-see attitude predominantly to financial concerns and lack of funds leading to longer delays and greater usage of self-treatment before seeking care elsewhere (Asenso-Okyere et al., 1998; Mulder et al., 2008).

While most households opted for home care first, sixty-nine percent of those who were ill eventually sought some outside care, the majority of which was allopathic government care. This is consistent with what was found in a few other HSB studies in Nepal (CBS, 2011; Jimba et al., 2003). Even so, these results are almost antithetical to other sources, which indicated a gross underutilisation of government or public services in Nepal and elsewhere (Acharya & Cleland, 2000; Attah, 1986; Bichmann et al., 1991; Clark et al., 2011; Dongre, Deshmukh & Garg, 2008; Enyioko & Omodu, 2012; Hang & Byass, 2009; NCP, 1977; Niraula, 1994; Raj Subba, 2001; Rahman et al., 2011; Reniers & Tesfai, 2009; Shrestha & Ittiravivongs, 1994; Titaley, Dibley & Roberts, 2010; Pokhrel & Sauerborn, 2003).

In fact, the results of this study indicated that during the month of study, for almost every third illness, government facilities were consulted at least once as part of a household's care pathway. This is slightly lower, however, than the 50% consultation rate indicated on the most recent NLSS III (CBS, 2011). Given that the majority of illnesses were not that severe, and given that only a little over two-thirds of the households experiencing illnesses opted for care outside of their homes, it still does not appear that government services are being underutilised, and that households are not deterred from using government services by their poor perceptions. In fact, they seem to use government services when they feel they are necessary. This finding was not unique to this study and does comport with other findings from non-governmental data and recent governmental data in Nepal (CBS, 2011; Jimba et al., 2003). Other studies have also found that despite complaints about services and health providers, people still use government facilities for a lot of illnesses (Asenso-Okyere et al., 1998; Jordan et al., 2009; Kunda et al., 2007).

While other studies in other contexts have attributed low or delayed utilisation of allopathic providers to reliance on traditional healers and low usage of government providers to reliance on private providers or pharmacies/drug vendors, in this context very few households opted for traditional healers, private providers or pharmacy care in isolation (Abula & Worku, 2001; Beiersmann et al., 2007; Bichmann et al., 1991; Chibwana et al., 2009; Comoro et al., 2003; Dillip et al., 2009; Fantahun & Degu, 2003; Friend-du Preez, Cameron & Griffiths, 2009; Makundi et al., 2006; Nicholls et al., 2005; Stock, 1985;

Uzochukwu & Onwujekwe, 2004; Wyss et al., 1996). In fact, only thirty-six percent of households which used THs at all used them in isolation, the rest coupled them with allopathic or pharmacy care, and did not delay any longer than those households seeking allopathic care outright. Similarly, less than half of the households which used pharmacies used them in isolation, contrary to other findings, and very few households overall opted for private providers, contrary to findings from other contexts (Fosu, 1989; Price, 1989; Suganthi et al., 2008). However, more than half of the households which used allopathic providers used them as their soul means of care. All of this illustrates that, contrary to other contexts in which single providers are often used in isolation and households are resistant to switch between different provider options, and contrary to other contexts in which the type of provider utilised first actually impacted the length of delays, in this particular context, people often couple TH and pharmacy usage with allopathic care options, and did not delay longer in doing so (Ayuo et al., 2008). In fact, there is often a particular hierarchy to the order in which they select these providers. Households frequently use THs first and pharmacies last in their care pathways outside of the home. This finding that households tend to use pharmacy or medical shop care as a last step was actually opposite of what was found in a study on treatment-seeking for TB in Nepal, which indicated that most households started their care by seeking treatment at a medical shop (ten Asbroek et al., 2008). While the usage of pharmacy care as a last resort was contrary to other findings from this context, the finding that households tend to couple traditional and allopathic care has actually been observed in a few other contexts where traditional medicine and modern medicine are not seen as

incompatible with one another – one heals social ills while the other treats the more physical components of illness (Bichmann et al., 1991; Dongre, Deshmukh & Garg, 2008; Fosu, 1989; Reniers & Tesfai, 2009).

In short, households in this study infrequently opt for the same provider types more than once for a single episode; for those households that use multiple providers, they always attempt to maximize diversity of options utilised, availing themselves of a whole host of different formal and informal provider options in their trajectories. This utilisation of multiple providers for a single type of illness has also been observed in other contexts (Deressa, Ali & Hailemariam, 2008; Deressa et al., 2008; Deressa & Ali, 2009; el Bushra et al., 1988; Winch et al., 1996).

If we look at the qualitative findings (section 7.5) alongside some of the survey data, it makes sense that households use both THs and other providers in conjunction because both treat different aspects of an illness and together can assuage concerns that an illness may be due to multiple factors (both spiritual and non). Moreover, seeking both can satisfy cultural norms without sacrificing proper care or betraying aetiology beliefs (given that most people attribute illnesses to non-supernatural factors it would not make sense for them to seek THs in isolation)[5]. Moreover, marrying different treatment options has been found in other studies to be a way for households to respond to uncertainty in illness origin by exhausting all potential options (de Zoysa et al., 1984; Ellis et al.,

[5] For overview of household aetiology beliefs, see **Appendix 3.17**.

2007; Hausmann-Muela & Ribera, 2003; Kaltenthaler & Dasar, 1996; Kamat, 2009).

The qualitative and survey findings (presented in sections 4.3c and 4.3d) also help us to explain why households might opt for pharmacy care last, since pharmacies are used for their superior quality and wider array of medicines, but lack the necessary personnel, which government facilities have. So, in coupling allopathic government providers with pharmacy care, households can first get the necessary consult with a trained professional and then get the better medicines from the pharmacy.

In looking just at allopathic providers, a fairly high percentage of households (12% of all those who used allopathic providers of some sort) consulted FCHVs as an initial allopathic care option. This is a bit higher than has been found in other studies of community health worker (CHW) usage in other contexts (Engelkes, 1992; Asfar, 2004). In fact, in this study, of those households that consulted more than one allopathic care option for a single illness, almost all of them initiated contact with the FCHV before moving upwards. In other words the FCHV seems to be operating relatively effectively to facilitate referrals to other allopathic services. This is counter to other studies in which CHWs have served a more curative role, but is does comport with other studies in South Asia, in which female health volunteers have been shown to work as effective referral agents from the community level upwards (Asfar, 2004; Engelkes, 1992; Gabler, 2009). The high usage of CHWs has been found in other studies to be associated with the

fact that they are generally well regarded and are more responsive than other levels of the health system (Kallander et al., 2006; Mbonye, 2003; Rutebemberwa et al., 2009). The reasons for using FCHVs versus facility-based care are touched upon in greater detail in the discussion section for objectives 2a and 2b.

Finally, moving up from the CHW level, it is important to acknowledge that in this particular context, private services were often not utilised to the extent to which they have been in other contexts (Abula & Worku, 2001; Bichmann et al., 1991; Chibwana et al., 2009; Fantahun & Degu, 2003; Friend-du Preez, Cameron & Griffiths, 2009; Kallander et al., 2006; Nicholls et al., 2005; Stock, 1985; Uzochukwu & Onwujekwe, 2004; Wyss et al., 1996). In fact, less than half of households used private providers to treat their illnesses. Those that did use private providers were likely to have been referred there from a government provider. This may have been due to the fact that in rural Nepal private providers are often far less accessible than government facilities, but, again, the actual factors which contributed to their usage or non-usage are explored in the next section.

In short, households seem to triage their care decisions carefully, making deliberate choices and availing of multiple different provider options in their treatment courses.

Chapter 7:
Results & Discussion for Objectives 2a & 2b

This chapter provides: ***(1)*** *An overview of the main study results for objectives 2a and 2b;* ***(2)*** *A more in depth discussion of each of the main research findings for objectives 2a and 2b, comparing them to relevant literatures and attempting to bring the qualitative results to bear on the quantitative results in order to better explain them;* ***(3)*** *Summary boxes of the main implications of the research findings for both objectives.*

I. Objective 2a Results

Understanding the Relationship between Objective Characteristics and Care Decisions Using Quantitative Data

OBJECTIVE 2a:

To quantify the relationship between the objective characteristics/factors (described in objective 1a) and the health care decisions (described in objective 1b) using logistical and linear regression analyses. More specifically:

- To quantitatively explore the relationship between patient, household, community, health service, knowledge and illness characteristics/factors and the length of delays, the order of provider usage (which treatment options were selected first), the specific types of provider/s utilised (focusing on allopathic care), the number of providers utilised and the location of providers selected
- To determine which of the aforementioned objective characteristics/factors has the greatest influence on the length of delays, the order of provider usage (which treatment options were selected first), the specific types of provider/s utilised (focusing on allopathic care), the number of providers utilised and the location of providers selected

More than just describing the predisposing, enabling and need factors that may influence care choices, and more than just describing where people are going for care, it is critical for a larger understanding of the functioning of health services and for the designing of health interventions to understand what

specific predisposing, enabling and need factors are actually influencing care decision and to quantify their individual and collective impacts to determine which factors are most important in dictating particular care choices in this district. To that end, this section will present an overview of the findings from the ***final regression models*** *which explore the link between each of these objective factors and timing of care, order of care, choice of providers and location of providers (figure 7.1). Please note, given the sheer number of models run,* ***ONLY the findings from the final models*** *are presented here. Preliminary chi-squared analyses and regression model results can be found in* ***Appendices 7.1 & 7.2***

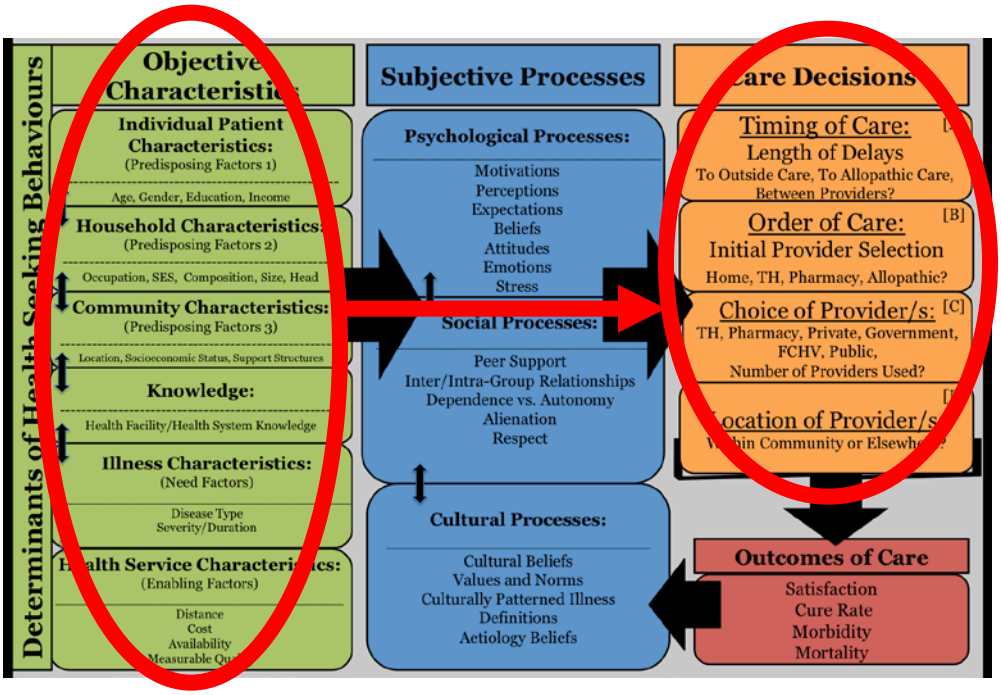


Figure 7.1 This objective (2a) will deal with the relationship between these portions (circled in red) of the comprehensive theoretical model discussed in Chapter 2.

Preliminary chi-squared analyses and linear regression models revealed a number of significant associations between some of the objective characteristics

(explanatory variables) and each of the care decision variables (outcome variables). While the results of those preliminary analyses are presented in **Appendix 7.2**, the findings from the final regression models are presented below. These final regression models also revealed a number of interesting significant relationships between various individual, household, community, health facility, illness and knowledge variables and various care outcomes – length of delays, order of care choices, modalities of care choices, numbers of providers used and location of providers used:

7.1 *Final 'Delay of Care' Models: B Models*

Let's start by examining the factors which impact how long a household waits before seeking outside care, how long they wait before seeking allopathic care and how long they wait in between first and second providers.

Although the preliminary delay of care models indicated a combination of patient variables, household variables, ward-level variables, illness variables, health facility variables and knowledge variables influenced the lengths of delays, in the final models, when all other variables were controlled for, only patient age, household wealth quintile and ward-level index had a significant overall effect on length of delays (although the magnitude of the effect was quite small).

7.1a Factors Influencing Delay before Seeking Care Outside of the Home: Model B.1

Summary of Significant Associations from Preliminary Model B.1*

Outcome Variable: Delay in seeking care out of the home (in hours)

Patient Variables: Patient age

Household SES Variables: No significant associations

Ward SES Variables: No significant associations

Illness Variables: Illness type

Knowledge Variables: Knowledge of the government referral system

Health Facility Variables: Distance; Availability of exam room; Treatment protocol score

Every household which sought care outside the home delayed somewhere between a few minutes and many days before seeking care, and this section used a step-wise linear regression model to quantitatively explore the various factors which may have significantly influenced the length of these delays. Although the preliminary models showed that patient age, disease type, knowledge of the government referral system, distance to the nearest government facility, availability of an exam room at the nearest government facility and treatment protocol score at the nearest government facility were all associated with significant changes in the length of time households delayed before seeking care outside of the home (see box above), the final block-wise model, with the transformed variables, revealed only two significant associations at the $p<0.05$ level – patient age and ward level index. The final model was only significant up through block 12[1], therefore the model was only interpreted up through this

[1] See **Appendix 7.3**

block, and illness severity and knowledge composite index (blocks 13 and 14) were excluded from the interpretations.

Still, it is worthwhile to go ahead and interpret the final results up through block 12 of the model (table 7.1). As was the case in the preliminary models, if a patient was older, a household delayed longer. More specifically, when controlling for the variables entered in blocks 1-12 of the final model,[2] for every one-year increase in patient age, the length of the delay before seeking outside care increased by 0.23 hours on average. Also, although the preliminary models did not demonstrate a relationship between ward level variables and delay before seeking outside care, the final models revealed that households in wards with greater infrastructure delayed less before seeking outside care. Specifically, when controlling for other potential explanatory variables, households located in wards with the highest infrastructure (index of 3) delayed 2.01 hours less on average than households in wards with the lowest infrastructure (index of 1).

[2]Blocks 1-12 include: patient gender, patient age, HH head education, HH occupation, HH wealth quintile, number of children in the household, HH caste, ward-level SES index, objective health facility quality index, distance to nearest government facility, type of nearest government facility and illness type

Table 7.1 An overview of the transformed and back-transformed 'B' values for block 12 of the 'delay to outside care' (B.1) final regression model. N/A indicates that the variable was not included in the analysis of this particular block.

Explanatory Variables *(for block 12 of the final model)*	**B** For transformed variables❖	**Std. Error**	**B** Back-transformed	**Sig. (p-value)**
Patient Variables				
Patient Gender (M)	-0.333	0.310	-0.649	0.283
Patient Age	**0.017**	**0.008**	**0.233**	**0.033***
Household SES Variables				
No. of Children (1-5yo)	-0.280	0.208	-0.608	0.179
Occupation of Head				
Subsistence Farmer	----	----	----	----
Commercial Farmer	0.556	0.417	0.003	0.183
Unskilled Labourer	0.250	0.427	0.063	0.326
Skilled Labourer	-0.688	0.700	-1.411	0.782
Professional Worker	0.149	0.582	0.123	0.059
Education of Head				
None (REF)	----	----	----	----
Primary & Lower Secondary	-0.194	0.324	-0.482	0.549
Upper Secondary +	-0.479	0.673	-0.958	0.477
Household Caste				
Brahmin/Chhetri/ Madehsi/Thakuri	----	----	----	----
Tamang/Magar/Gurung	-0.007	0.456	-0.257	0.989
Chepang/Biswokarma/ Other Dalit	0.221	0.626	0.078	0.725
Newar	0.230	0.739	0.073	0.756
Wealth Quintiles				
Quintile 1 – poorest (REF)	----	----	----	----
Quintile 2	-0.254	0.436	-0.569	0.561
Quintile 3	-0.345	0.483	-0.714	0.475
Quintile 4	-0.645	0.542	-1.311	0.234
Quintile 5 -wealthiest	-1.103	0.582	-2.569	0.059
Ward Level SES Variables				
Ward-Level Composite Index				
SES 1 – lowest infrastructure (REF)	----	----	----	----
SES 2	-0.344	0.429	-0.712	0.424
SES 3 – highest infrastructure	**-0.917**	**0.449**	**-2.008**	**0.042***

* $p<0.05$; ** $p<0.01$ ❖ Transformation involved: $\sqrt{(X + 0.5)} = B$

Explanatory Variables (*for block 12 of the final model*)	B For transformed variables❖	Std. Error	B Back-transformed	Sig. (p-value)
Illness Variables				
Illness Type (ICD Code)				
A00-B99	----	----	----	----
J00-J99	0.008	0.368	0.242	0.982
Other Codes	0.081	0.395	0.176	0.838
Illness Severity				
Not at all Severe	----	----	----	----
Somewhat Severe	N/A	N/A	N/A	N/A
Very Severe	N/A	N/A	N/A	N/A
Extremely Severe/ Life-Threatening	N/A	N/A	N/A	N/A
Health Facility Variables				
Gov. Health Facility Distance	0.202	0.145	0.089	0.165
Closest Health Facility Type				
SHP	----	----	----	----
HP	-0.690	0.417	1.416	0.165
PHCC	0.577	0.709	0.006	0.417
Health Facility Quality Composite Index				
Poor (REF)	----	----	----	----
Fair	-0.638	0.422	1.295	0.130
Good	-0.320	0.455	0.672	0.482
Knowledge Variables				
Knowledge Composite Index				
Poor Knowledge of Government Services	----	----	----	----
Fair Knowledge of Government Services	N/A	N/A	N/A	N/A
Good Knowledge of Government Services	N/A	N/A	N/A	N/A

* $p<0.05$; ** $p<0.01$ ❖ Transformation involved: $\sqrt{(X + 0.5)} = B$

Despite the significant variables, the final model revealed that only 5% of the variance in the overall model was explained by the independent variables included, which means there is still a lot of residual confounding taking place (see table 7.2; **Appendix 7.3a** has the R^2 table for the transformed data).

Table 7.2 R^2 values and standard error values for each block in the 'delay to outside care' final linear regression model (for the un-transformed variables). These are the R^2 as if the model were run without the transformed outcome variable.

Independent Variables (Entered Blockwise)	R	R Square	Adjusted R Square	Std. Error of the Estimate
Patient Gender	.041	.002	.000	78.188
Patient Age*	.111	.012	.010	77.821
HH Head Education*	.137	.019	.013	77.680
HH Occupation*	.163	.027	.016	77.576
HH Wealth Quintile*	.180	.032	.016	77.561
No. Children (1-5 yo.)*	.184	.034	.017	77.548
HH Caste*	.186	.035	.013	77.680
Ward Level SES Index*	.195	.038	.014	77.659
Obj HF Quality Index*	.201	.041	.014	77.659
Distance to HF*	.204	.042	.015	77.625
HF Type*	.209	.044	.015	77.599
Illness Type*	.221	.049	.015	77.605
Illness Severity	.223	.050	.012	77.740
Knowledge Composite Index	.224	.050	.010	77.831

*Block is significant ($p<0.05$) according to the ANOVA test

In terms of the overall contribution of each of the individual categories of independent variables to the length of delay outcome, **household level SES variables** contributed the most to the overall model and cumulatively explain 2.3% of the overall model variance (table 7.2). Patient variables made the second

greatest contribution to the overall model, cumulatively explaining 1.2% of the variance. Illness factors and health facility variables each only accounted for 0.6% of the variance, while ward-level SES variables and knowledge variables accounted for only 0.3% and 0% respectively:

Summary of the Relative Contributions of the Objective Factors to the Overall Model Variance: Model B.1

Household SES Variables (2.3%) > Patient Demographic Variables (1.2%)> Health Facility Variables (0.6%)/ Illness Variables (0.6%) > Ward-Level SES Variables (0.3%) > Knowledge Variables (0%)

> indicates greater than or less than

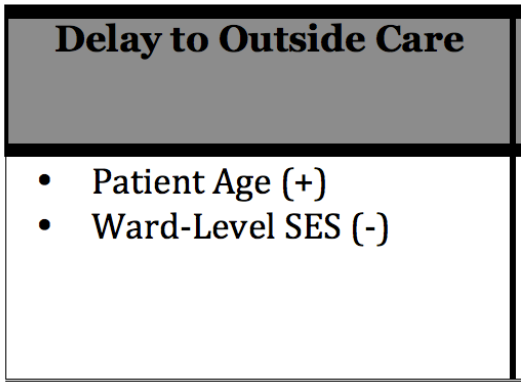


Figure 7.2 A summary of the significant associations from final model B.1. Those highlighted in bold were significant at $p<0.01$, while the remainder were significant at $p<0.05$. '+' indicates a positive association between the explanatory variable and outcome of interest, while '--' indicates a negative association between the variable and the outcome of interest.

7.1b Factors Influencing Delays before Seeking Allopathic Care: Model B.2

Summary of Significant Associations from Preliminary Model B.2*

Outcome Variable: Delay in seeking allopathic care outside the home (in hours)

Patient Variables: No significant associations

Household SES Variables: Wealth quintile

Ward SES Variables: Ward Index

Illness Variables: Length of time unable to work

Knowledge Variables: Knowledge of the government referral system; Knowledge of FCHVs; Knowledge of the availability of free government services

Health Facility Variables: Distance from nearest government health facility to district hospital

While the previous section explored those variables significantly associated with delays to seeking care from any outside provider, this model looked only at those households which sought allopathic care outside of the home. Like the previous section, it also used a step-wise (block-wise) linear regression model to quantitatively explore those factors which were significantly associated with changes in the length of delay before seeking allopathic care. While the preliminary regression models once again showed a whole host of different variables - wealth quintile, ward-level index, illness severity, distance between the nearest government facility and the district hospital and knowledge of government health services – were associated with changes in the length of delays, the final block-wise model with the transformed variables only revealed a single significant association - household wealth quintile. Unlike the previous model for delay to outside care, which was significant up through block 12, this

particular model was only significant up through block 5[3], and therefore this section is predicated on the results up through that block only. In other words, all of the variables entered after block 5 are excluded from the analysis.

As was the case in the preliminary models, household SES matters -- wealthier households delayed less before seeking allopathic care than poorer households (according to wealth quintile). Specifically, when controlling for patient variables and other household-level SES variables, households in the 5th wealth quintile (wealthiest) delayed 5.88 hours less on average than households in the 1st(poorest) wealth quintile (table 7.3). This, however, was the only significant association in the final model.

[3]Block 5 includes: patient age, patient gender, household head education, household occupation and household wealth quintile

Table 7.3 An overview of the transformed and back-transformed 'B' values for block 5 of the 'delay to allopathic care' (B.2) final regression model. N/A indicates that the variable was not included in the analysis of this particular block. Illness variables, ward variables, health facility variables and knowledge variables are all excluded because they were not entered in blocks 1-5.

Explanatory Variables (*for block 5 of the final model*)	**B** For transformed variables❖	**Std. Error**	**B** Back-transformed	**Sig. (p-value)**
Patient Variables				
Patient Gender (M)	-0.789	0.403	-1.662	0.051
Patient Age	0.007	0.010	0.243	0.487
Household SES Variables				
No. of Children (1-5yo)	N/A	N/A	N/A	N/A
Occupation of Head				
Subsistence Farmer	----	----	----	----
Commercial Farmer	0.489	0.553	0.000	0.377
Unskilled Labourer	-0.041	0.547	-0.293	0.941
Skilled Labourer	-0.825	0.996	-1.756	0.408
Professional Worker	-0.643	0.718	-1.306	0.371
Education of Head				
None (REF)	----	----	----	----
Primary & Lower Secondary	0.052	0.421	0.201	0.902
Upper Secondary +	-0.424	0.880	-0.854	0.630
Household Caste				
Brahmin/Chhetri/ Madehsi/Thakuri	----	----	----	----
Tamang/Magar/Gurung	N/A	N/A	N/A	N/A
Chepang/Biswokarma/ Other Dalit	N/A	N/A	N/A	N/A
Newar	N/A	N/A	N/A	N/A
Wealth Quintiles				
Quintile 1 – poorest (REF)	----	----	----	----
Quintile 2	-0.110	0.576	-0.372	0.849
Quintile 3	-0.757	0.635	-1.580	0.234
Quintile 4	-1.011	0.660	-2.283	0.126
Quintile 5 -wealthiest	**-1.924**	**0.675**	**-5.876**	**0.005****

* p<0.05; ** p<0.01 ❖ Transformation involved: √(X + 0.5) = B

Again, like the previous model, this model also involved a high degree of residual confounding. In fact, all the independent variables in the final model (those entered from blocks 1-14) only explained 6.6% of the overall model variance (table 7.4; for the R^2 table for the transformed data see **Appendix 7.3b**).

Table 7.4 R^2 values and standard error values for each block in the 'delay to allopathic care' final linear regression model (for the un-transformed variables). These are the R^2 as if the model were run without the transformed outcome variable.

Independent Variables (Entered Blockwise)	R	R Square	Adjusted R Square	Std. Error of the Estimate
Patient Gender	.071	.005	.003	99.067
Patient Age	.086	.007	.003	99.055
HH Head Education	.122	.015	.007	98.881
HH Occupation	.169	.029	.012	98.601
HH Wealth Quintile*	.208	.043	.019	98.269
No. Children (1-5 yo.)	.208	.043	.017	98.371
HH Caste	.209	.044	.011	98.652
Ward Level SES Index	.219	.048	.011	98.646
Obj HF Quality Index	.220	.049	.008	98.829
Distance to HF	.224	.050	.009	98.877
HF Type	.224	.050	.007	98.984
Illness Type	.249	.062	.011	98.782
Illness Severity	.252	.063	.006	99.047
Knowledge Composite Index	.257	.066	.004	99.130

*Block is significant ($p<0.05$) according to the ANOVA test

Household-level SES variables collectively contributed the most to delays in allopathic care-seeking (see box below), explaining 3.7% of the overall model variance, while illness variables contributed the second most:

Summary of the Relative Contributions of the Objective Factors to the Overall Model Variance: Model B.2

Household SES Variables (3.7%) > Illness Variables (1.3%)>
Patient Variables (0.7%)> Ward-Level SES Variables (0.4%) >
Knowledge Variables (0.3%) >Health Facility Variables (0.2%)

> indicates greater than or less than

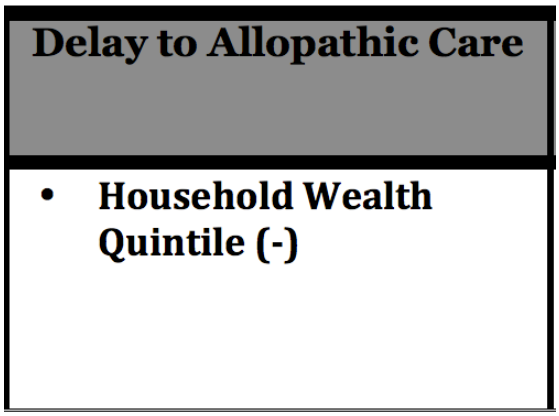


Figure 7.3 A summary of the significant associations for final model B.2. Those highlighted in bold were significant at $p<0.01$, while the remainder were significant at $p<0.05$. '+' indicates a positive association between the explanatory variable and outcome of interest, while '--' indicates a negative association between the variable and the outcome of interest.

7.1c Factors Influencing Delays between First & Second Outside Care Providers: Model B.3

Summary of Significant Associations from Preliminary Model B.3*

Outcome Variable: Delay between first and second outside care providers (in hours)

Patient Variables: No significant associations

Household SES Variables: Wealth quintile

Ward SES Variables: No significant associations

Illness Variables: Objective illness severity

Knowledge Variables: None

Health Facility Variables: Availability of exam room

This last model only looked at those households which sought care from more than one outside provider. Like the previous two section, it also used a step-wise linear regression model to quantitatively explore those factors which were significantly associated with changes in the length of delay between different outside providers. The preliminary models only indicated that household wealth quintile, illness severity and the availability of an exam room in the government health centre closest to the household were significantly associated with changes in the length of the delay. In the final model, when controlling for different categories of explanatory variables, wealth quintile and health facility type were found to be significantly associated. The final model, like the delay to outside care model, was only significant up through block 12, therefore the model was only interpreted up through this block, excluding illness severity and knowledge composite index (blocks 13 and 14).

This model, like the last, similarly revealed that wealthier households delayed less between different outside care providers, but this time the relationship was significant across multiple different quintiles. Specifically, when controlling for all of the potential explanatory variables in blocks 1-12, households in the 3rd wealth quintile delayed on average 8.71 hours less and households in the 4th wealth quintile delayed on average 7.57 hours less between providers than households in the 1st (poorest) wealth quintile. Households in the 5th wealth quintile (wealthiest), however, delayed even less than those in 3rd and 4th. In fact, those households in the 5th wealth quintile delayed on average a whole 14.03 hours less between providers than households in the 1st wealth quintile.

Unlike the previous model, the type of government health facility nearest the household also mattered. Specifically, when controlling for other potential explanatory variables in blocks 1-12, those households closest to HPs delayed on average 8.60 hours less in between outside care providers than those households closest to SHPs.

So wealthier households and those closest to HPs delay less between providers (table 7.5).

Table 7.5 An overview of the transformed and back-transformed 'B' values for block 12 of the 'delay between outside providers (B.3) final regression model. N/A indicates that the variable was not included in the analysis of this particular block. Illness severity and knowledge variables (blocks 13 and 14) were excluded from the interpretation.

Explanatory Variables (*for block 12 of the final model*)	**B** For transformed variables❖	**Std. Error**	**B** Back-transformed	**Sig. (p-value)**
Patient Variables				
Patient Gender (M)	0.246	0.565	0.065	0.663
Patient Age	0.018	0.016	0.232	0.247
Household SES Variables				
No. of Children (1-5yo)	0.615	0.376	0.013	0.103
Occupation of Head				
Subsistence Farmer	----	----	----	----
Commercial Farmer	0.279	0.807	0.049	0.730
Unskilled Labourer	0.100	0.818	0.160	0.903
Skilled Labourer	-0.179	1.468	-0.461	0.903
Professional Worker	-0.742	1.121	-1.543	0.509
Education of Head				
None (REF)	----	----	----	----
Primary & Lower Secondary	-0.338	0.605	-0.702	0.578
Upper Secondary +	-1.283	1.170	-3.179	0.274
Household Caste				
Brahmin/Chhetri/ Madehsi/Thakuri	----	----	----	----
Tamang/Magar/Gurung	0.485	0.910	0.000	0.595
Chepang/Biswokarma/ Other Dalit	0.020	1.157	0.230	0.986
Newar	-0.138	1.405	-0.407	0.922
Wealth Quintiles				
Quintile 1 – poorest (REF)	----	----	----	----
Quintile 2	-1.536	0.832	-4.145	0.066
Quintile 3	**-2.452**	**0.914**	**-8.714**	**0.008****
Quintile 4	**-2.252**	**1.019**	**-7.574**	**0.028***
Quintile 5 -wealthiest	**-3.245**	**1.114**	**-14.025**	**0.004****
Ward Level SES Variables				
Ward-Level Composite Index				
SES 1 – lowest infrastructure (REF)	----	----	----	----
SES 2	-0.042	0.794	-0.294	0.958
SES 3 – highest infrastructure	0.264	0.802	0.056	0.742

* p<0.05; ** p<0.01 ❖ Transformation involved: √(X + 0.5) = B

Explanatory Variables (for block 12 of the final model)	B For transformed variables❖	Std. Error	B (Back-transformed)	Sig. (p-value)
Illness Variables				
Illness Type (ICD Code)				
A00-B99	----	----	----	----
J00-J99	-0.286	0.713	-0.618	0.941
Other Codes	0.273	0.808	0.052	0.735
Illness Severity				
Not at all Severe	----	----	----	----
Somewhat Severe	N/A	N/A	N/A	N/A
Very Severe	N/A	N/A	N/A	N/A
Extremely Severe/ Life-Threatening	N/A	N/A	N/A	N/A
Health Facility Variables				
Gov. Health Facility Distance	-0.334	0.287	-0.696	0.247
Closest Health Facility Type				
SHP	----	----	----	----
HP	**-2.432**	**0.773**	**-8.597**	**0.002****
PHCC	-0.100	1.347	-0.360	0.941
Health Facility Quality Composite Index				
Poor (REF)	----	----	----	----
Fair	0.253	0.897	0.061	0.778
Good	-1.662	0.889	-4.674	0.063
Knowledge Variables				
Knowledge Composite Index				
Poor Knowledge of Government Services	----	----	----	----
Fair Knowledge of Government Services	N/A	N/A	N/A	N/A
Good Knowledge of Government Services	N/A	N/A	N/A	N/A

❖ Transformation involved: $\sqrt{(X + 0.5)} = B$

For the non-transformed data, 14.4% of the overall model variance was explained by the independent variables included in the model (slightly higher than the variance explained in the previous two models; table 7.6).

Table 7.6 R^2 values and standard error values for each block in the 'delay between outside providers' final linear regression model (for the un-transformed variables). These are the R^2 as if the model were run without the transformed outcome variable.

Independent Variables (Entered Blockwise)	R	R Square	Adjusted R Square	Std. Error of the Estimate
Patient Gender	.032	.001	-.003	81.999
Patient Age	.058	.003	-.004	82.057
HH Head Education	.150	.022	.007	81.582
HH Occupation	.187	.035	.005	81.686
HH Wealth Quintile*	.268	.072	.028	80.726
No. Children (1-5 yo.)	.274	.075	.028	80.743
HH Caste	.275	.075	.016	81.218
Ward Level SES Index	.287	.082	.016	81.247
Obj HF Quality Index	.294	.087	.012	81.377
Distance to HF	.302	.091	.017	81.513
HF Type*	.312	.097	.019	81.425
Illness Type*	.377	.142	.052	80.021
Illness Severity	.378	.143	.041	80.505
Knowledge Composite Index	.380	.144	.034	80.793

*Block is significant ($p<0.05$) according to the ANOVA test

In terms of the overall contribution of each of the individual categories of independent variables to the length of delay between providers, yet again **household level SES variables** contributed the most to the overall model and

cumulatively explain 7.2% of the overall model variance (table 7.6). Illness variables again made the second greatest contribution to the overall model, cumulatively explaining 4.6% of the overall model variance. The rest of the different objective factor's contributions can be found below:

Summary of the Relative Contributions of the Objective Factors to the Overall Model Variance: Model B.3

Household SES Variables (7.2%) > Illness Variables (4.6%)>
Health Facility Variables (1.5%)> Ward-Level SES Variables (0.7%) >
Patient Variables (0.3%)>Knowledge Variables (0.1%)

> indicates greater than or less than

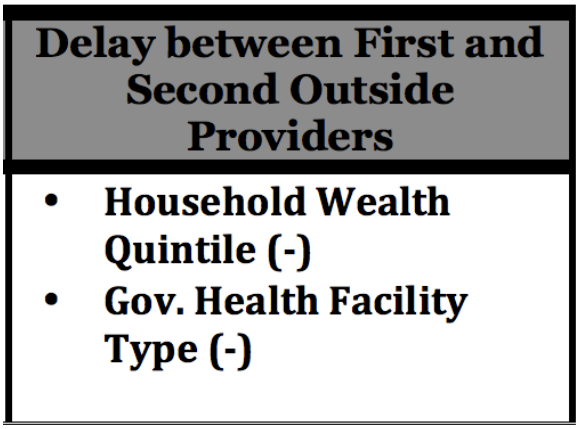


Figure 7.4 A summary of the significant associations from final model B.3. Those highlighted in bold were significant at $p<0.01$, while the remainder were significant at $p<0.05$. '+' indicates a positive association between the explanatory variable and outcome of interest, while '--' indicates a negative association between the variable and the outcome of interest.

Summary of 'Delay of Care' Model Variance [B Models]:

Final Models	Categories of Independent Variables (% Contribution to Overall Model Variance [R^2])						
	Patient Variables	Household SES Variables	Ward-Level SES Variables	Health Facility Variables	Illness Variables	Knowledge Variables	Totals
B.1: Delay to Outside Care	1.2%	**2.3%**	0.3%	0.6%	0.6%	0%	**5%**
B.2: Delay to Allopathic Care	0.7%	**3.7%**	0.4%	0.2%	1.3%	0.3%	**6.6%**
B.3: Delay Between First and Second Providers	0.3%	**7.2%**	0.7%	1.5%	4.6%	0.1%	**14.4%**

Figure 7.5 Summary of overall model variance for each of the delay models broken down by the collective impact of each category of variables. Those highlighted in bold are the categories of factors which made the greatest contribution to overall model variance. In other words, households SES variables had the greatest collective impact on whether or not a household delayed in seeking care or between care providers.

Summary of Key Findings for Objective 2a*:

'Delay of Care' [B] Models

- Wealthier households delayed less time on average than poorer households **before seeking allopathic care**
- Wealthier households and households located closer to HPs (versus SHPs) delayed less time on average when moving **between different outside care providers**

* **NOTE**: Only those findings which were significant at $p<0.01$ level are discussed here

7.2 *Final 'Order of Care Models': C Models*

In looking exclusively at the factors influencing which choice of provider households used first in their care-seeking pathways, health facility quality and illness severity ratings appear to influence the order of care more frequently than any of the other independent variables (both were found to be significantly associated with first provider choices in three out of the five final models). Illness type (ICD Code) and health system knowledge were also associated with first provider choices in two out of the five final models. In order to get a fuller picture of each of the various factors influencing first choices of providers, it helps to look at each type of provider in turn and the specific independent variables which were found to be significantly associated with each.

7.2a Factors Influencing Selection of Home Care First: Model C.1

Summary of Significant Associations from Preliminary Model C.1*

Outcome Variable: 1=Home care first

Patient Variables: No significant associations

Household SES Variables: Crowding index

Ward SES Variables: Ward level index

Illness Variables: No significant associations

Knowledge Variables: No significant associations

Health Facility Variables: No significant associations

It makes sense to start by examining the reasons why households might select home care first. While the preliminary models only revealed two significant associations, the final model revealed five variables (at $p<0.05$) which were significantly associated with the likelihood of using home-care first: education of household head, ward level index, objective health facility quality index, illness type (ICD code) and illness severity (table 7.7).

Table 7.7 Odd's Ratios between explanatory/independent variables and whether or not home care used first in the final model C.1 (n=351 households using home care first)

Explanatory Variables	Adjusted OR (95% CI)
Patient Variables	
Patient Gender (M)	0.829 (0.61-1.13)
Patient Age	1.005 (1.00-1.01)
Household SES Variables	
No. of Children (1-5yo)	0.900 (0.73-1.10)
Occupation of Head	
Subsistence Farmer	----
Commercial Farmer	1.086 (0.72-1.64)
Unskilled Labourer	0.918 (0.59-1.43)
Skilled Labourer	0.574 (0.27-1.24)
Professional Worker	0.791 (0.45-1.39)
Education of Head	
None (REF)	----
Primary & Lower Secondary	0.894 (0.65-1.24)
Upper Secondary +	**2.603 (1.32-5.14)****
Household Caste	
Brahmin/Chhetri/ Madehsi/Thakuri	----
Tamang/Magar/Gurung	0.710 (0.45-1.13)
Chepang/Biswokarma/ Other Dalit	1.298 (0.70-2.40)
Newar	1.735 (0.84-3.58)
Wealth Quintiles	
Quintile 1 – poorest (REF)	----
Quintile 2	1.501 (0.98-2.31)
Quintile 3	1.418 (0.86-2.33)
Quintile 4	0.969 (0.54-1.75)
Quintile 5 -wealthiest	0.984 (0.53-1.85)
Ward Level SES Variables	
Ward-Level Composite Index	
SES 1 – lowest infrastructure (REF)	----
SES 2	0.724 (0.47-1.13)
SES 3 – highest infrastructure	**0.631 (0.40-1.00)***
Illness Variables	
Illness Type (ICD Code)	
A00-B99	----
J00-J99	**1.434 (1.00-2.05)***
Other Codes	**0.526 (0.34-0.81)****
Illness Severity	
Not at all Severe	----
Somewhat Severe	**0.428 (0.28-0.66)****
Very Severe	**0.322 (0.20-0.53)****
Extremely Severe/ Life-Threatening	0.703 (0.30-1.67)

Explanatory Variables			Adjusted OR (95% CI)
Health Facility Variables			
	Gov. Health Facility Distance		1.103 (0.95-1.29)
	Closest Health Facility Type		
		SHP	----
		HP	0.991 (0.65-1.51)
		PHCC	0.752 (0.34-1.67)
	Health Facility Quality Composite Index		
		Poor (REF)	----
		Fair	**0.557 (0.36-0.86)****
		Good	**0.495 (0.31-0.79)****
	Subjective Health Facility Quality Rating		1.020 (0.74-1.41)
Knowledge Variables			
	Knowledge Composite Index		
		Poor Knowledge of Government Services	----
		Fair Knowledge of Government Services	0.961 (0.65-1.42)
		Good Knowledge of Government Services	1.091 (0.72-1.65)

*** p< 0.05; ** p <0.01**

Regarding education of the household head, controlling for all other variables, households with a household head who had completed at least secondary education (class 9+) were 2.60 times (95% CI 1.32-5.14) more likely than households with heads who had no education to use home care first before other options (p=0.006). Regarding ward level index, controlling for all other variables, households located in wards with the highest infrastructure were less likely to use home care first than households located in wards with a the least infrastructure (Exp (B)=0.631, 95% CI 0.400-0.996, p=0.048).

Regarding health facility quality index, controlling for all other variables, households nearest to a government health facility considered to be 'fair' or 'good' quality were less likely to use home care first than households nearest to a government health facility considered to be 'poor.' Specifically, those nearest 'fair'

facilities were 45% (95% CI: 15% - 64%; p=0.008) less likely and those nearest 'good' facilities were 51% (95% CI: 21%-70%; p = 0.003) less likely than those nearest 'poor' facilities to use home care first.

Regarding illness type, controlling for all other variables, households in which a person was experiencing a disease of the respiratory system where 1.43 times (95% CI: 1.01-2.05; p=0.047) more likely than households in which a person was experiencing a certain infectious or parasitic disease to seek home treatment first. Conversely households experiencing 'other' diseases, not respiratory or infectious/parasitic, were 47% (95% CI: 20%-66%; p=0.003) less likely to use home-based care first compared to those households experiencing infectious/parasitic diseases. In other words, households experiencing respiratory diseases were the most likely to seek home care first, followed by parasitic/infectious diseases and then all other illnesses.

Looking instead at illness severity, revealed that the more severely an illness was rated by a household, the less likely that household was to use home-based care first. Specifically, controlling for all other variables, households in which an illness was rated as "somewhat severe" were 57% (95% CI: 34%-73%; p<0.001) less likely, and households rating their illness as "very severe" were 68% (95% CI: 48%-69%; p<0.001) less likely than households rating their illness as "not-at-all severe" to use home-based care first.

The overall model was found to be significant ($p<0.001$), the Hosmer and Lemeshow test[4] indicated the model was a good fit ($p=0.731$), and the variables in the model explained 16.6% of the variance according to the Nagelkerke R-squared value.

In terms of the overall contribution of each of the broader categories of objective factors to whether or not a household opted for home care first, **illness variables** contributed the most to the overall model and cumulatively explain 7.1% of the overall model variance. The rest of the variables contributions are detailed below:

Summary of the Relative Contributions of the Objective Factors to the Overall Model Variance: Model C.1

Illness Variables (7.1%) >Household SES Variables (6.2%) >
Health Facility Variables (2.1%)> Ward-Level SES Variables (1.2%)>
Knowledge Variables (0%)/Patient Demographic Variables (0%)

> indicates greater than or less than

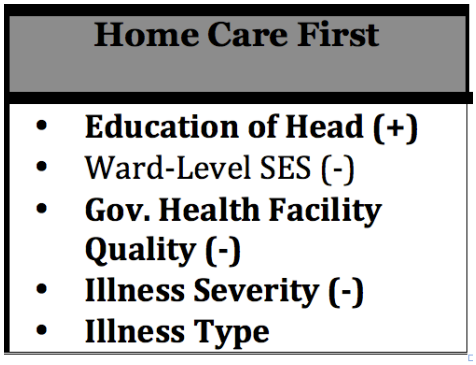


Figure 7.6 A summary of the significant associations from final model C.1. Those highlighted in bold were significant at $p<0.01$, while the remainder were significant at $p<0.05$. '+' indicates a positive association between the explanatory variable and outcome of interest, while '--' indicates a negative association between the variable and the outcome of interest.

[4] The **Hosmer–Lemeshow test** is a statistical test for goodness of fit for logistic regression models. If $p>0.05$, the model is considered to be a good fit.

7.2b Factors Influencing Selection of Allopathic Providers First: Model C.2

Summary of Significant Associations from Preliminary Model C.2*

Outcome Variable: 1=Allopathic provider first

Patient Variables: Patient gender

Household SES Variables: No significant associations

Ward SES Variables: Ward level index

Illness Variables: Disease type; Different aetiology beliefs

Knowledge Variables: Knowledge of the closest government facility

Health Facility Variables: No significant associations

While the preliminary regression models revealed five significant associations, the final regression model revealed four significant variables (at $p<0.05$) associated with utilisation of allopathic providers as a first option in a household's care trajectory: patient gender, illness type (ICD code), illness severity and household knowledge of government health services (table 7.8).

Table 7.8 Odd's Ratios between independent variables and whether or not allopathic care was used first in the final model C.2 (n=274 households using allopathic care first)

Explanatory Variables	Adjusted OR (95% CI)
Patient Variables	
Patient Gender (M)	**1.417 (1.03-1.95)***
Patient Age	1.000 (0.99-1.00)
Household SES Variables	
No. of Children (1-5yo)	1.051 (0.85-1.30)
Occupation of Head	
Subsistence Farmer	----
Commercial Farmer	0.932 (0.61-1.44)
Unskilled Labourer	0.829 (0.53-1.30)
Skilled Labourer	0.970 (0.44-2.12)
Professional Worker	0.971 (0.56-1.70)
Education of Head	
None (REF)	----
Primary & Lower Secondary	1.065 (0.76-1.49)
Upper Secondary +	0.480 (0.23-1.01)
Household Caste	
Brahmin/Chhetri/ Madehsi/Thakuri	----
Tamang/Magar/Gurung	0.960 (0.60-1.54)
Chepang/Biswokarma/ Other Dalit	1.183 (0.62-2.25)
Newar	0.645 (0.31-1.37)
Wealth Quintiles	
Quintile 1 – poorest (REF)	----
Quintile 2	0.698 (0.44-1.11)
Quintile 3	0.703 (0.42-1.18)
Quintile 4	1.371 (0.77-2.44)
Quintile 5 -wealthiest	1.266 (0.69-2.34)
Ward Level SES Variables	
Ward-Level Composite Index	
SES 1 – lowest infrastructure (REF)	----
SES 2	1.045 (0.66-1.65)
SES 3 – highest infrastructure	1.026 (0.64-1.64)
Illness Variables	
Illness Type (ICD Code)	
A00-B99	----
J00-J99	0.801 (0.55-1.17)
Other Codes	**1.617 (1.07-2.45)***
Illness Severity	
Not at all Severe	----
Somewhat Severe	**1.808 (1.13-2.90)***
Very Severe	**1.927 (1.15-3.23)***
Extremely Severe/ Life-Threatening	1.998 (0.82-4.90)

Explanatory Variables			Adjusted OR (95% CI)
Health Facility Variables			
	Gov. Health Facility Distance		0.879 (0.75-1.03)
	Closest Health Facility Type		
		SHP	----
		HP	0.699 (0.44-1.12)
		PHCC	0.507 (0.24-1.09)
	Health Facility Quality Composite Index		
		Poor (REF)	----
		Fair	1.395 (0.89-2.20)
		Good	1.593 (0.99-2.56)
	Subjective Health Facility Quality Rating		1.223 (0.87-1.71)
Knowledge Variables			
	Knowledge Composite Index		
		Poor Knowledge of Government Services	----
		Fair Knowledge of Government Services	1.345 (0.89-2.03)
		Good Knowledge of Government Services	**1.720 (1.12-2.65)***

*** p< 0.05; ** p <0.01**

Looking at patient level variables and controlling for all other variables, male patient were 1.42 times (95% CI: 1.03-1.95) more likely than female patient to use allopathic providers first (p=0.033). Looking at illness type (measured using ICD codes) and controlling for all other variables, households experiencing 'other' illness types were 1.62 times (95% CI 1.07-2.45) more likely than households experiencing infectious/parasitic diseases to use allopathic providers first (p=0.023). Looking at household illness severity ratings and controlling for all other variables, households which rated the severity of their illness as 'somewhat severe' were 1.81 times (95% CI 1.13-2.90) more likely, and households which rated their illness as 'very severe' were 1.93 times (95% CI 1.15-3.23) more likely than households which rated their illness as 'not at all severe' to use allopathic providers first in their care pathways (p=0.014, p=0.013).

Knowledge of government health services was also positively associated with utilisation of allopathic providers first (p=0.014). More specifically, households with 'good' knowledge were 1.72 times (95% CI: 1.12-2.65) more likely than households with 'poor' knowledge of government health services to utilise allopathic providers first in their care pathways.

The overall model was found to be significant (p<0.001) and the Hosmer and Lemeshow test showed that the model was a good fit (p=0.826). Once again, though, the variables included in the model, only explained 12.4% of the variance according to the Nagelkerke R-squared value, the most explained by household variables and illness variables (3.5%; see below). This was an even lower R-squared value than for the home care first model.

Summary of the Relative Contributions of the Objective Factors to the Overall Model Variance: Model C.2

Household SES Variables (3.5%) / Illness Variables (3.5%) >
Health Facility Variables (3%)> Knowledge Variables (1 %)>
Patient Demographic Variables (0.7%)/Ward-Level SES Variables (0.7%)

> indicates greater than or less than

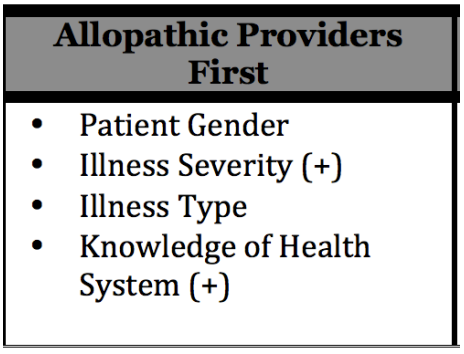


Figure 7.7 A summary of the significant associations from final model C.2. None were significant at p<0.01, only at p<0.05. '+' indicates a positive association between the explanatory variable and outcome of interest, while '--' indicates a negative association between the variable and the outcome of interest.

7.2c Factors Influencing Selection of Traditional Healers First: Model C.3

Summary of Significant Associations from Preliminary Model C.3*

Outcome Variable: 1=Traditional Healer First

Patient Variables: No significant associations

Household SES Variables: Wealth quintiles

Ward SES Variables: Ward level index

Illness Variables: Multiple aetiology beliefs

Knowledge Variables: Knowledge of closest government facility; Knowledge of lowest level of government care; Knowledge of government referral system; Knowledge of the availability of medical doctors in the government system

Health Facility Variables: Distance from primary care facility to District Hospital

While the preliminary regression models showed wealth quintiles, ward level index, aetiology beliefs, knowledge variables and distance from closest primary care facility to district hospital to be significantly associated with the usage of traditional healers (THs) first in household care trajectories, fewer variables were found to be significant in the final multivariate model (at $p<0.05$) once all of the categories of independent variables were included together in a single model (table 7.9).

Table 7.9 Odd's Ratios between explanatory/ independent variables and whether or not THs were used first in the final model C.3 (n=256 households using THs first)

Explanatory variables	Adjusted OR (95% CI)
Patient Variables	
Patient Gender (M)	0.842 (0.57-1.25)
Patient Age	**0.987 (0.98-1.00)***
Household SES Variables	
No. of Children (1-5yo)	1.037 (0.81-1.34)
Occupation of Head	
Subsistence Farmer	----
Commercial Farmer	0.850 (0.51-1.42)
Unskilled Labourer	1.207 (0.71-2.07)
Skilled Labourer	1.139 (0.46-2.81)
Professional Worker	0.793 (0.35-1.82)
Education of Head	
None (REF)	----
Primary & Lower Secondary	0.931 (0.63-1.39)
Upper Secondary +	0.248 (0.06-1.12)
Household Caste	
Brahmin/Chhetri/ Madehsi/Thakuri	----
Tamang/Magar/Gurung	1.877 (0.99-3.57)
Chepang/Biswokarma/ Other Dalit	0.503 (0.19-1.31)
Newar	0.756 (0.22-2.60)
Wealth Quintiles	
Quintile 1 – poorest (REF)	----
Quintile 2	0.925 (0.56-1.53)
Quintile 3	0.907 (0.51-1.63)
Quintile 4	0.549 (0.26-1.18)
Quintile 5 -wealthiest	0.522 (0.23-1.19)
Ward Level SES Variables	
Ward-Level Composite Index	
SES 1 – lowest infrastructure (REF)	----
SES 2	1.145 (0.66-1.98)
SES 3 – highest infrastructure	1.497 (0.87-2.58)
Illness Variables	
Illness Type (ICD Code)	
A00-B99	----
J00-J99	0.658 (0.41-1.06)
Other Codes	1.302 (0.79-2.16)
Illness Severity	
Not at all Severe	----
Somewhat Severe	0.815 (0.46-1.44)
Very Severe	1.174 (0.64-2.15)
Extremely Severe/ Life-Threatening	0.472 (0.14-1.59)

Explanatory Variables			Adjusted OR (95% CI)
Health Facility Variables			
	Gov. Health Facility Distance		0.993 (0.82-1.20)
	Closest Health Facility Type		
		SHP	----
		HP	1.017 (0.61-1.71)
		PHCC	1.009 (0.32-3.16)
	Health Facility Quality Composite Index		
		Poor (REF)	----
		Fair	0.998 (0.60-1.67)
		Good	0.634 (0.34-1.18)
	Subjective Health Facility Quality Rating		0.870 (0.59-1.29)
Knowledge Variables			
	Knowledge Composite Index		
		Poor Knowledge of Government Services	----
		Fair Knowledge of Government Services	0.683 (0.44-1.07)
		Good Knowledge of Government Services	**0.458 (0.27-0.78)****

*** p< 0.05; ** p <0.01**

The only two variables found to be significantly associated with utilisation of THs as a first step in a households' care pathway, were patient age and household knowledge of government health services, both of which were negatively associated. After controlling for all other independent variables, a one-year increase in patient age resulted in a slight decreased in likelihood of using a TH first (Exp(B)=0.987, 95% CI 0.977-0.997, p=0.012). Similarly, after controlling for all other variables, an increase in household knowledge was associated with a significant decrease in likelihood of using TH care first (Exp(B)=0.458, 95% CI 0.269-0.780, p=0.004). Households with a 'good' level of knowledge were 55% (95% CI: 22%-74%) less likely than households with 'poor' knowledge to use a TH as a first care option.

The overall model was found to be significant ($p<0.001$), and the Hosmer and Lemeshow Test indicated a good fit ($p=0.348$). The variables included in the model, however, only explained 14.7% of the variance according to the Nagelkerke R Squared value, the majority of which was explained by household level variables (7.8%).

Summary of the Relative Contributions of Each of the Objective Factors to the Overall Model Variance: Model C.3

Household SES Variables (7.8%) > Illness Variables (2%) >
Health Facility Variables (1.9%)>Knowledge Variables (1.6%)>
Patient Demographic Variables (0.9%)>Ward-Level SES Variables (0.5%)

> indicates greater than or less than

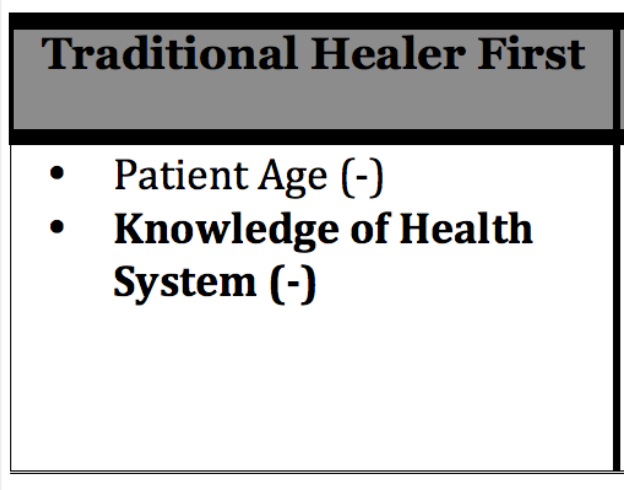


Figure 7.8 A summary of the significant associations from final model C.3. Those highlighted in bold were significant at $p<0.01$, while the remainder were significant at $p<0.05$. '+' indicates a positive association between the explanatory variable and outcome of interest, while '--' indicates a negative association between the variable and the outcome of interest.

7.2d Factors Influencing Selection of Pharmacy Care First: Model C.4

Summary of Significant Associations from Preliminary Model C.4*

Outcome Variable: 1=Pharmacy First

Patient Variables: No significant associations

Household SES Variables: Wealth quintile

Ward SES Variables: Ward level index

Illness Variables: Multiple different aetiology beliefs

Knowledge Variables: Knowledge of the availability of medical doctors in the government health system

Health Facility Variables: No significant associations

Similar to model C.2, the preliminary regression models revealed four different variables which were significantly associated with utilisation of pharmacy care first, while the final model revealed three significant positive associations (at $p<0.05$), two of which were related to the closest government health facility: objective health facility quality composite index, health facility type and illness severity (table 7.10).

Table 7.10 Odd's Ratios between explanatory variables and whether or not pharmacy care was used first in the final model C.4 (n=92 households using pharmacy care first)

Explanatory Variables	Adjusted OR (95% CI)
Patient Variables	
Patient Gender (M)	0.835 (0.50-1.39)
Patient Age	1.006 (0.99-1.02)
Household SES Variables	
No. of Children (1-5yo)	1.172 (0.85-1.62)
Occupation of Head	
Subsistence Farmer	----
Commercial Farmer	1.228 (0.60-2.52)
Unskilled Labourer	1.453 (0.69-3.05)
Skilled Labourer	2.224 (0.74-6.73)
Professional Worker	1.996 (0.89-4.46)
Education of Head	
None (REF)	----
Primary & Lower Secondary	1.194 (0.70-2.03)
Upper Secondary +	01.272 (0.48-3.39)
Household Caste	
Brahmin/Chhetri/ Madehsi/Thakuri	----
Tamang/Magar/Gurung	0.988 (0.48-2.05)
Chepang/Biswokarma/ Other Dalit	0.587 (0.17-2.02)
Newar	0.888 (0.31-2.53)
Wealth Quintiles	
Quintile 1 – poorest (REF)	----
Quintile 2	1.186 (0.50-2.83)
Quintile 3	1.548 (0.66-3.64)
Quintile 4	1.485 (0.55-3.99)
Quintile 5 -wealthiest	1.586 (0.60-4.17)
Ward Level SES Variables	
Ward-Level Composite Index	
SES 1 – lowest infrastructure (REF)	----
SES 2	1.694 (0.78-3.70)
SES 3 – highest infrastructure	1.403 (0.60-3.28)
Illness Variables	
Illness Type (ICD Code)	
A00-B99	----
J00-J99	1.246 (0.70-2.22)
Other Codes	0.803 (0.41-1.59)
Illness Severity	
Not at all Severe	----
Somewhat Severe	**3.409 (1.54-7.57)****
Very Severe	**2.774 (1.16-6.61)***
Extremely Severe/ Life-Threatening	1.301 (0.15-11.48)

Explanatory Variables			Adjusted OR (95% CI)
Health Facility Variables			
	Gov. Health Facility Distance		1.091 (0.85-1.40)
	Closest Health Facility Type		
		SHP	----
		HP	1.960 (0.87-4.41)
		PHCC	**2.633 (1.09-6.37)***
	Health Facility Quality Composite Index		
		Poor (REF)	----
		Fair	**2.787 (1.28-6.08)***
		Good	**4.166 (1.82-9.53)****
	Subjective Health Facility Quality Rating		0.699 (0.40-1.21)
Knowledge Variables			
	Knowledge Composite Index		
		Poor Knowledge of Government Services	----
		Fair Knowledge of Government Services	1.007 (0.54-1.89)
		Good Knowledge of Government Services	0.828 (0.41-1.66)

*** p< 0.05; ** p <0.01**

Similar to allopathic care usage first, greater illness severity was associated with greater likelihood of utilising pharmacy care first (although it was not a linear relationship). More specifically, looking at household illness severity ratings and controlling for all other variables, households which rated the severity of their illness as 'somewhat severe' were 3.41 times (95% CI 1.54-7.57) more likely, and households which rated their illness as 'very severe' were 2.77 times (95% CI 1.16-6.61) more likely than households which rated their illness as 'not at all severe' to use pharmacies first in their care pathways (p=0.003, p=0.021).

Unlike illness severity, which makes sense that it might be associated with greater likelihood of utilising pharmacy care, the associations between utilisation of pharmacy care and health facility variables are somewhat less intuitive. Looking at health facility quality composite index and controlling for all other variables,

households located closest to a government health facility considered to be 'fair' quality were 2.79 times (95% CI 1.28-6.08) more likely, and households located closest to a government health facility considered to be 'good' quality were 4.17 times more (95% CI 1.82-9.52) likely than households located closest to government health facilities considered to be 'poor' quality to use pharmacies first in their care pathway (p=0.10, p=0.001). Also, in the same vein, households located closest to PHCCs were 2.63 times (95% CI 1.09-6.37) more likely than households located closes to SHPs to use pharmacies first in their care trajectories (p=0.032).

The overall model was found to be significant (p<0.001), but the Hosmer and Lemeshow test indicated the model was a poor fit (p=0.023) most likely because there were too few cases included. The variables in the model explained 16.5% of the variance according to the Nagelkerke R-squared value, and again household level variables contributed the most to the overall model variance (6.1%):

Summary of the Relative Contributions of Each of the Objective Factors to the Overall Model Variance: Model C.4

Household SES Variables (6.1%) > Health Facility Variables (6%)>
Illness Variables (3.1%) > Patient Demographic Variables (0.7%)>
Ward-Level SES Variables (0.5%)> Knowledge Variables (0.1%)

> indicates greater than or less than

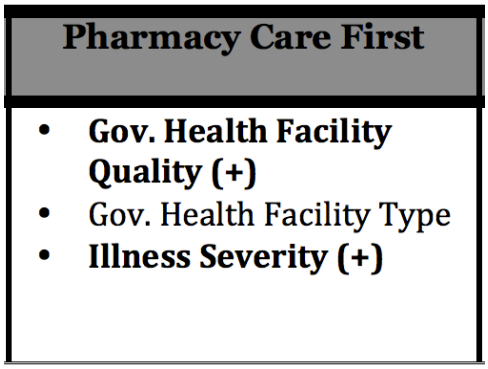


Figure 7.9 A summary of the significant associations from final model C.4. Those highlighted in bold were significant at $p<0.01$, while the remainder were significant at $p<0.05$. '+' indicates a positive association between the explanatory variable and outcome of interest, while '--' indicates a negative association between the variable and the outcome of interest.

7.2e Factors Influencing Selection of Allopathic/Pharmacy Care Last: Model C.5

Summary of Significant Associations from Preliminary Model C.5*

Outcome Variable: 0=TH/Other Last; 1 =Allopathic provider/Pharmacy last

Patient Variables: No significant associations

Household SES Variables: No significant associations

Ward SES Variables: No significant associations

Illness Variables: Multiple different aetiology beliefs

Knowledge Variables: Knowledge of the closest government facility; Knowledge of the availability of medical doctors in the government system

Health Facility Variables: Financial and physical accessibility/affordability subjective ratings

The preliminary models revealed four variables – aetiology beliefs, two knowledge variables and health facility subjective quality ratings -- as being significantly associated with utilisation of pharmacy/allopathic care last. However, in the final models, when all of the potential explanatory variables were controlled for, health facility variables and occupation were the only variables

which were significantly associated with whether or not allopathic/pharmacy care was used last (table 7.11)

Table 7.11 Odd's Ratios between independent variables and whether or not pharmacy care was used first in the final model C.5 (n=583 households using allopathic/pharmacy care last)

Explanatory Variables	Adjusted OR (95% CI)
Patient Variables	
Patient Gender (M)	1.252 (0.81-1.93)
Patient Age	1.002 (0.99-1.01)
Household SES Variables	
No. of Children (1-5yo)	1.244 (0.93-1.67)
Occupation of Head	
Subsistence Farmer	----
Commercial Farmer	0.908 (0.53-1.56)
Unskilled Labourer	1.311 (0.70-2.46)
Skilled Labourer	**0.379 (0.17-0.86)***
Professional Worker	1.564 (0.66-3.71)
Education of Head	
None (REF)	----
Primary & Lower Secondary	0.908 (0.53-1.56)
Upper Secondary +	1.311 (0.70-2.46)
Household Caste	
Brahmin/Chhetri/ Madehsi/Thakuri	----
Tamang/Magar/Gurung	0.927 (0.51-1.69)
Chepang/Biswokarma/ Other Dalit	2.259 (0.92-5.57)
Newar	3.328 (0.70-15.89)
Wealth Quintiles	
Quintile 1 – poorest (REF)	----
Quintile 2	0.592 (0.34-1.04)
Quintile 3	0.563 (0.29-1.08)
Quintile 4	1.022 (0.46-2.27)
Quintile 5 -wealthiest	1.387 (0.54-3.55)
Ward Level SES Variables	
Ward-Level Composite Index	
SES 1 – lowest infrastructure (REF)	----
SES 2	0.830 (0.47-1.48)
SES 3 – highest infrastructure	1.059 (0.59-1.89)

Explanatory Variables			Adjusted OR (95% CI)
Illness Variables			
	Illness Type (ICD Code)		
		A00-B99	----
		J00-J99	1.478 (0.89-2.47)
		Other Codes	1.138 (0.65-1.98)
	Illness Severity		
		Not at all Severe	----
		Somewhat Severe	1.349 (0.72-2.54)
		Very Severe	1.053 (0.54-2.05)
		Extremely Severe/ Life-Threatening	0.700 (0.25-1.97)
Health Facility Variables			
	Gov. Health Facility Distance		1.110 (0.91-1.36)
	Closest Health Facility Type		
		SHP	----
		HP	1.289 (0.75-2.21)
		PHCC	0.788 (0.25-2.51)
	Health Facility Quality Composite Index		
		Poor (REF)	----
		Fair	**1.884 (1.06-3.35)***
		Good	**3.206 (1.64-6.27)****
	Subjective Health Facility Quality Rating		**1.917 (1.23-3.00)****
Knowledge Variables			
	Knowledge Composite Index		
		Poor Knowledge of Government Services	----
		Fair Knowledge of Government Services	1.250 (0.76-2.06)
		Good Knowledge of Government Services	1.461 (0.82-2.60)

*** p< 0.05; ** p <0.01**

As can be seen, a one-unit increase in the average subjective health facility rating (as rated by the household) of the nearest government health facility increased the likelihood of that household seeking allopathic/pharmacy treatment last by 92% (95% CI: 23%-100%; p=0.004). Similarly, household nearest to a government health facility considered to be 'fair' or 'good' quality (as determined by the objective health facility composite index) were 1.88 times (95% CI: 1.06-3.35; p=0.031) or 3.21 times (95% CI: 1.64-6.27) more to use allopathic/pharmacy care last when compared to households nearest to a government health facility considered to be 'poor' quality.

In addition to health facility variables, occupation was also significantly associated with the final choice of care provider. Specifically, households engaged in "skilled" labour were found to be 62% (95% CI: 14%-83%; p=0.021) less likely to use allopathic/pharmacy care last compared to household engaged in subsistence farming only. In other words, for subsistence farming households, allopathic/pharmacy care may often be a last resort although no associations were made between occupation and initial care choices.

The overall model was found to be significant ($p<0.001$) and the Hosmer and Lemeshow test indicated the model was a good fit (p=0.992). In fact, the independent variables in the model explained 17.8% of the variance according to the Nagelkerke R-squared value, and once again household variables contributed the most to the variance (9.9%):

Summary of the Relative Contributions of Each of the Objective Factors to the Overall Model Variance: Model C.5

Household SES Variables (9.9%) > Health Facility Variables (6.3%)>
Illness Variables (1.1%) > Knowledge Variables (0.4%)>
Patient Demographic Variables (0.1%)>Ward-Level SES Variables (0%)

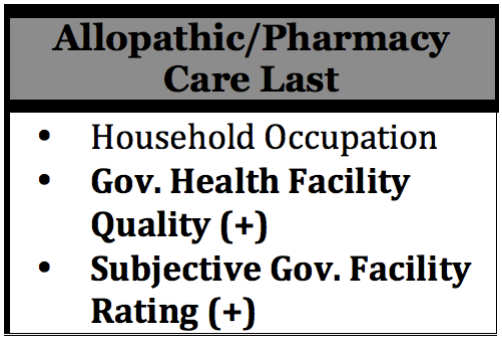


Figure 7.10 A summary of the significant associations from final model C.5. Those highlighted in bold were significant at $p<0.01$, while the remainder were significant at $p<0.05$. '+' indicates a positive association between the explanatory variable and outcome of interest, while '--' indicates a negative association between the variable and the outcome of interest.

Summary of 'Order of Care' Model Variance [C Models]:

Final Models	Categories of Independent Variables (% Contribution to Overall Model Variance [R^2])						
	Patient Variables	Household SES Variables	Ward-Level SES Variables	Health Facility Variables	Illness Variables	Knowledge Variables	Totals
C.1: Home Care First	0%	6.2%	1.2%	2.1%	**7.1%**	0%	**16.6%**
C.2: Allopathic Provider First	0.7%	**3.5%**	0.7%	3%	**3.5%**	1%	**12.4%**
C.3: Traditional Healer First	0.9%	**7.8%**	0.5%	1.9%	2%	1.6%	**14.7%**
C.4: Pharmacy Care First	0.7%	**6.1%**	0.5%	6%	3.1%	0.1%	**16.5%**
C.5: TH/Other Last vs. Pharmacy/ Allopathic Last	0.1%	**9.9%**	0%	6.3%	1.1%	0.4%	**17.8%**

Figure 7.11 Summary of overall model variance for each of the order of care models broken down by the collective impact of each category of variables. Those highlighted in bold are the categories of factors which made the greatest contribution to overall model variance. In other words, households SES variables had the greatest collective impact in most of the initial care decisions, but illness variables were also important when it came to home care first or allopathic care first.

Summary of Key Findings for Objective 2a*:

'Order of Care' [C] Models:

- Households with more educated household heads were more likely to use **home care first** before other care options
- Households closer to better quality government facilities were less likely to use **home care first** before other options
- Households experiencing respiratory illnesses were more likely to seek **home based care first** before other options than those experiencing parasitic/infectious diseases
- Households experiencing more severe illnesses were less likely to seek **home based care first** before other options
- Households with higher knowledge of government health services were less likely to use **THs first** before other care options
- Households experiencing more severe illnesses were more likely to use **pharmacy care first** before other care options
- Households closer to better quality government facilities were more likely to use **pharmacy care first** before other options
- Households closer to higher-rated government health facilities were more likely to use **allopathic/pharmacy care last**
- Households nearer to higher quality government facilities (using objective metrics) were more likely to use **allopathic/pharmacy care last**

* **NOTE:** these findings are only for those variables which were significant at $p<0.01$ level

7.3 *Final Choice of Provider Models: D & E Models*

While it is important to understand the factors which influence the order of care-seeking, and while it is also important to understand the factors which influence delays in care-seeking, it is extremely important to also understand the factors which influence the specific types of providers used by households. After all, this is often what most HSB studies look at as the sole outcome of importance, and in the Nepalese context it has yet to be examined very systematically.

If rather than looking exclusively at the factors that influencing what care options households select first, we look at more specific provider choices – ie. whether or not government care is selected before private care or visa versa or whether or not a household chooses to use allopathic providers at least once-- illness type and severity and objective health facility quality still seem to have the greatest number of significant associations with the outcomes. Rather than speaking in generalities, though, it helps to look at each type of provider in turn, and determine the specific independent variables which were found to be associated with the choice of each.

7.3a Factors Influencing Selection of Some Care vs. No Care: Model D.1

Summary of Significant Associations from Preliminary Model D.1*

Outcome Variable: 1= Some care sought

Patient Variables: Age

Household SES Variables: No significant associations

Ward SES Variables: Ward level index

Illness Variables: Worry rating; Multiple aetiology beliefs

Knowledge Variables: Knowledge of the availability of medical doctors in the government system

Health Facility Variables: No significant associations

The preliminary models revealed a number of different patient, household, illness, health facility and knowledge variables associated with whether or not a household sought some care versus no care for an episode of illness. The final, multivariate model also revealed several patient, household, ward-level and illness variables which were all positively associated with an increased likelihood of utilising some form of care to deal with an illness episode. Illness type, on the other hand was associated with a decreased likelihood of utilising some care (table 7.12)

Table 7.12 Odd's Ratios between independent variables and whether or not some care was used in the final model D.1 (n=894 households using some care)

Explanatory Variables	Adjusted OR (95% CI)
Patient Variables	
Patient Gender (M)	**1.512 (1.04-2.20)***
Patient Age	0.998 (0.99-1.01)
Household SES Variables	
No. of Children (1-5yo)	1.046 (0.82-1.33)
Occupation of Head	
Subsistence Farmer	----
Commercial Farmer	**1.627 (1.00-2.65)***
Unskilled Labourer	1.531 (0.88-2.66)
Skilled Labourer	1.119 (0.49-2.57)
Professional Worker	1.587 (0.77-3.28)
Education of Head	
None (REF)	----
Primary & Lower Secondary	1.399 (0.95-2.06)
Upper Secondary +	2.781 (0.79-9.80)
Household Caste	
Brahmin/Chhetri/ Madehsi/Thakuri	----
Tamang/Magar/Gurung	0.819 (0.44-1.52)
Chepang/Biswokarma/ Other Dalit	0.859 (0.38-1.94)
Newar	0.894 (0.32-2.51)
Wealth Quintiles	
Quintile 1 – poorest (REF)	----
Quintile 2	1.012 (0.63-1.64)
Quintile 3	1.339 (0.77-2.34)
Quintile 4	1.391 (0.73-2.66)
Quintile 5 -wealthiest	**3.104 (1.32-7.29)****
Ward Level SES Variables	
Ward-Level Composite Index	
SES 1 – lowest infrastructure (REF)	----
SES 2	**1.732 (1.03-2.93)***
SES 3 – highest infrastructure	1.062 (0.63-1.78)
Illness Variables	
Illness Type (ICD Code)	
A00-B99	----
J00-J99	**0.604 (0.39-0.95)***
Other Codes	**0.392 (0.25-0.63)****
Illness Severity	
Not at all Severe	----
Somewhat Severe	1.487 (0.93-2.37)
Very Severe	**3.759 (2.03-6.94)****
Extremely Severe/ Life-Threatening	**13.572 (1.72-107.20)***

Explanatory Variables			Adjusted OR (95% CI)
Health Facility Variables			
	Gov. Health Facility Distance		0.947 (0.80-1.13)
	Closest Health Facility Type		
		SHP	----
		HP	1.530 (0.91-2.57)
		PHCC	2.463 (0.78-7.74)
	Health Facility Quality Composite Index		
		Poor (REF)	----
		Fair	0.643 (0.40-1.03)
		Good	0.590 (0.34-1.02)
	Subjective Health Facility Quality Rating		1.191 (0.83-1.72)
Knowledge Variables			
	Knowledge Composite Index		
		Poor Knowledge of Government Services	----
		Fair Knowledge of Government Services	1.206 (0.78-1.86)
		Good Knowledge of Government Services	1.438 (0.88-2.34)

*** p< 0.05; ** p <0.01**

Regarding patient variables, when controlling for all other variables, male patients were 1.51 times (95% CI: 1.04-2.20; p=0.031) more likely than female patients to seek some care versus no care.

Regarding household-level variables, when controlling for other potential explanatory variables, occupation and household wealth index were also positively associated with seeking some care versus no care. More specifically, households engaged in commercial farming were 1.63 times (95% CI: 1.00-2.65; p=0.05) more likely than subsistence farming households to seek some care for their illnesses versus no care. Similarly, households located in the 5th wealth quintile were 3.10 times (95% CI: 1.32-7.29; p=0.009) more than those in the first wealth quintile to seek some care instead of no care.

At the ward level, when controlling for other potential explanatory variables, greater ward infrastructure was also associated with a greater likelihood of seeking some care instead of no care. When controlling for all other variables, households located in wards with medium infrastructure were 1.73 times (95% CI: 1.03-2.93; p=0.04) more likely than households in wards with low infrastructure to seek some form of care for their illnesses.

Regarding illness variables, when controlling for other potential explanatory variables, certain illness types were negatively associated with likelihood of seeking some care, while illness severity was positively associated with likelihood of seeking some care. In particular, households with diseases of the respiratory system were 40% (95% CI: 5%-60%; p=0.027) less likely than households with infectious or parasitic diseases to use some care to deal with their illnesses. While households which had rated their illnesses as “very severe” were 3.75 times (95% CI: 2.03-6.94; p=0.000) more likely and households which had rated their illnesses as “life-threatening” were 13.57 times (95% CI: 1.72-107.20; p=0.013) more likely than households which had rated their illnesses as “not-at-all severe” to use some versus no care.

The overall model was found to be significant (p<0.001), and the Hosmer and Lemeshow test indicated the model was a good fit (p=0.776). The independent variables in the model explained 16.3% of the variance according to the Nagelkerke R-squared value, the greatest percentage of which was attributable to illness factors (6.5%).

Summary of the Relative Contributions of Each of the Objective Factors to the Overall Model Variance: Model D.1

Illness Variables (6.5%) > Household SES Variables (5.4%) >
Health Facility Variables (2%)> Patient Demographic Variables (1.5%)>
Ward-Level SES Variables (0.6%) >Knowledge Variables (0.3%)

> indicates greater than or less than

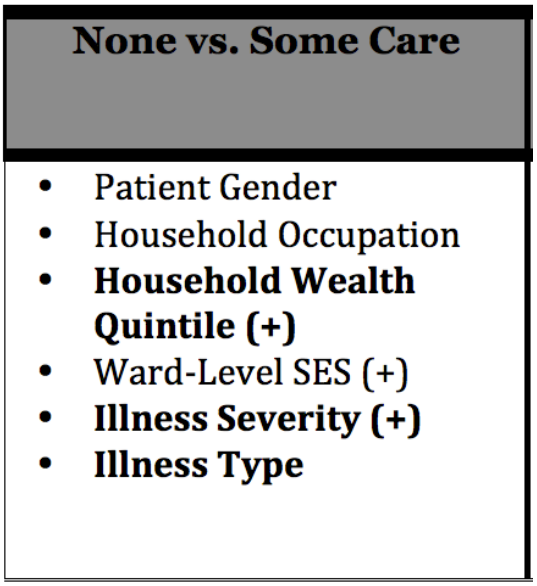


Figure 7.12 A summary of the significant associations from final model D.1. Those highlighted in bold were significant at $p<0.01$, while the remainder were significant at $p<0.05$. '+' indicates a positive association between the explanatory variable and outcome of interest.

7.3b Factors Influencing Selection of Home Care Only vs. Some Outside Care: Model D.2

Summary of Significant Associations from Preliminary Model D.2*

Outcome Variable: 1= Some outside care sought

Patient Variables: Age

Household SES Variables: Occupation

Ward SES Variables: Ward level index

Illness Variables: Worry rating; Multiple aetiology beliefs; Illness type

Knowledge Variables: Knowledge of the closest government facility

Health Facility Variables: Facility head availability

The care-seeking decision pathway certainly does not end with whether or not a household chooses to seek some care or no care for an episode of illness. Taking a step further along the pathway and looking instead at *only* those households which used some form of care reveals a complicated picture involving patient, household, ward, health facility and illness variables, all of which, in the final models, are associated with whether or not care outside of the home was sought. The preliminary regression models indicated that age, occupation, ward index, worry, illness type, facility head availability and knowledge of the closest government facility were all associated with this outside care seeking (utilisation of providers, including THs, outside of the home). The final models, however, indicated far fewer variables were involved at $p<0.05$ (table 7.13).

Table 7.13 Odd's Ratios between independent variables and whether or not outside care was used in the final model D.2 (n=738 households using outside care)

Explanatory Variables	Adjusted OR (95% CI)
Patient Variables	
Patient Gender (M)	**1.432 (1.06-1.94)***
Patient Age	**0.992 (0.99-1.00)***
Household SES Variables	
No. of Children (1-5yo)	1.004 (0.83-1.22)
Occupation of Head	
Subsistence Farmer	----
Commercial Farmer	1.286 (0.87-1.90)
Unskilled Labourer	1.518 (0.98-2.35)
Skilled Labourer	1.639 (0.79-3.38)
Professional Worker	1.568 (0.90-2.74)
Education of Head	
None (REF)	----
Primary & Lower Secondary	1.103 (0.81-1.50)
Upper Secondary +	1.319 (0.63-2.75)
Household Caste	
Brahmin/Chhetri/ Madehsi/Thakuri	----
Tamang/Magar/Gurung	0.895 (0.55-1.44)
Chepang/Biswokarma/ Other Dalit	0.704 (0.38-1.31)
Newar	0.594 (0.28-1.25)
Wealth Quintiles	
Quintile 1 – poorest (REF)	----
Quintile 2	0.761 (0.51-1.14)
Quintile 3	0.992 (0.63-1.57)
Quintile 4	1.680 (0.96-2.93)
Quintile 5 -wealthiest	**1.936 (1.03-3.63)***
Ward Level SES Variables	
Ward-Level Composite Index	
SES 1 – lowest infrastructure (REF)	----
SES 2	1.762 (1.15-2.70)
SES 3 – highest infrastructure	1.325 (0.86-2.04)
Illness Variables	
Illness Type (ICD Code)	
A00-B99	----
J00-J99	0.716 (0.51-1.02)
Other Codes	0.798 (0.54-1.18)
Illness Severity	
Not at all Severe	----
Somewhat Severe	**1.645 (1.12-2.41)***
Very Severe	**5.325 (3.23-8.79)****
Extremely Severe/ Life-Threatening	**6.387 (2.07-19.71)****

Explanatory Variables	Adjusted OR (95% CI)
Health Facility Variables	
Gov. Health Facility Distance	**0.865 (0.75-1.00)***
Closest Health Facility Type	
SHP	----
HP	**1.588 (1.05-2.41)***
PHCC	1.215 (0.57-2.58)
Health Facility Quality Composite Index	
Poor (REF)	----
Fair	0.840 (0.57-1.24)
Good	0.862 (0.55-1.35)
Subjective Health Facility Quality Rating	1.066 (0.79-1.44)
Knowledge Variables	
Knowledge Composite Index	
Poor Knowledge of Government Services	----
Fair Knowledge of Government Services	1.188 (0.83-1.71)
Good Knowledge of Government Services	0.987 (0.67-1.46)

*** p< 0.05; ** p <0.01**

Looking at patient variables, when controlling for all other explanatory variables, both patient gender and patient age were significantly associated with outside the home care-seeking. Just as male patients were almost twice as likely as female patients to use some form of care, male patients were 1.43 times (95% CI: 1.06-1.94; p=0.02) more likely than female patients to seek outside care versus home based care only. Similarly, the younger a patient, the more likely the household was to seek care outside the home. In fact, when controlling for other explanatory variables, a one year increase in age was significantly associated with a slight decrease (o.o8%) in likelihood of using care options outside of the home (Exp (B)=0.992; 95% CI: 0.01%-0.15%; p=0.027).

Regarding household-level SES variables, wealth quintiles were significantly associated with usage of outside care. In fact, when controlling for other possible

explanatory variables, households in the 5th wealth quintile were 1.94 times (95% CI: 1.03-3.63; p=0.04) more likely than households in the first wealth quintile to use outside care. This is also true at the ward level. Households located in wards with medium infrastructure were 1.76 times (95% CI: 1.15-2.70; p=0.009) more likely than households located in wards with low infrastructure to use outside providers. So, past a certain point, greater household SES means greater utilisation of outside of home providers.

Moving away from household and ward variables and looking at illness variables instead also reveals a strong positive association between illness severity and utilisation of outside providers. More specifically, when controlling for other potential explanatory variables, households rating their illnesses as "somewhat severe" were 1.65 times (95% CI: 1.12-2.41; p=0.01) more likely, households rating their illnesses as "very severe" were 5.33 times (95% CI: 3.23-8.79; p=0.000) more likely and households rating their illnesses as "life-threatening" were 6.39 times (95% CI: 2.07-19.7; p=0.001) more likely than households rating their illnesses as "not-at-all severe" to use outside providers rather than home care only.

Finally, regarding health facility variables it also is not particularly surprising that in the final model there was an association between distance to the government facility and type of nearest government facility and whether or not a household uses outside care. In particular, a one kilometre increase in distance to the nearest government facility was associated with a 14% (95% CI: 1%-25%;

p=0.048) decrease in likelihood of seeking outside care. Also, households located closest to a HP were 1.59 times (95% CI: 1.05-2.41; p=0.03) more likely than household located closest to a SHP to seek outside care in dealing with their illness episodes.

The overall model was found to be significant (p<0.001), and the Hosmer and Lemeshow test indicated that the model was a good fit (p=0.293). The independent variables in the model actually explained 16.5% of the variance according to the Nagelkerke R-squared value (slightly more than the previous model). Like the previous model, more than half of the variance was explained by illness variables (8.3%).

Summary of the Relative Contributions of Each of the Objective Factors to the Overall Model Variance: Model D.2

Illness Variables (8.3%) >Household SES Variables (4.6%) >
Health Facility Variables (1.3%) / Patient Demographic Variables (1.3%)>
Ward-Level SES Variables (0.8%) >Knowledge Variables (0.2%)

> indicates greater than or less than

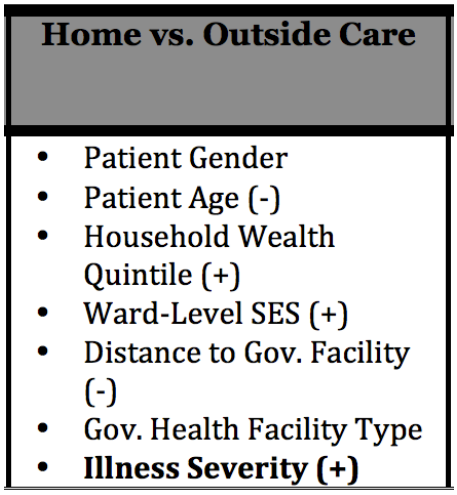


Figure 7.13 A summary of the significant associations from final model D.2. Those highlighted in bold were significant at p<0.01, while the remainder were significant at p<0.05. '+' indicates a positive association between the explanatory variable and outcome of interest, while '-' indicates a negative association.

7.3c Factors Influencing Selection of Private vs. Government Care (First): Model D.3

Summary of Significant Associations from Preliminary Model D.3*

Outcome Variable: 0 = Government provider first 1 = Private provider first

Patient Variables: No significant associations

Household SES Variables: No significant associations

Ward SES Variables: Ward index

Illness Variables: Patient-rated severity, DUSOI

Knowledge Variables: No significant associations

Health Facility Variables: Facility hours

Once a household has decided to use allopathic care, the household must then make a further decision about what type of allopathic care to pursue. The next big decision that households usually make then is whether to use government services or private care options first. While the preliminary models indicated that ward variables, facility hours and illness severity were significantly associated with whether or not households chose to use government providers or private providers as a first outside care option, in the final models, when all other potential explanatory variables were controlled for, only ward level index was significantly positively associated (at $p<0.05$) with household's choice to use private care providers over government providers as a first allopathic outside care option (table 7.14).

Table 7.14 Odd's Ratios between explanatory variables and whether or not private care (1) or government care (0) was used in the final model D.3 (n=101 households using private care)

Explanatory Variables	Adjusted OR (95% CI)
Patient Variables	
Patient Gender (M)	0.838 (0.50-1.42)
Patient Age	1.006 (1.00-1.02)
Household SES Variables	
No. of Children (1-5yo)	0.861 (0.59-1.26)
Occupation of Head	
Subsistence Farmer	----
Commercial Farmer	0.983 (0.45-2.15)
Unskilled Labourer	1.731 (0.87-3.4)
Skilled Labourer	1.633 (0.53-5.00)
Professional Worker	1.124 (0.44-2.87)
Education of Head	
None (REF)	----
Primary & Lower Secondary	1.446 (0.84-2.49)
Upper Secondary +	1.727 (0.61-4.92)
Household Caste	
Brahmin/Chhetri/ Madehsi/Thakuri	----
Tamang/Magar/Gurung	1.002 (0.49-2.05)
Chepang/Biswokarma/ Other Dalit	0.610 (0.20-1.83)
Newar	0.524 (0.13-2.17)
Wealth Quintiles	
Quintile 1 – poorest (REF)	----
Quintile 2	0.990 (0.46-2.15)
Quintile 3	0.550 (0.22-1.37)
Quintile 4	0.540 (0.20-1.48)
Quintile 5 -wealthiest	1.369 (0.55-3.41)
Ward Level SES Variables	
Ward-Level Composite Index	
SES 1 – lowest infrastructure (REF)	----
SES 2	**2.116 (1.00-4.47)***
SES 3 – highest infrastructure	**2.259 (1.03-4.94)***
Illness Variables	
Illness Type (ICD Code)	
A00-B99	----
J00-J99	1.321 (0.70-2.49)
Other Codes	1.316 (0.66-2.61)
Illness Severity	
Not at all Severe	----
Somewhat Severe	0.645 (0.30-1.39)
Very Severe	1.955 (0.89-4.31)
Extremely Severe/ Life-Threatening	1.010 (0.26-3.98)

Explanatory Variables	Adjusted OR (95% CI)
Health Facility Variables	
Gov. Health Facility Distance	1.222 (0.95-1.58)
Closest Health Facility Type	
SHP	----
HP	0.717 (0.34-1.53)
PHCC	0.485 (0.11-2.13)
Health Facility Quality Composite Index	
Poor (REF)	----
Fair	1.438 (0.68-3.03)
Good	1.281 (0.58-2.82)
Subjective Health Facility Quality Rating	0.882 (0.51-1.53)
Knowledge Variables	
Knowledge Composite Index	
Poor Knowledge of Government Services	----
Fair Knowledge of Government Services	1.920 (0.95-3.89)
Good Knowledge of Government Services	1.291 (0.61-2.75)

*** p< 0.05; ** p <0.01**

In terms of specific numbers, households located in wards with an index of 2 (middle infrastructure) were 2.12 times (95% CI: 1.00-4.47; p=0.05) more likely and households located in wards with an index of 3 (highest infrastructure) were 2.26 times more (95% CI: 1.03-4.94; p=0.041) likely than households located in wards with an index of 1 (lowest infrastructure) to use private providers first instead of government providers. So, higher ward infrastructure was associated with greater likelihood of private provider usage.

Once again, the overall model was significant ($p<0.001$), and the Hosmer and Lemeshow test indicated that the model was a good fit ($p=0.623$). The independent variables in the model explained 18.1% of the variance according to the Nagelkerke R-squared value, the majority of which was attributable to household-level variables (8.2%):

Summary of the Relative Contributions of Each of the Explanatory Variables to the Overall Model Variance: Model D.3

Household SES Variables (8.2%) > Illness Variables (4.1%) > Ward-Level SES Variables (2.4%) > Health Facility Variables (1.2%)/ Knowledge Variables (1.2%)> Patient Demographic Variables (1%)

> indicates greater than or less than

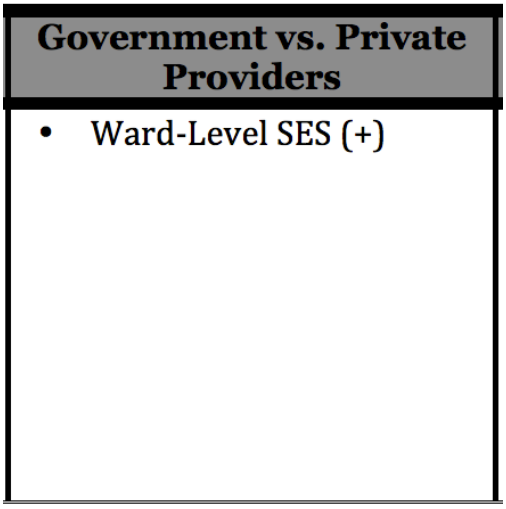


Figure 7.14 A summary of the significant associations from final model D.3. Nothing was significant at $p<0.01$, only for $p<0.05$. '+' indicates a positive association between the explanatory variable and outcome of interest.

7.3d Factors Influencing Selection of FCHV vs. Facility-Based Government Care (First): Model D.4

Summary of Significant Associations from Preliminary Model D.4*

Outcome Variable: 0 = FCHV care first 1 = Facility-based government care first

Patient Variables: No significant associations

Household SES Variables: No significant associations

Ward SES Variables: No significant associations

Illness Variables: Patient-rated severity

Knowledge Variables: Knowledge of nearest facility

Health Facility Variables: No significant associations

Once a household has decided to avail of government services, they must still make a further decision about what specific government provider to use. Although there were not enough cases to analyse the various variables which influenced whether or not households chose SHPs, HPs, PHCCs or DHs, there were enough cases to analyse what factors influenced whether or not households chose to use FCHVs/ORCs[5] or facility-based government care (including SHPs, HPs, PHCCs, DHs, RHs, or ZHs) as a first allopathic care option. The preliminary models showed that only illness severity and knowledge of the nearest government facility were associated with the choice to use facility-based care over FCHVs, while the final models showed a significant positive association (at $p<0.05$) between illness severity, illness type and health facility quality and likelihood of using facility-based government care as a first care option (table 7.15).

[5] These care providers/options were discussed in section 2.3 and **Appendix 2.3**

Table 7.15 Odd's Ratios between explanatory variables and whether or not facility-based government care (1) or FCHVs/ ORCs (0) were used in the final model D.4 (n=328 households using facility-based care)

Explanatory Variables	Adjusted OR (95% CI)
Patient Variables	
Patient Gender (M)	1.347 (0.67-2.72)
Patient Age	0.994 (0.98-1.01)
Household SES Variables	
No. of Children (1-5yo)	0.814 (0.52-1.27)
Occupation of Head	
Subsistence Farmer	----
Commercial Farmer	1.501 (0.61-3.73)
Unskilled Labourer	0.979 (0.37-2.61)
Skilled Labourer	###########
Professional Worker	1.082 (0.27-4.40)
Education of Head	
None (REF)	----
Primary & Lower Secondary	1.984 (0.93-4.25)
Upper Secondary +	############
Household Caste	
Brahmin/Chhetri/ Madehsi/Thakuri	----
Tamang/Magar/Gurung	0.411 (0.13-1.33)
Chepang/Biswokarma/ Other Dalit	1.602 (0.31-8.21)
Newar	1.261 (0.09-17.32)
Wealth Quintiles	
Quintile 1 – poorest (REF)	----
Quintile 2	1.564 (0.63-3.91)
Quintile 3	1.216 (0.39-3.75)
Quintile 4	0.694 (0.21-2.25)
Quintile 5 -wealthiest	3.433 (0.58-1.27)
Ward Level SES Variables	
Ward-Level Composite Index	
SES 1 – lowest infrastructure (REF)	----
SES 2	0.562 (0.21-1.48)
SES 3 – highest infrastructure	1.021 (0.40-2.59)
Illness Variables	
Illness Type (ICD Code)	
A00-B99	----
J00-J99	1.294 (0.58-2.87)
Other Codes	**4.162 (1.32-13.08)***
Illness Severity	
Not at all Severe	----
Somewhat Severe	**3.456 (1.28-9.32)***
Very Severe	**6.783 (2.07-22.20)****

Explanatory Variables	Adjusted OR (95% CI)
Health Facility Variables	
Gov. Health Facility Distance	0.804 (0.56-1.16)
Closest Health Facility Type	
SHP	----
HP	2.080 (0.79-5.47)
PHCC	0.481 (0.06-3.98)
Health Facility Quality Composite Index	
Poor (REF)	----
Fair	1.712 (0.62-4.75)
Good	2.837 (0.92-8.74)
Subjective Health Facility Quality Rating	**2.289 (1.07-4.89)***
Knowledge Variables	
Knowledge Composite Index	
Poor Knowledge of Government Services	----
Fair Knowledge of Government Services	1.549 (0.65-3.67)
Good Knowledge of Government Services	0.707 (0.27-1.84)

*** p< 0.05; ** p <0.01;** ########### = SPSS unable to calculate due to too few cases

Regarding illness severity, when controlling for other potential explanatory variables, households which rated their illnesses as "somewhat severe" were 3.46 times (95% CI: 1.28-9.32; p=0.014) more likely and households that rated their illnesses as "very severe" were 6.78 times (95% CI: 2.07-22.20; p=0.002) more likely than households which rated their illnesses as "not-at-all-severe" to use facility-based care over FCHV care as a first allopathic care option. Similarly, households which experienced illnesses other than respiratory illnesses or infectious/parasitic illnesses (ie. less common illnesses) were 4.16 times (95% CI: 1.32-13.08; p=0.015) more likely than households experiencing infectious or other parasitic diseases to use facility-based government care as opposed to FCHV care as a first option. In other words, the less common an illness, the more likely a household is to use facility-based care as opposed to FCHV care to address it.

Regarding health facility quality, when controlling for other potential explanatory variables, a one unit increase in subjective health facility quality rating of the nearest government facility increased the likelihood of a household using facility-based health care first as opposed to FCHV care (Exp(B)=2.29; 95% CI: 1.07-4.89; p=0.033).

Once again, the overall model was significant (p<0.001), and the Hosmer and Lemeshow test indicated that the model was a good fit (p=0.156). The independent variables in the model explained 30.6% of the variance according to the Nagelkerke R-Squared value, which was greater than the R-squared value of any of the previous models. Still, household-level variables and illness variables contributed the most to the overall model variance:

Summary of the Relative Contributions of Each of the Explanatory Variables to the Overall Model Variance: Model D.4

Household SES Variables (14.2%) > Illness Variables (10.5%) >
Health Facility Variables (4.5%)> Knowledge Variables (1.3%)>
Patient Demographic Variables (0.1%)>Ward-Level SES Variables (0%)

> indicates greater than or less than

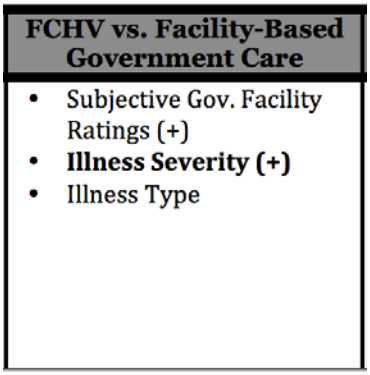


Figure 7.15 A summary of the significant associations from final model D.4. Those highlighted in bold were significant at p<0.01 (illness severity only). '+' indicates a positive association between the explanatory variable and outcome of interest.

7.3e Factors Influencing Selection of Allopathic Care at Least Once
Model D.5

If rather than looking at each decision in turn, comparing the choice of each provider to the next in a decision tree fashion, we look instead at the factors which are associated with whether or not a particular provider is *ever* used as part of a households' health-seeking pathway (whether they be used first, second or last), a whole set of different significant relationships emerges (table 7.16). Unfortunately, for this particular model, no preliminary models were run, although the chi-squared analyses can be found in **Appendix 7.1b.**

Table 7.16 Odd's Ratios between explanatory variables and whether or not a household used allopathic care at least once in their treatment trajectory

Explanatory Variables	Adjusted OR (95% CI)
Patient Variables	
Patient Gender (M)	**1.575 (1.19-2.08)****
Patient Age	**0.988 (0.98-1.00)****
Household SES Variables	
No. of Children (1-5yo)	1.023 (0.85-1.23)
Occupation of Head	
Subsistence Farmer	----
Commercial Farmer	0.941 (0.67-1.64)
Unskilled Labourer	0.921 (0.55-1.64)
Skilled Labourer	1.090 (0.64-1.85)
Professional Worker	0.833 (0.39-1.77)
Education of Head	
None (REF)	----
Primary & Lower Secondary	1.094 (0.58-2.06)
Upper Secondary +	1.122 (0.60-2.11)
Household Caste	
Brahmin/Chhetri/ Madehsi/Thakuri	----
Tamang/Magar/Gurung	1.885 (0.97-3.67)
Chepang/Biswokarma/ Other Dalit	1.624 (0.87-3.03)
Newar	**2.466 (1.19-5.13)***

Explanatory Variables	Adjusted OR (95% CI)
Wealth Quintiles	
Quintile 1 – poorest (REF)	----
Quintile 2	0.734 (0.43-1.27)
Quintile 3	0.521 (0.31-0.89)
Quintile 4	0.602 (0.36-1.00)
Quintile 5 -wealthiest	1.115 (0.66-1.89)
Ward Level SES Variables	
Ward-Level Composite Index	
SES 1 – lowest infrastructure (REF)	----
SES 2	0.893 (0.60-1.34)
SES 3 – highest infrastructure	1.081 (0.75-1.55)
Illness Variables	
Illness Type (ICD Code)	
A00-B99	----
J00-J99	1.087 (0.76-1.55)
Other Codes	0.793 (0.55-1.15)
Illness Severity	
Not at all Severe	----
Somewhat Severe	1.250 (0.86-1.82)
Very Severe	**2.195 (1.43-3.37)****
Extremely Severe/ Life-Threatening	**4.494 (1.82-11.13)****
Health Facility Variables	
Gov. Health Facility Distance	**0.866 (0.76-0.99)***
Closest Health Facility Type	
SHP	----
HP	1.767 (0.90-3.47)
PHCC	2.135 (0.99-4.61)
Health Facility Quality Composite Index	
Poor (REF)	----
Fair	1.187 (0.79-1.78)
Good	0.917 (0.62-1.36)
Subjective Health Facility Quality Rating	**1.492 (1.20-1.85)****
Knowledge Variables	
Knowledge Composite Index	
Poor Knowledge of Government Services	----
Fair Knowledge of Government Services	0.844 (0.58-1.22)
Good Knowledge of Government Services	0.925 (0.67-1.29)

*** p< 0.05; ** p <0.01**

First off, both patient age and patient gender were found to be significantly associated with whether or not a household ever used allopathic care in addressing their illness. After controlling for all other independent variables in the final model, a one-year increase in patient age resulted in a slight decreased in likelihood of ever using an allopathic provider (Exp(B)=0.988, 95% CI 0.98-1.00, p=0.001). Also, when controlling for other variables in the final adjusted models, male patients were 1.58 times (95% CI: 1.19-2.08) more likely than female patients to use allopathic providers at least once in their care pathways.

Regarding household level variables, the caste of the household, which was not found to be significant in any other models, was also found to be significantly associated with using allopathic services at least once in their care pathways (at $p<0.05$). Specifically, Newar households were 2.5 times (95% CI: 1.19-5.13) more likely than Brahmin/ Chhetri/ Madheshi/ Thakuri households to use allopathic providers at least once.

Regarding health facility variables, only distance to the government facility and subjective government facility ratings was found to be significantly associated with using allopathic providers at least once in a care pathway. More specifically, a one kilometre increase in distance to the nearest government facility decreased the likelihood of using allopathic providers at least once by 14% (95% CI: 1%-25%). Still, for households that perceive facility quality to be higher, they are more willing to travel farther and use allopathic providers at least once. In fact, a one unit increase in subjective rating of the nearest government facility increased

the likelihood of using allopathic providers at least once in a care pathway by 49% (Exp(B)=1.492; 95% CI: 1.20-1.85; p<0.001).

Finally, in terms of illness variables, increased illness severity was also associated with a greater likelihood of using allopathic services at least once. More specifically, households which rated their illnesses as “very severe” were 2.20 times more likely (95% CI: 1.43-3.37) than households which rated their illnesses as “not at all severe,” and households which rated their illnesses as “extremely severe/life-threatening” were 4.50 times (95% CI: 1.82-11.13) more likely than households which rated their illnesses at “not at all severe” to use allopathic providers at least once in their care pathways.

All of these results remain significant when also controlling for usage of other providers at least once in a care pathway (ie controlling for TH ever and pharmacy ever).

The overall model was found to be significant (p<0.001), and again the Hosmer and Lemeshow Test indicated the model was a good fit (p=0.059). The variables included in the model, however, only explained 14.4% of the variance according to the Nagelkerke R-squared value. Surprisingly, though, illness variables and patient variables contributed the most to model variance, rather than household level variables:

Summary of the Relative Contributions of Each of the Categories of Explanatory Variables to the Overall Model Variance: Model D.5

Illness Variables (3.7%) > Patient Demographic Variables (3.5%)> Health Facility Variables (3.4%)>Household SES Variables (3.1%) > Ward-Level SES Variables (0.3%) >Knowledge Variables (0.1%)

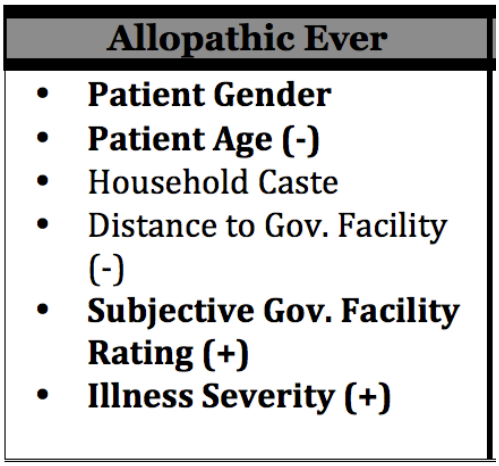


Figure 7.16 A summary of the significant associations from final model D.5. Those highlighted in bold were significant at $p<0.01$ (illness severity only). '+' indicates a positive association between the explanatory variable and outcome of interest, while '-' indicates a negative relationship.

Summary of 'Choice of Provider' Model Variance [D Models]:

	Categories of Independent Variables (% Contribution to Overall Model Variance [R^2])						
Final Models	**Patient Variables**	**Household SES Variables**	**Ward-Level SES Variables**	**Health Facility Variables**	**Illness Variables**	**Knowledge Variables**	**Totals**
D.1: No Care vs. Some Care	1.5%	5.4%	0.6%	2%	**6.5%**	0.3%	**16.3%**
D.2: Home Care Only vs. Some Outside Care	1.3%	4.6%	0.8%	1.3%	**8.3%**	0.2%	**16.5%**
D.3: Gov Services vs. Pvt Services [1st]	1%	**8.2%**	2.4%	1.2%	4.1%	1.2%	**18.1%**
D.4: FCHV vs. Facility-Based [1st]	0.1%	**14.2%**	0%	4.5%	10.5%	1.3%	**30.6%**
D.5 Allopathic Ever	3.5%	3.1%	0.3%	3.4%	**3.7%**	0.1%	**14.1%**

Figure 7.17 Summary of overall model variance for the choice of provider models broken down by the collective impact of each category of variables. Patient variables had the greatest impact whether or not more than one provider was used. Those highlighted in grey contributed the most to that particular model's overall variance. In short, illness variables and household SES variables contributed the most to specific choice of providers.

7.3f Factors Influencing Selection of More than One Provider
Model E.1

Summary of Significant Associations from Preliminary Model E.1*

Outcome Variable: 0 = One provider used 1 = More than one provider used

Patient Variables: Age

Household SES Variables: No. of children 1-5yo

Ward SES Variables: No significant associations

Illness Variables: Secondary aetiology beliefs

Knowledge Variables: No significant associations

Health Facility Variables: Knowledge of lowest level government facility

As discussed in previous sections, often a household does not just seek care from a single provider, so it is also important to understand what specific factors may influence whether or not a specific household uses one provider or more than one provider in dealing with a single illness episode. The final models indicate that only two variables are significantly associated with this particular care decision – patient age and household knowledge (table 7.17).

Table 7.17 Odd's Ratios between explanatory variables and whether or not a household used >1 provider in their treatment trajectory (n=264 HHs using >1 provider)

Explanatory Variables	Adjusted OR (95% CI)
Patient Variables	
Patient Gender (M)	1.197 (0.85-1.69)
Patient Age	**0.986 (0.98-1.00)****
Household SES Variables	
No. of Children (1-5yo)	1.217 (0.97-1.52)
Occupation of Head	
Subsistence Farmer	----
Commercial Farmer	1.036 (0.66-1.63)
Unskilled Labourer	1.241 (0.78-1.98)
Skilled Labourer	0.746 (0.33-1.67)
Professional Worker	0.886 (0.48-1.62)
Education of Head	
None (REF)	----
Primary & Lower Secondary	0.980 (0.69-1.40)
Upper Secondary +	1.844 (0.90-3.80)
Household Caste	
Brahmin/Chettri/ Madehsi/Thakuri	----
Tamang/Magar/Gurung	1.272 (0.77-2.10)
Chepang/Biswokarma/ Other Dalit	1.469 (0.74-2.91)
Newar	1.152 (0.52-2.57)
Wealth Quintiles	
Quintile 1 – poorest (REF)	----
Quintile 2	1.009 (0.62-1.63)
Quintile 3	1.095 (0.64-1.86)
Quintile 4	1.139 (0.62-2.10)
Quintile 5 -wealthiest	0.951 (0.50-1.81)
Ward Level SES Variables	
Ward-Level Composite Index	
SES 1 – lowest infrastructure (REF)	----
SES 2	0.988 (0.61-1.59)
SES 3 – highest infrastructure	1.108 (0.68-1.81)
Illness Variables	
Illness Type (ICD Code)	
A00-B99	----
J00-J99	0.766 (0.51-1.14)
Other Codes	1.061 (0.68-1.65)
Illness Severity	
Not at all Severe	----
Somewhat Severe	0.770 (0.47-1.26)
Very Severe	1.204 (0.71-2.04)
Extremely Severe/ Life-Threatening	2.452 (0.98-6.11)

Explanatory Variables			Adjusted OR (95% CI)
Health Facility Variables			
	Gov. Health Facility Distance		1.016 (0.86-1.20)
	Closest Health Facility Type		
		SHP	----
		HP	1.313 (0.82-2.10)
		PHCC	0.868 (0.40-1.91)
	Health Facility Quality Composite Index		
		Poor (REF)	----
		Fair	0.813 (0.50-1.33)
		Good	1.640 (1.00-2.70)
	Subjective Health Facility Quality Rating		0.843 (0.59-1.20)
Knowledge Variables			
	Knowledge Composite Index		
		Poor Knowledge of Government Services	----
		Fair Knowledge of Government Services	0.748 (0.50-1.13)
		Good Knowledge of Government Services	**0.587 (0.37-0.93)***

*** p< 0.05; ** p <0.01**

Households in which the ill person was older were less likely to attempt to seek care from multiple providers – a one year increase in patient age was associated with a 2% (95% CI: 1%-3%; p=0.002) decreased likelihood of using more than one provider to deal with a single episode of illness.

Also, apart from patient age, greater health system knowledge was associated with a decreased likelihood of using multiple different providers – households with 'good' health system knowledge were 41% (95% CI: 7%-63%; p=0.023) less likely to use more than one provider when compared to households with 'poor' health system knowledge.

The overall model was significant (p<0.001), and the Hosmer and Lemeshow test indicated that the model was a good fit (p=0.094), but the independent variables

in the model explained only 10.5% of the variance according to the Nagelkerke R-squared value, the majority of which was attributable to patient demographic factors:

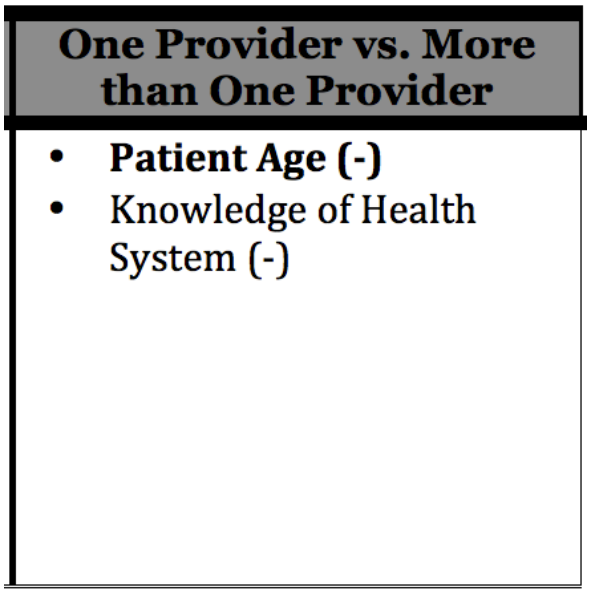


Figure 7.18 A summary of the significant associations from final model E.1. Those variables highlighted in bold were significant at $p<0.01$ (patient age only). '-' indicates a negative association between the explanatory variable and outcome of interest.

	Categories of Independent Variables (% Contribution to Overall Model Variance [R^2])						
Final Models	**Patient Variables**	**Household SES Variables**	**Ward-Level SES Variables**	**Health Facility Variables**	**Illness Variables**	**Knowledge Variables**	**Totals**
E.1: 1 Provider vs. >1 Providers	**3.1%**	1.7%	0%	2%	2.8%	0.9%	**10.5%**

Figure 7.19 Summary of overall model variance for the number of provider model broken down by the collective impact of each category of variables. Patient variables had the greatest impact whether or not more than one provider was used.

Summary of Key Findings for Objective 2a*:
'Choice of Provider' [D] and 'Number of Provider' [E] Models

- Wealthier households and households experiencing more severe illnesses were more likely to seek **some care versus no care**, while households experiencing respiratory illnesses were less likely than those experiencing parasitic/infectious diseases to seek **some care versus no care**

- Households experiencing more severe illnesses were more likely to seek **some outside care versus home care only**

- Households experiencing more severe illnesses were more likely to use **facility-based government care versus FCHV care** (as a first outside option)

- Male patients, households experiencing more severe illnesses and households closer to high quality government facilities were more likely to use **allopathic providers at least once** in their care-seeking pathways; Older patients were less likely to use **allopathic providers at least once** in their care-seeking pathways

- Older patients were less likely to use **more than one provider** for a single episode of illness

* **NOTE:** Only those findings which were significant at $p<0.01$ level are discussed

7.4 *Final Location of Provider Models: F Models*

While it is important to understand the factors which influence the order of care-seeking, while it is also important to understand the factors which influence delays in care-seeking, and while it is extremely important to understand the factors which influence the specific types of providers used by households, it is also interesting to look at where people actually seek care in terms of physical location. This has rarely been studied as an outcome in other HSB studies, but it is important if we hope to understand health facility distribution planning - are people using the government facilities that they fall in the catchment area of, or are they seeking care in other VDCs or other wards? These models were included because during the survey period it became apparent that households were not always availing of the government facilities they were supposed to be using based on the location of their houses within the VDCs. In other words, the VDC and ward lines were somewhat arbitrary boundaries that were often not abided by.

Again, a host of explanatory variables were found to be significantly associated with whether or not households opted for care within their own VDCs or own wards, and we will look at each in turn:

7.4a Factors Influencing Selection of Care within the Same VDC
Model F.1

Summary of Significant Associations from Preliminary Model F.1*

Outcome Variable: 0 = Same VDC 1 = Different VDC

Patient Variables: Age

Household SES Variables: No significant associations

Ward SES Variables: No significant associations

Illness Variables: No significant associations

Knowledge Variables: No significant associations

Health Facility Variables: No significant associations

In making a health decision households not only choose from amongst a plethora of different providers, but also often factor the location of these providers into the decision-making process (as discussed above). To that end, it is also important to asses the factors which impact whether or not a household seeks care outside of their own village or within their own village (VDC). Household, health facility and illness factors all appear to impact this particular decision (table 7.18).

Table 7.18 Odd's Ratios between explanatory variables and whether or not a household used care within their own VDC first (n=214 using care in other VDC)

Explanatory Variables	Adjusted OR (95% CI)
Patient Variables	
Patient Gender (M)	0.967 (0.66-1.42)
Patient Age	0.998 (0.99-1.01)
Household SES Variables	
No. of Children (1-5yo)	0.994 (0.77-1.29)
Occupation of Head	
Subsistence Farmer	----
Commercial Farmer	0.780 (0.46-1.31)
Unskilled Labourer	**0.506 (0.30-0.85)***
Skilled Labourer	0.719 (0.30-1.72)
Professional Worker	0.691 (0.36-1.33)
Education of Head	
None (REF)	----
Primary & Lower Secondary	1.014 (0.68-1.51)
Upper Secondary +	0.867 (0.40-1.90)
Household Caste	
Brahmin/Chhetri/ Madehsi/Thakuri	----
Tamang/Magar/Gurung	0.664 (0.37-1.19)
Chepang/Biswokarma/ Other Dalit	1.160 (0.46-2.92)
Newar	0.514 (0.22-1.22)
Wealth Quintiles	
Quintile 1 – poorest (REF)	----
Quintile 2	1.119 (0.64-1.94)
Quintile 3	**2.034 (1.08-3.82)***
Quintile 4	**2.214 (1.10-4.45)***
Quintile 5 -wealthiest	0.895 (0.45-1.78)
Ward Level SES Variables	
Ward-Level Composite Index	
SES 1 – lowest infrastructure (REF)	----
SES 2	1.208 (0.71-2.05)
SES 3 – highest infrastructure	0.965 (0.55-1.69)
Illness Variables	
Illness Type (ICD Code)	
A00-B99	----
J00-J99	0.962 (0.61-1.52)
Other Codes	**0.529 (0.33-0.86)****
Illness Severity	
Not at all Severe	----
Somewhat Severe	0.998 (0.58-1.73)
Very Severe	0.573 (0.32-1.03)
Extremely Severe/ Life-Threatening	**0.307 (0.12-0.82)***

Explanatory Variables			Adjusted OR (95% CI)
Health Facility Variables			
	Gov. Health Facility Distance		**0.741 (0.61-0.89)****
	Closest Health Facility Type		
		SHP	----
		HP	0.939 (0.55-1.62)
		PHCC	0.992 (0.45-2.18)
	Health Facility Quality Composite Index		
		Poor (REF)	----
		Fair	**0.256 (0.15-0.43)****
		Good	**0.395 (0.22-0.70)****
	Subjective Health Facility Quality Rating		0.840 (0.56-1.26)
Knowledge Variables			
	Knowledge Composite Index		
		Poor Knowledge of Government Services	----
		Fair Knowledge of Government Services	1.278 (0.80-2.06)
		Good Knowledge of Government Services	0.922 (0.56-1.53)

*** p< 0.05; ** p <0.01**

Regarding household factors, when controlling for other potential explanatory variables, both occupation and wealth quintile were significant. Households with household heads who were unskilled labourers were found to be 49% (95% CI: 16%-70%; p=0.010) less likely than subsistence farming households to seek care outside of their own VDC as a first option. Conversely, households in the third wealth quintile were 2.03 times (95% CI: 1.08-3.82; p=0.027) more likely and households in the fourth wealth quintile were 2.21 times (95% CI: 1.10-4.45; p=0.026) more likely than households in the first wealth quintile (poorest) to use care outside of their own VDCs rather than within their own VDCs as a first port of call.

Regarding health facility variables, objective facility quality and distance to the facility also matter. Households nearer to higher quality government facilities were less likely to see care outside of their own VDCs at first. Specifically, households nearest to 'fair' quality facilities were 74% (95% CI: 57%-85%; p=0.000) less likely and household nearest to 'high' quality facilities were 60% (95% CI: 30%-78%; p=0.001) less likely than households nearest 'low' quality facilities to use providers outside of their own VDCs first. Somewhat surprisingly, however, the further away a government facility was from the household the less likely they were to seek care from another VDC; A one kilometre increase in the distance between the households and the nearest government facility decreased the likelihood of using providers in another VDC by 26% (95% CI: 11%-59%; p=0.002).

Regarding illness variables, type of illness and severity also matter. Households experiencing illnesses other than respiratory or infectious/parasitic illnesses were 47% (95% CI: 15%-68%; p=0.009) less likely to use care in another VDC as opposed to their own. Also, households which rated their illnesses as 'extremely severe/life-threatening' were 70% (95% CI: 19%-89%; p=0.018) less likely than households which rated their illness as 'not-at-all-severe' to seek care in another VDC.

Once again, the overall model was significant ($p<0.001$), and the Hosmer and Lemeshow test indicated that the model was a good fit ($p=0.219$); The independent variables in the model explained 20.6% of the variance according to the Nagelkerke R-squared value, the majority of which was attributable to household factors yet again (7.4%):

Summary of the Relative Contributions of Each of the Categories of Explanatory Variables to the Overall Model Variance: Model F.1

Household SES Variables (7.4%) > Health Facility Variables (7.2%)> Illness Variables (4.4%) > Patient Demographic Variables (1%)> Knowledge Variables (0.4%)> Ward-Level SES Variables (0.2%)

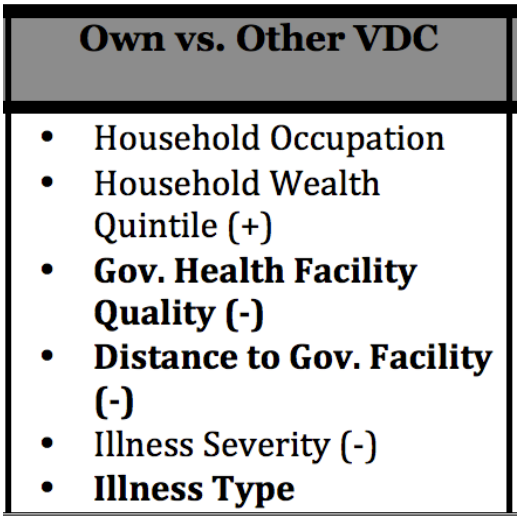


Figure 7.20 A summary of the significant associations from final model F.1. Those variables highlighted in bold were significant at $p<0.01$, while the rest were significant at $p<0.05$. '+' indicates a positive association between the explanatory variable and outcome of interest and '-' indicates a negative association.

7.4b Factors Influencing Selection of Care within the Same Ward
Model F.2

Summary of Significant Associations from Preliminary Model F.2*

Outcome Variable: 0 = Same ward 1 = Different Ward

Patient Variables: Age

Household SES Variables: No significant associations

Ward SES Variables: No significant associations

Illness Variables: Different aetiology beliefs

Knowledge Variables: No significant associations

Health Facility Variables: No significant associations

If a household makes the choice to stay within their VDC in the process of dealing with their illness, they still may or may not choose to stay within their own ward. A whole host of other variables also seem to be significantly associated with whether or not a household seeks care within their own ward or in another ward. In fact, patient, household, ward, health facility and illness variables were all found to be significantly associated with this particular care choice (table 7.19).

Table 7.19 Odd's Ratios between explanatory variables and whether or not a household used care within their own ward first (n=259 using care in another ward)

Explanatory Variables	Adjusted OR (95% CI)
Patient Variables	
Patient Gender (M)	**0.663 (0.45-0.97)***
Patient Age	0.999 (0.99-1.01)
Household SES Variables	
No. of Children (1-5yo)	0.828 (0.64-1.07)
Occupation of Head	
Subsistence Farmer	----
Commercial Farmer	**0.603 (0.37-1.00)***
Unskilled Labourer	0.671 (0.39-1.15)
Skilled Labourer	1.142 (0.50-2.60)
Professional Worker	1.246 (0.66-2.35)
Education of Head	
None (REF)	----
Primary & Lower Secondary	0.859 (0.58-1.27)
Upper Secondary +	0.455 (0.20-1.05)
Household Caste	
Brahmin/Chhetri/ Madehsi/Thakuri	----
Tamang/Magar/Gurung	0.619 (0.37-1.05)
Chepang/Biswokarma/ Other Dalit	0.591 (0.29-1.22)
Newar	0.692 (0.30-1.59)
Wealth Quintiles	
Quintile 1 – poorest (REF)	----
Quintile 2	1.343 (0.80-2.26)
Quintile 3	1.045 (0.57-1.91)
Quintile 4	1.400 (0.71-2.75)
Quintile 5 -wealthiest	0.668 (0.32-1.40)
Ward Level SES Variables	
Ward-Level Composite Index	
SES 1 – lowest infrastructure (REF)	----
SES 2	1.228 (0.71-2.12)
SES 3 – highest infrastructure	**5.458 (3.17-9.40)****
Illness Variables	
Illness Type (ICD Code)	
A00-B99	----
J00-J99	**0.563 (0.36-0.87)***
Other Codes	**0.493 (0.30-0.82)****
Illness Severity	
Not at all Severe	----
Somewhat Severe	0.681 (0.40-1.15)
Very Severe	**0.487 (0.27-0.87)***
Extremely Severe/ Life-Threatening	**0.182 (0.06-0.59)****

Explanatory Variables			Adjusted OR (95% CI)
Health Facility Variables			
	Gov. Health Facility Distance		0.858 (0.71-1.03)
	Closest Health Facility Type		
		SHP	----
		HP	**1.801 (1.08-3.01)***
		PHCC	0.729 (0.31-1.76)
	Health Facility Quality Composite Index		
		Poor (REF)	----
		Fair	**0.547 (0.32-0.93)***
		Good	**0.439 (0.23-0.76)****
	Subjective Health Facility Quality Rating		**0.557 (0.38-0.82)****
Knowledge Variables			
	Knowledge Composite Index		
		Poor Knowledge of Government Services	----
		Fair Knowledge of Government Services	0.731 (0.46-1.16)
		Good Knowledge of Government Services	0.931 (0.57-1.53)

*** p< 0.05; ** p <0.01**

Regarding patient variables, the older the ill person, the less likely they were to seek care outside their own ward. A one-year increase in age was associated with a 34% (95% CI: 3%-55%; p=0.034) decreased likelihood of seeking care in another ward.

Regarding household variables, only occupation was significant. Households with heads who were commercial farmers were 40% (95% CI: 1%-63%; p=0.049) less likely to seek care in another ward than subsistence farming households.

Regarding community variables, somewhat counter-intuitively, higher ward infrastructure was associated with greater likelihood of seeking care from another ward instead of within the ward. More specifically, households in wards with the highest infrastructure were 5.46 times (95% CI: 3.17-9.40) more likely than

households in wards with the lowest infrastructure to seek care from another ward other than the one in which their houses were located.

Regarding health facility variables, greater quality of the nearest facility was associated with decreased likelihood of seeking care outside the ward. Specifically, households nearest to 'fair' quality facilities were 45% (95% CI: 8%-68%; p=0.025) less likely and household nearest to 'high' quality facilities were 55% (95% CI: 24%-75%; p=0.004) less likely than households nearest 'low' quality facilities to use providers outside of their own wards first. Also, a one unit increase in the average subjective health facility ratings of the government facility nearest to a household was associated with a 45% (95% CI: 18%-63%; p=0.003) decreased likelihood of seeking care outside of their own ward. Finally, households nearest to HPs were actually 1.80 times (95% CI: 1.08-3.01; p=0.025) more likely than household nearest to SHPs to use care outside of their own wards.

Regarding illness variables, both severity and illness type were also significantly associated with this particular health-seeking decision. Households experiencing respiratory illnesses were 44% (95% CI: 13%-64%; p=0.010) less likely than households experiencing infectious/parasitic illnesses to seek care outside of their own wards, and households experiencing all other illnesses other than respiratory or infectious/parasitic illnesses (less common illnesses) were 51% (95% CI: 13%-64%; p=0.006) less likely to use care in another ward as opposed to their own. Also, households which rated their illnesses as 'very severe' were

51% (95% CI: 13%-73%; p=0.015) less likely, and households which rated their illnesses as 'life-threatening' were 82% (95% CI: 44%-94%; p=0.004) less likely than households which rated their illness as 'not-at-all-severe' to seek care in another ward.

The overall model was significant (p<0.001), and the Hosmer and Lemeshow test indicated that the model was a good fit (p=0.283). The independent variables in the model explained 27.1% of the variance according to the Nagelkerke R-squared value, the majority of which was attributable to ward-level factors, which stands to reason:

Summary of the Relative Contributions of Each of the Categories of Explanatory Variables to the Overall Model Variance: Model F.2

Ward-Level SES Variables (11.5%)> Household SES Variables (5.6%) >
Health Facility Variables (5.2%)> Illness Variables (3.8%) >
Patient Demographic Variables (0.6%) >Knowledge Variables (0.4%)

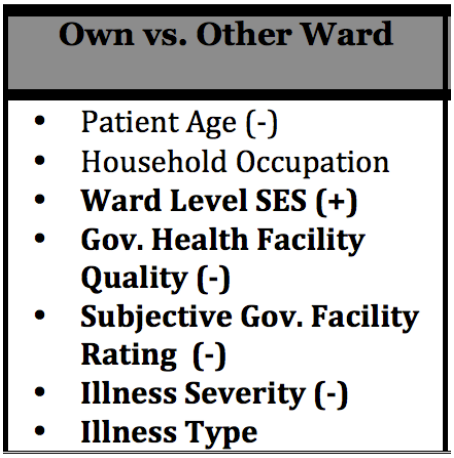


Figure 7.21 A summary of the significant associations from final model F.2. Those variables highlighted in bold were significant at p<0.01, while the rest were significant at p<0.05. '+' indicates a positive association between the explanatory variable and outcome of interest and '-' indicates a negative association.

Summary of 'Location of Care' Model Variance [F Models]:

Final Models	Categories of Independent Variables (% Contribution to Overall Model Variance [R^2])						
	Patient Variables	Household SES Variables	Ward-Level SES Variables	Health Facility Variables	Illness Variables	Knowledge Variables	Totals
F.1: Same VDC vs. Other VDC	1%	**7.4%**	0.2%	7.2%	4.4%	0.4%	**20.6%**
F.2: Same Ward vs. Other Ward	0.6%	5.6%	**11.5%**	5.2%	3.8%	0.4%	**27.1%**

Figure 7.22 Summary of overall model variance for each of the location of care models broken down by the collective impact of each category of variables. Those highlighted in bold are the categories of factors which made the greatest contribution to overall model variance. In other words, households SES variables had the greatest impact on whether or not a care was sought within the VDC, but ward-level variables had the greatest impact on whether or not care was sought within the ward.

Summary of Key Findings for Objective 2a*:

'Location of Provider' [F] Models

- Households closest to higher quality government facilities, households further away from government facilities and households experiencing less common illnesses were less likely to use **care in another VDC versus care in their own VDC**
- Households closer to better quality government facilities, households closer to higher-rated government facilities, households experiencing less common illnesses, households experiencing more severe illnesses were less likely to seek care in **another ward versus their own wards**; While households located in wards with higher infrastructure were more likely to seek care **in another ward versus their own wards**

* **NOTE:** Only those findings which were significant at $p<0.01$ level are discussed

II. Objective 2b Results:

Understanding Households' Care Choices Using Qualitative Data

OBJECTIVE 2b:

To examine the relationship between the objective characteristics, subjective processes and care decisions using qualitative methods. More specifically:

- To qualitatively explore the relationships between patient characteristics, household characteristics, community characteristics, health service characteristics, knowledge factors, illness characteristics and psychological processes, social/interpersonal processes, cultural processes and reasons for using or not using specific care options
- To explore the overall factors that go into hypothetical care-seeking decisions

Regression models can only tell us so much. The quantitative analyses from the previous section give us a general sense of the relationship between some of the potential objective explanatory variables - individual patient demographics, household-level demographics, community level demographics, health system characteristics, illness characteristics and knowledge variables – and various health decisions – the order of provider choices, the types of providers utilized and the lengths of delays (broken down into a series of dichotomous steps for the purpose of statistical analysis), but they tell us nothing about the other subjective mechanisms that may govern health choices: the emotions, the interpersonal factors, the cognitive processes. Moreover, the quantitative analyses only provide us with data on some of the subconscious factors which may be governing these help-seeking behaviours. They offer no insight into

factors which may consciously drive a household's decisions to choose one provider over another – at least as that choice is expressed.

To examine those behaviours and provide us with a deeper and fuller understanding of the more subjective mechanisms and conscious decisions that govern this complex process, we conducted lengthy interviews. We can couple household responses about their illness narratives and care decisions with the quantitative survey data to get an explanation of these critical choices, at least in so far as people are able to articulate reasons. The qualitative data, in essence, picks up where the quantitative data leaves off, filling in the blanks.

Health-seeking behaviours operate at the interface between certain objective, quantifiable characteristics and subjective components that "catalyze" those characteristics into a decision. In effect, these objective characteristics "pass through" the subjective processes, so that either in isolation fails to explain why a decision is made. Or put another way, subjective processes inform the objective characteristics in a dynamic way (figure 7.23).

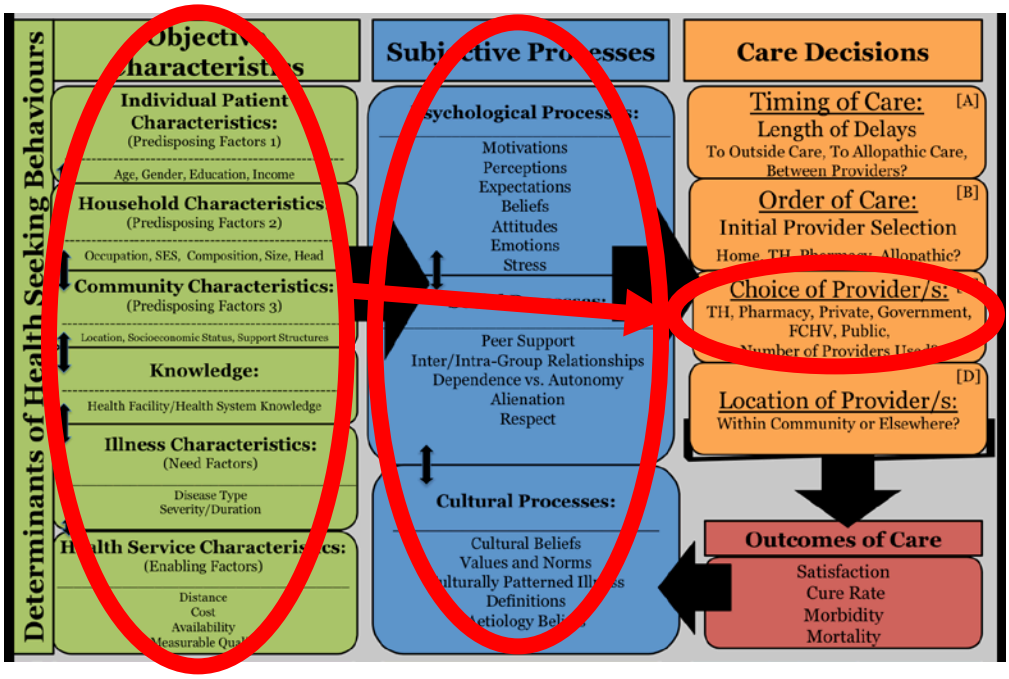


Figure 7.23 This objective (2b) will deal with the relationship between these portions (circled in red) of the comprehensive theoretical model discussed in Chapter 2.

Secondly, it is important to understand that virtually all health-seeking decisions are interlocked and co-dependent. The choice to forego one healthcare option is directly linked to the choice of another healthcare option. Hence, we keep revisiting the same concerns in different contexts: eg., for some people government health care, while theoretically free, is more expensive than other options, while for others an alternative may be more expensive than government health care. These things, depending as they do on individual perceptions, are slippery as human psychology itself is and often contradictory.

Finally, a word about the approach chosen. One could take the objective characteristics in the first column of the model above individually and examine how each one is filtered through the psychological, social and cultural processes about which our respondents told us. This would show us how finances, for

example, impacted health-seeking behaviours generally. We have chosen instead to examine the decision-making process not through these individual factors but through the actual decisions – ie not how finances or proximity or knowledge affected the general decision-making process but how the final choice of government health facilities or a private hospital or a pharmacy was affected by those factors. Put simply, this chapter examines how a household arrived at the decision to use a particular facility or provider or, equally important, not to use that facility or provider. As for the latter, understanding the barriers to utilisation, which prevent households from taking even that initial step to deal with an illness, can help health practitioners redesign services so that those services are better geared towards the needs of the systems' users.

7.5 *Which Care and Why?*

The following sections deal with each potential care option in turn and use the qualitative data to explore the reasons why individual households made specific care decisions. Although some of the households discussed their general reasoning process in relation to generic illnesses, many others referred to a specific illness episode that occurred within the month prior to the interview and to the care-seeking decisions they made to deal with that illness.

7.5a Home Care

Home care, as was seen in quantitative survey data, was often the first option for many households in their care-seeking pathways. According to the regression models, households opting first for home care were generally more educated, lived in lower SES wards, lived nearer to lower quality government health facilities and had less severe illnesses (Model C.1). Also, when one looked at the factors influencing households that opted for home-based care exclusively, one saw the importance of patient gender, patient age, household wealth quintile, ward-level SES, distance to the nearest government facility, health facility type and illness severity (Model D.2). Despite these findings, when asked explicitly about the reasons for opting to use or not use home care, not a single household mentioned any of these factors with the exception of the age of the patient. In fact, most households were not able to adequately articulate the reasons why they opted for home care as a first or only option.

Focusing on the age issue, according to the quantitative models, the older the ill person, the greater the likelihood of the household using only home-based care that relies largely on herbal medicines. Why? Several respondents answered that herbal medicines were not suited for the treatment of children's illnesses. One household specifically offered a rationale, saying that herbal medicines were difficult to get children to consume because the remedies have a terrible taste:

> "*We have a practice to give such herbs only to the adults. We don't give them to children. We have to grind them and mix them with water and take them. Moreover, they are really bitter, so children don't like them. That's the major reason; they just don't take it because they don't like how it tastes.*" *~S-NK-1.1 (24, M)*

For a few other households, it wasn't just patient age that deterred them from using herbal remedies. Several households mentioned that they felt that home remedies had been rendered ineffective by modern medicines, which were stronger and more potent:

> *"Nowadays home remedies rarely work. People have started using medicines from hospitals, so the home remedies are not effective." ~T-AA-4.5 (25, F)*

Though there is obviously no scientific basis for this, those households believed that modern medicines and herbal remedies were a zero sum equation – using one meant the other would not work:

> *"People believe that herbs become ineffective if we also take modern medicines." ~T-RS-4.5 (60, M)*

These explanations – taste and loss of effectiveness -- were the only two reasons cited by households for not using home remedies or herbal medicines as part of their care trajectories. When asked, most households simply stated that they always used herbal medicines at first, and that taking herbal medicines or using home remedies was an imperative – the way things were done:

> *"The knowledge [of herbs] has been passed from generations beyond our great grandfathers. They are found in the fields. Illness has to be treated by taking herbs as well." ~S-AA-1.3 (56, F)*

Other households didn't even mention the tradition. For them it was automatic:

> *"I don't know why. First I use herbs for 1-2 days and if that doesn't work, I go to the health post." ~T-AA-1.2 (58, M)*

One household, however, did mention that the reason they still used herbs was because herbs were effective if you were able to catch an illness early enough:

> *"If diagnosed immediately our herbal medicines can also treat [typhoid]. Herbs are also medicines." ~S-AB-1.5 (50, M)*

Another group of households opted for home-based care but not for herbal remedies typically associated with it. Instead, they stockpiled drugs from government facilities and used them when they got ill. The rationale cited for the stockpiling was the greater ease of having the drugs at your fingertips when necessary.

> *"We have medicines in our home. We bring them from the health post, and we use those medicines based on what we know in times of need. I have brought medicines for cough and fever and other such medicines, and until now they are not expired. This is easier." ~T-AA-4.5 (25, F)*

In short, most households used herbal remedies or home cures because these treatments had somehow become habitual while others effectively kept replenishing their own home pharmacy.

Home Care

Reasons for Not Using	Reasons for Using
Patient Characteristics: • *Age:* Not child-friendly (dislike taste) **Psychological Processes:** • *Beliefs:* Belief that modern medicine has made herbs ineffective	**Health Service Characteristics:** • *Accessibility:* Convenience (in home) **Psychological Processes:** • *Beliefs:* Effectiveness (if illness is caught early enough) **Cultural Processes:** • *Norms:* Tradition/Routine

Figure 7.24 Summary of the reasons people gave for using or not using home care.

7.5b Traditional Healers (THs)

Just as herbal or other home remedies are a vestige of another time, so too is the reliance on traditional healers:

> *"The tradition passed from several generations of collecting herbs in the jungle to consulting THs to finally getting examined by doctors." ~P-NK-1.3 (77, M)*

While the mindset has changed somewhat, and more households have started to think critically about the roles and efficacy of traditional healers, many households still place enormous faith in them. The next sub-sections will look at the reasons households openly stated for why they use or do not use traditional healers. As it turns out, when it came to talking about traditional healers most households were better able to articulate the reasoning behind their decision-making than they had been about home-based care.

At least a fifth of the households interviewed mentioned that they did not use traditional healers for this specific episode of illness, or that they no longer used traditional healers at all because they had lost faith in them, did not trust them, found them to be habit forming or did not believe in supernatural forces. In many ways, the households' responses indicated the beginning of a cultural transformation, as more people begin to rely less on THs in favour of other treatment methods.

Reasons for Using Traditional Healers

The reasons cited by households which continue to use THs were a bit more complex and multi-faceted than the reasons cited for not using them. Not only did the regression models show that these decisions were subconsciously influenced by a whole host of objective factors - patient gender, patient age, health facility quality, illness severity and health system knowledge - but the qualitative data revealed that they are also consciously influenced by individual emotions, specific disease characteristics, and by the larger social and cultural context in which households operate. More specifically, households not only mention some of the explanatory variables that factored into their decisions – ie. provider characteristics (enabling factors) and illness characteristics (need factors) -- but also spoke about some of the more subjective intervening mechanisms as well – ie. cultural processes, inter-personal processes and individual emotional and cognitive processes – just as those who spurned THs did. So while the qualitative results reinforced the quantitative results, they also added layers of complexity, which were not captured in the regression models alone.

Provider Characteristics:

The quantitative results did not reveal any relationship between household-level SES and the use of THs, but they did reveal a striking relationship between the quality of a government health facility and the use of a TH: Households nearer to poor quality government facilities were more likely to use TH services than those nearer to better quality facilities. The qualitative results, however, revealed

something different: Households seemed to focus more on the affordability and accessibility of traditional healers and less on the quality of care received there. In fact, several households mentioned that they chose to use THs specifically for these reasons:

> *"They [THs] are nearer and also cheaper. Economy is a determining factor; we don't have money when we need it. Sometimes rituals performed by THs cure our illness. And sometimes we have a fever and these are the types of diseases THs can cure. So, I believe in them and use them." ~T-RS-4.6 (38, M)*

Just as some households cited the cost of a TH as a reason for preferring a hospital, one household discussed the relative costs of allopathic and traditional healing, using the significant cost differential as a justification for using of TH services over allopathic ones:

> *"Sometimes people fall severely ill due to other reasons; they are not treated despite taking them to the hospital.... When people have to spend 1,000 rupees at a hospital, they only have to spend 10-15 rupees for us [THs]. If the illness is extremely severe, it might cost a maximum of 100-200 rupees." ~S-RS-8.1 (61, M)*

Several households who used THs said they simply could not afford to use allopathic services, despite their desires to do so:

> *"It would be better if we could visit a hospital instead of just the TH, but it [hospital] is far away and we cannot afford the expenses." ~P-MG-8.2 (41, F)*

Still, for some households, it was not just an issue of THs being cheaper, but of THs being simpler to use:

> *"At times we end up not having to go to the hospital. This is easier. Sometimes chanting mantras and drum beating is sufficient for recovery. We visit the hospital ONLY when the TH cannot cure." ~T-RS-3.3 (63, F)*

Although household SES did not seem to be a factor dictating TH-utilisation based on the quantitative results, affordability of THs emerged as a factor dictating their usage in the qualitative findings.

Illness Characteristics:

While the quantitative models did not reveal a significant relationship between affordability and TH-usage, they did reveal significant relationships between illness severity, illness aetiology beliefs and illness type and use of THs. More specifically, infectious and parasitic diseases were associated with greater likelihood of seeking TH care versus allopathic care only. The preliminary regression models, in which illness aetiology was factored in as an explanatory variable, also revealed that households with multiple aetiology beliefs were more likely to use TH care than those with a single aetiology belief. Many of these findings are echoed in the qualitative results, which help to explain what the quantitative results were only able to statistically suggest– that certain diseases and certain aetiology beliefs were within the purview of THs, and thus they were to be consulted in such instances.

Several households mentioned that THs were to be consulted when a disease's origin was unknown, which seems consistent with the findings from the quantitative data that parasitic/infectious diseases were more often the realm of THs than respiratory illnesses:

> *"If we feel it is a special disease, a known disease, then we go to the health post [PHCC], but if we don't know the reasons for the disease, then we consult the TH." ~P-MG-2.4 (23, M)*

Or when the onset of the disease was sudden and unexpected – such as cases in which the person seemed to lose his soul or wits:

> *"There are a few cases in which a TH can heal people. For example, when someone is walking and suddenly falls over a terrace in the fields and gets frightened, we say the person has lost 'sato' [soul] and the TH can heal the person." ~S-NK-1.1 (24, M)*

For other households it was a matter of timing. They mentioned they consulted THs in a moment of panic before they were able to sit down and think clearly about the illness:

> *"We have to follow them [THs] sometimes in emergencies...we panic when we get sick. It is like rushing to eat food, we rush to the TH...Some cases can be solved by the TH." ~P-MG-8.2 (41, F)*

Still, despite the fact that many households said they utilised THs when they were uncertain about the disease, it was more frequently the case that households mentioned they would consult the TH when they believed supernatural forces were involved in the illness. For example, a TH is consulted if the family suspects that a child is possessed.

> *"He [son] could have been possessed, and only THs can dispossess evil spirits. That's why I took him there." ~T-MG-3.1 (30, F)*

Or if they suspect spiritual influences:

> *"If someone has been influenced by evil spirits, it can only be treated when a TH recites chants; it's no use taking people to the hospital in such cases." ~S-RS-8.1 (61, M)*
>
> *"We consult the TH when we suspect the reason for an illness to be the influence of spirits. They hold our wrist and look at our hands and diagnose a problem. They have to recite chants." ~S-MG-2.7 (33, F)*

Or when a household suspects a spell or curse has been cast on the ill person.

> *"It's a custom in our village. When a person is ill then we suspect someone has put a spell on that person, or it is due to evil spirits, so we take them to a traditional healer. It is like that in a village." ~T-AB-1.2 (26, F)*
>
> *"We wouldn't go to the medical until we visited a TH twice or thrice. We initially suspect that the patient is cursed from evil spirits and such." ~P-NK-4.1 (19, F)*

In such cases of spirit attacks, households seemed to believe in consulting the TH first, as a way to prime the body for the potential intake of Western medicines. To not seek the care of the TH first could cause the person to die in a painful fashion.

> *"Sometimes ghost attacks occur. As we have a body, apparently the spirits sometimes catches it through the wind. If you suddenly experience a headache or chest pain while walking somewhere, how would taking medicines help? That might be due to spirits. So you need a TH as well. Around here, if you have been influenced by evil spirits and you get rid of them with the help of a TH, you can be cured. If medicines are taken without doing any of this first, some people's hearts burst and they die." ~S-AA-1.3 (56, F)*

In short, for many households, while not all diseases necessitated TH-care, there were a handful of cases or specific illnesses that did, but this was not always at the expense of also seeking allopathic care.

Cultural Processes:

Although many households did mention enabling (costs) and need factors (illness characteristics) as dictating their decision to use THs in their care trajectories, these variables were only part of a larger constellation of factors influencing care decisions. One cannot look at the use of THs without exploring the role of culture in the decision process, with culture defined as the set of beliefs, values and traditions to which a society adheres. After all, health-decision-making is

obviously deeply embedded in culture. It is this broad sphere of cultural influence that remains the strongest factor determining whether or not households use THs for care. It is culture that even shapes aetiology beliefs such as those discussed in the previous sub-section. In fact, when asked about their reasons for using THs, the majority of households mentioned that THs were part of the cultural fabric of the villages, and thus it is a cultural necessity to avail oneself of their services. These results were consistent regardless of caste or family SES.

> *"We go to the TH because of our tradition." ~T-AA-7.6 (20, F)*
>
> *"Here in the village there is a tendency to seek the TH. It is the way of villages, our culture" ~S-AB-5.2 (18, M)*
>
> *"It is a tradition that we have believed in forever [the TH]." ~S-AB-1.6 (25, F)*
>
> *"Traditional healers in our caste [Tamang] are so important that we need them for everything, even for funeral procedures." ~T-AA-1.1 (77, M)*
>
> *"Some people here prefer to visit TH in almost every case...Following the TH is in our culture." ~P-AA-1.1 (31, F)*

According to one household, it is tradition that at the first sign of illness, THs are to be consulted:

> *"It is our tradition in this community. As soon as someone is a little sick, we take them to the TH – that's what people say." ~T-MG-1.6 (21, M)*

Many households said they would not go anywhere else before seeking the care of a TH. This is also consistent with the survey data, which indicated that THs were often used as a first option in care trajectories:

> *"We never go anywhere else before consulting the TH. No matter what happens, we call the TH first. After they say they can't do anything, then we go to the HP. If their healing works, it works immediately. If not, they do no harm in the first place." ~S-AB-1.5 (50, M)*
>
> *"We visit the doctor only when the TH cannot help – it is our custom….We see the traditional healer for illnesses that spring up without warning." ~T-RS-4.6 (38, M)*
>
> *"At first, we villagers always seek care from the TH and only after that we take the patient to other places. People say that ghosts pass us...they say things like that...so we first go to the TH and only after that to the hospital." ~T-AB-1.2 (25, F)*

Several households seemed to indicate that it was this cultural 'group-think' that dictated the decision-making process more than anything.

> *"It is our tradition – everyone thinks similarly and because of that it affects us all...The tradition in our community is to use the TH first, and once he throws rice, he'll usually say that he [the patient] lost his wits. Then he chants. Once this is complete, we usually go to the hospital." ~T-NK-9.3 (24, F)*
>
> *"All the villagers do the same thing [use the TH first]. You have to do what others are doing as well...it is like what they say, 'dress according to the country'" ~T-AB-1.3 (33, F)*

For some households, using THs was not so much a decision as a cultural imperative, something they "had to" do rather than something they chose to do:

> *"Traditional healer? I shouldn't lie, but **we have to** show the ill person to the TH at least once. Here in this village, we take the ill person to the health post only after showing him/her to the TH. But traditional healers also suggest for us to go to the HP." ~T-AA-1.3 (43, F)*

For other households, it was culturally engrained to visit the TH, despite their ambivalence about him.

> *"I should consult the TH once...I don't know if I believe or not..." ~S-NK-5.1 (42, F)*

In short, TH usage for many households is inextricably linked with their culture, leading many households to use them without even thinking much about their efficacy.

Social/Interpersonal Processes:

Although culture is the broadest, and perhaps strongest, sphere of influence when it comes to decisions about whether or not to consult THs, a handful of other households cited yet another level of influence – the social context -- which also influences decisions regarding TH utilisation through interpersonal relationships and processes. Whereas culture encompasses the large, often intangible and amorphous factors that unite communities, the social influences are much more tangible, and refer to the specific impact of the community, neighbours, friends or family relationships on the decision-making process.

For many households, the beliefs or advice of fellow villagers or neighbours, as distinct from the more diffuse "group-think" idea, had a strong impact on their own decision-making process.

> *"I also heard others in the village say so. They were saying sinusitis can be healed by the TH, so I went there." ~S-AA-8.1 (18, F)*
>
> *"I had heard [from another person in the village] that when someone looks at a child with evil intentions [chua-chut], this can be healed by a TH, which apparently is true. I took him [son] to the TH and it was treated." ~S-AA-4.5 (23, F)*

Yet, for other households, it was the positive past experiences of specific, respected, family members that dictated the decision-process in times of uncertainty.

> *"I am not sure. In the village, they consult the TH for such illnesses and it gets cured. When my mother-in-law had the same illness, she was cured by a TH...She said I should also consult one, so I went." ~S-MG-8.3 (26, F)*

For other households it was not so much a decision predicated on the advice of others, but more about the need to appease others. Specifically, one man said he consulted the TH to satisfy his aunt.

> *"My mother's sister said I should go to her village and see a TH there, as no disease had been determined yet. I thought perhaps it would work. I had never consulted a TH before and I also thought I would do it to satisfy my aunt. The TH did the rituals all night, but it didn't work." ~S-AB-5.1 (24, M)*

So, while culture influences the decision to use THs, so too can other individuals within the community or within the family.

Personal Psychology: Emotions

When it comes to the decision-making process, however, it is not just about the broader cultural or social spheres of influence, but also about individual-level emotions which sometimes irrationally dictate care choices. (Obviously, it is difficult to separate culture and social pressure from individual factors, but it is a matter of emphasis.) Many household said they made a personal decision to use THs as a way of satisfying themselves and quelling their worries.

> *"They [THs] help to chase away demons, but if the situation is worse, we have to visit the hospital. It is just self-satisfaction to use the TH." ~P-MG-8.2 (41, F)*

Several households explicitly mentioned they used the THs services to 'satisfy their hearts' – an attempt to exhaust all possible care options.

> *"They said we have to visit the TH thrice...It is said if one visits the TH thrice then he doesn't have to seek treatment any more. We went there to satisfy our heart. You do anything to treat your child." ~P-AA-1.3 (28, F)*
>
> *"People in the household and neighbourhood said a certain TH could certainly heal. I took chances to satisfy my heart." ~S-AB-5.1 (24, M)*

Other households more indirectly mentioned that they used THs irrationally, despite their own lack of belief, as a response to increasing worry.

> *"When he [son] started getting a fever I thought it was a cold or pneumonia, so I started feeding him hot water and using a wet compress. But he got worse and I was worried, so I took him to the traditional healer, even though I didn't really believe in that." ~T-NK-9.1 (31, F)*

It stands to reason that many households chose to use THs not because they were thinking explicitly about the culture of their villages or the advice of others, but because they panicked and reacted emotionally – willing to do whatever they could to get themselves of their family members better.

Psychological Processes: Cognition

While some households mentioned that they acted impulsively and often irrationally in response to heightened emotions brought on by an illness, other households talked more rationally about their decision-making processes and the trial and error they used before seeking TH care. For these households, THs were often not a first resort.

Several households talked about using allopathic providers first, and only consulting THs when government providers or private doctors failed to work.

> *"The treatment at the SHP wasn't useful, so we consulted the TH." ~S-NK-5.2 (17, F)*
>
> *"I usually don't believe in such things [like TH]. When the doctor couldn't do anything, we thought we should try a TH and went to one too. The TH also couldn't do anything. Since then we have been to 5-6 different THs." ~S-AB-5.1 (24, M)*

Using the TH was an afterthought for some households – something they did because of the failure of the government services.

> *"I don't know why I went there [to TH]. Likely because the hospital couldn't cure my illness. When I went there [HP] the main person [HA] wasn't there and he [peon] gave me free medicine. I told him that I was ready to pay for quality medicines, but he didn't have the keys and told me to try the ones he gave me instead. So, I went to the TH." ~T-NK-9.4 (35, F)*

So those households which opted for TH care after allopathic care often did so because they were guided less by emotions and more by rational cognitive processes.

Reasons for Not Using Traditional Healers

Those households which chose not to consult THs in their care-seeking pathways often mentioned one of the following three broad categories as part of their reasoning process: emotional processes, individual beliefs, or provider characteristics. More specifically, they talked about negative past experiences with THs, lack of belief in supernatural aetiologies, and hidden costs of using THs.

Personal Psychology: Attitudes and Expectations

The most oft-mentioned element of the emotional attitudes toward THs was past experience. Although this did not arise in the quantitative models, many of the households which no longer used traditional healers stated they had used them, but had become disenchanted with them when the healers failed to succeed for a specific illness episode. As a result, many households resolved not to use them again. One particularly illustrative case was one woman's narrative of her brother's TB, which the TH was unable to treat:

> *"I don't have good knowledge about diseases. They play some advertisements on the radio about diseases, saying THs can't cure illnesses of the heart, lungs etc, but they are right. TH keeps on asking for chickens and goats and says that this spirit has done this and that's why the person is about to die. My younger brother had spent 2-3 thousand rupees including treatment at a hospital. During that treatment the TH had even sacrificed seven chickens per day. But still it didn't work out. And at last the TH told him to go to Hetauda [DH]... At last, on March 4th, he discharged blood from his mouth. People said he wouldn't survive, but one has to hope until his last breath. We went to Hetauda [DH] and went through an X-ray and a blood test. They told us to bring his sputum for a check-up the next day and he was diagnosed with TB...What did the TH do? What did those chickens and goats do? He followed the medication for seven months and now he is completely fine....After this incident I learned that we shouldn't consult THs for most cases. Otherwise, what did that chicken, chanting and incense do for my brother?" ~P-RS-7.2 (44, F)*

Another illustrative case was the story of one family whose son died after being treated by a TH. They subsequently converted from their native religion to Christianity, vowing never to seek the assistance of a TH again.

> *"I took him [my son] to the traditional healer to dispossess him. I don't think anything happened [from the TH], so I converted to Christianity after my son got sick. I used to believe in the previous religion. I took him to traditional healers. Nothing worked and I stopped believing. I was barely able to provide treatment for him and I brought him back home...I stopped believing in my religion...Now, if I find myself in trouble, as a Christian, I pray – that is it!" ~T-NK-9.5 (22, M)*

While many families, like those mentioned above, lost faith in THs because of particular incidents in which severe illnesses were not cured, other families mentioned a more general sentiment that THs had lost their overall effectiveness and had become antiquated.

> *"I don't go to the TH because I am worried it will become a habit. I go to the SHP sometimes and get medicines....I used to consult the TH long time back, but not anymore. Nothing comes out of it; They always say they need a chicken. I just don't bother with them." ~S-RS-1.5 (41, F)*

Another household spoke about THs as if they were anachronisms – a vestige of the tribal past. According to them, allopathic medicine was the way forward for quicker treatment:

> *"The days of believing in and waiting for the Jhankri's [TH's] treatments are gone. Waiting for his treatments to work can result in someone dying. If I take my child to the HP as soon as I see the symptoms, then it will be cured quicker." ~T-NK-9.1 (31, F)*

Yet another household spoke of THs becoming less effective with the passing of each generation due to the attrition of their spells as they are passed from one TH to another over time:

> *"Traditional healers use old spells. Maybe due to some reasons their spells have stopped working. They don't give pills or syrup. All they do is beat those drums. They are only effective against evil spirits...Still, now they are using old spells. Let's say you are my teacher, and I am your student. You give your spells to me and let's say if I forget something in the spell then I'll use only what I remember. And again, if someone else becomes my student and learns the spells which are incomplete. And again if the forgetting process continues from one to another to another, those spells might not work in the end." ~T-AA-1.4 (35, M)*

Other households were even more critical, calling THs frauds not worth consulting, although the reasons for these opinions may have had more to do with negative past experiences than with modern thinking:

> *"They look for an excuse to kill as many chickens as they can. In the end, the person has to be taken to the doctor anyway." ~S-AB-1.5 (50, M)*
>
> *"The behaviour of a doctor is better [than a TH] because they are educated and literate, while THs are not. I feel like THs are frauds. They only try to deceive. Do you believe in their nonsense like being cursed of being cured by sacrificing cocks and goats etc.... I don't think so!" ~P-AA-1.6 (23, M)*

Personal Psychology: Beliefs

Consistent with some of the preliminary regression models, which indicated a relationship between multiple aetiology beliefs and TH usage, other households in the qualitative sample explicitly stated that they predicated their decisions not to use THs on their illness aetiolgy beliefs. It was not that they had lost faith in THs so much as the fact that they simply did not believe that spiritual forces were responsible for illnesses, and therefore did not see the need to consult THs.

> *"I don't believe in ghosts or spirits. People living in Kathmandu don't seek care from traditional healers. They go to doctors only!" ~T-AB-1.3 (33, F)*

Provider Characteristics:

While the majority of households cited that they chose not to use THs for more personal reasons, a few households did mention cost as a reason for not using THs, which was not something that appeared in the quantitative results. THs, according to one household, are actually quite expensive compared with hospital services.

> *"The traditional healer does charge. It is even costlier for a serious illness. It requires the offering of a goat. It is cheaper at the hospital. We end up losing a chicken and about 1,000 to 2,000 rupees if he [TH] chants mantras" ~T-RS-4.5 (60, M)*

Other households also referred to the hidden costs of TH services – the sacrificing of chickens and goats (as is mentioned in several of the previous quotes). One household mentioned the TH's constant demands for sacrifices.

> *"In the village, a chicken is always required as a sacrifice. People go and ask them [TH] to determine what illness they have. The healers do so and ask for a big chicken...I have seen it happen to other people." ~S-AB-2.4 (38, F)*

The lack of sacrificial animals even prevented several households from utilising the TH's services. One household had not yet consulted the TH, even though they wanted to, because they did not have the funds for the animals.

> *"Right now I do not have enough money to get two chickens for the TH. I will get two chickens when I have enough money." ~P-RS-7.4 (49, F)*

Whether it is an issue of a bad past experience, a general lack of trust, or a more logistical issue of costs, an increasing number of households no longer use TH services amidst the many dogmatic households who still do.

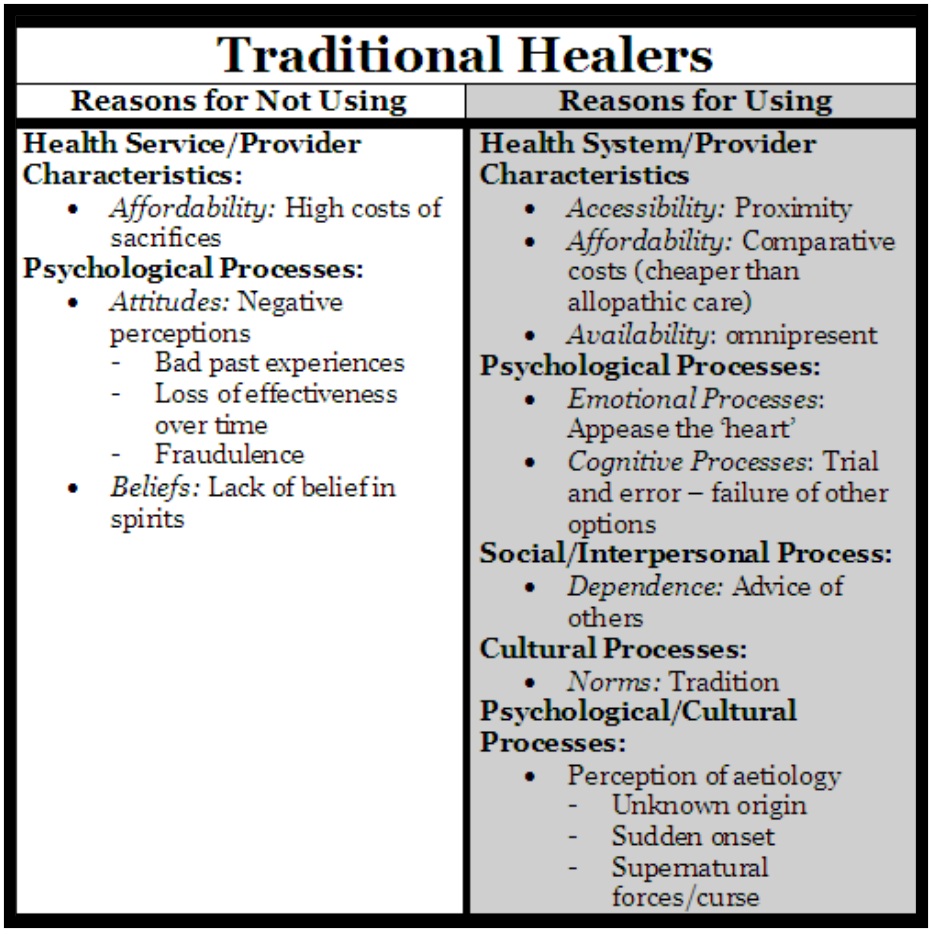


Figure 7.25 Summary of the reasons people gave for using or not using traditional healers.

7.5c When to Use a Doctor Versus When to Use a TH

Since traditional healers are the traditional form of treatment, it seems appropriate to examine specifically how households decide to use a TH over an allopathic provider. Indeed, there seems to be a set of rules to which most households subscribe – not so much to use one or the other but the order in which to use them.

Most of the decisions about whether or not to use TH or allopathic care first have to do with the nature of the disease. For many households, as was mentioned in

the section on the reasons for usage of THs specifically, certain illnesses were the purview of the TH and others were the purview of allopathic medicine. Depending on which category an illness falls into, a specific provider was to be utilised first. Some of this decision process had to do with the specific symptoms an individual was experiencing. For example, illnesses that involved vomiting, dizziness or sudden pain were for THs first, while headaches, coughs or difficulty breathing were for allopathic providers.

> *"THs can only treat illnesses that are caused due to ghosts or spirits and for pain that occurs suddenly... When you feel your blood pressure is high and when you are vomiting, they can heal you. The THs are also important and so are doctors. When it is hurting somewhere, when one has a headache, a cough or difficulty breathing, one should go to a doctor. If one feels dizzy, one should go to a TH, and if that doesn't help then go to a hospital." ~S-NK-5.3 (46, M)*

These rules are not just about specific categories of symptoms, but also about the evolution of the symptoms. For example, if pain is localised, it is an illness for allopathic professionals, but if it radiates, THs should be consulted first.

> *"..If pain starts suddenly in a certain part of the body and moves to other parts of the body gradually, then we consult the TH. If the pain doesn't move to parts of the body other than the initial part, then we go to the hospital." ~S-NK-1.1 (24, M)*

As can also be seen from the above quote, the decision is not solely restricted to the types of symptoms experienced, or to their progression, but also to the timing of their onset. Sudden illnesses were for THs first, whereas more gradual ones were for allopathic medicine:

> *"For sudden illness, it [TH] works quite well, but for other illnesses, not so much...I think one should go to the hospital. If someone has a sudden illness or vomits without any reason they should consult the TH. However, if the illness continues 1-2 days after consulting the TH, then they should either go to the hospital or the health post." ~S-NK-1.3 (35, F)*

> *"When someone suddenly faints and no one knows what caused it, then we seek a TH suspecting the influence of spirits. If someone becomes sick gradually, then they go to the health post. But, if the illness comes suddenly with vomiting, then we suspect that spirits caused it." ~S-AB-1.6 (25, F)*

Still, the decision rules are not just pertinent to symptoms alone, but also to aetiology beliefs (which may manifest themselves in certain categories of symptoms). Illnesses thought to be brought about by external factors are for THs first, illnesses that arise from within are for allopathic medicine first:

> *"If a disease is generated inside your own body, then medicines from the HP will work, but sometimes evil spirits pass through the human body, which leads to heart pain and vomiting. So, to cure that, a TH is called…Both the services of the TH and the health post are equal, I guess." ~T-AA-1.3 (43, F)*
>
> *"I trust doctors more because they are able to cure inner diseases, but the TH is only able to cure diseases outside the body. I think, though, that the people who rely* ***only*** *on the TH, die." ~P-AA-1.4 (33, F)*

For some households, it was about the distinction between illnesses of the body – physical concerns (for allopathic care) -- and illnesses of the soul – emotional concerns (for TH care):

> *"If the body has already physically suffered, then THs cannot do anything. But, if you live with worries, then the doctors can't do anything. I think they are equal." ~T-MG-1.6 (21, M)*

For other households it was about the illness severity. More severe illnesses also required the TH:

> *"If the illness is very serious, there is need of traditional healing, and we seek it. Otherwise, we just go to the hospital." ~T-AB-1.1 (30, F)*

For illnesses of children, these same decision rules hold up. For illnesses with an unknown cause – manifested as shock or continuous crying –consult the TH first.

For diseases/illnesses with a known origin or cause, consult the allopathic professionals.

> *"In the village we believe in both kinds of healing – traditional healing and healing using modern medicines. When it is the case of spirits, the TH can heal it, but in the case of a cough, the TH cannot...For example, if a child gets shock or frightened, experiences pain and cries continuously, we call a TH. However, when the child gets cold and cough or fractures its limbs, then we take the child to the hospital." ~S-NK-1.1 (24, M)*

So, too are certain categories of symptoms in children also considered to be the domain of traditional healing, while others are the domain of allopathic medicine.

> *"There are some cases in children that need TH's consultations, while other that need medicines. If they are vomiting, then they should be taken to the TH, and if they have a fever, cough etc., they should be given medicines." ~S-MG-8.1 (29, F)*

Together THs and allopathic providers/services can cover the entire spectrum of symptoms, illness aetiologies and illness courses. As a result, most households felt that it was bad to use only one of them, and that both had to be trusted and used in combination.

> *"I believe in both doctors and THs. As the TH has been able to cure my illness slightly, I believe in him too. The doctors are very important and THs are important in come ways. But the THs aren't as important as the doctors." ~S-AA-8.1 (18, F).*
>
> *"He [TH] comes and examines the pulse, but I didn't depend on the TH only. The fever got aggravated and after that, no matter how much medicine I gave her, it didn't work. So, after that, I sought care from the TH and it worked. I think both treatments [TH and HP] help. It is not good to believe in only one type of treatment." ~T-AA-4.5 (25, F)*
>
> *"I went to the TH after the health post. You can't completely have faith in the health post – I feel like you should also use the TH." ~T-MG-3.1 (30, F)*
>
> *"The tradition passed from several generations of collecting herbs in the jungle to consulting THs to finally getting examined by doctors. I feel that doing both at the same time will cure me." ~P-NK-1.3 (77, M)*

Many households simply felt for whatever reasons that they could not solely rely on one provider in isolation.

> *"Sometimes it is possible [to be influenced by evil spirits] you know. But we cannot totally rely on the TH. It is okay to follow him once or twice with all those burning of incense and throwing of rice grains, but we have to visit the medical of the health post later. I feel that only relying on the health post, hospital or TH is also not enough." ~P-RS-7.2 (44, F)*

Taking people to multiple providers was thought to expedite the recovery process:

> *"The patients here are usually taken to the TH first and then to the health post. I will take him [son] there [TH] and on my way back to the health post. I think it will help him recover quicker." ~T-RS-3.1 (20, F)*

In part, though, the reason for consulting with multiple providers may have also been predicated on something more practical -- not wanting to offend any individual provider.

> *"We should see and consult here and there. We have to see and consult both ways [traditional and allopathic]. We should be cautious where we go because it might cause heartache in one of the providers if we go to one and do not how the illness to the other." ~P-NK-1.6 (28, F)*

Or these consulting patterns may have had something to do with the fact that the methods employed by both providers were distinct. THs simply did things doctors could not, and doctors did things THs simply could not – they complement one another.

> *"There are certain traditional healers that until they put a spell on the people suffering from heart ache, they don't get cured at all. For these types of cases only they can do it. Those types of THs I believe in, but I also believe in doctors." ~T-AA-1.1 (77, M)*

Or the consultation process may have been motivated by completely impractical reasons – a willingness to try anything and everything that could potentially help with the recovery.

> *"If the treatment could heal you, then you have to understand it is a good influence. We have also gone there [to TH] because we like the treatment. But we did not only rely on the TH, that's why we also went for treatment [at pharmacy]. We took advice both from the TH and the medical." ~P-AA-1.3 (28, F)*

In many cases, though, when someone in a family was healed after having sought care from multiple providers, both were attributed with the recovery process:

> *"The TH also helped her [daughter] get better. As did the medical. We need TH and we need medicals. Everything has to work out." ~T-MG-3.5 (35, M)*

So, while it helps to look at each provider in turn and determine the specific reasons why each household may have selected a specific provider, which is what has often been done in other HSB studies because it is much easier to quantitatively analyse this type of data, this creates a false dichotomy between traditional care and allopathic care that really does not exist in the majority of health decision-making within the Nepalese context (although this might be changing somewhat). Health decisions are usually not a zero sum equation, so even if a household opts for an allopathic provider, it does not mean that they do not believe in traditional healers or that they will not use them later in their health pathways. These decision rules, however, which have been culturally and socially shaped and defined, make it easier for households to decide when to seek certain providers first. When dealing with THs vs. allopathic medicine this

decision is usually predicated on the nature of the illness more than anything else.

7.5d Allopathic Providers: Government Care

The use of allopathic providers, although not as deeply rooted in culture as THs and herbal medicines, is every bit as important to examine. The quantitative models indicated that patient gender, illness type, illness severity and health system knowledge were all associated with usage of allopathic care first (Model C.2). When looking at specific provider choices, patient gender, patient age, health facility quality, illness severity, illness type and knowledge also were associated with usage of allopathic providers versus THs (G Models). Some of these factors were echoed in the qualitative results while some seemed to be only a product of the subconscious decision-making process revealed by the quantitative analyses. The qualitative results, however, not only helped to explain some of the quantitative findings, but also built on them by allowing for the exploration of some areas which had not been covered in the regression models.

Reasons for Using Government Services:

Since the reasons households cited for using FCHV services differed somewhat from the reasons they cited for using facility-based care, it makes sense to look at each separately:

Reasons for Using FCHV:

When it came to the utilisation of FCHV services, the quantitative models illustrated that households nearer to poorer quality government facilities, households experiencing less severe illnesses and households experiencing parasitic/infectious diseases were all more likely to use FCHV services over facility-based government care. While few households in the qualitative sample actually used FCHVs as part of their normal care trajectories (most felt the FCHVs were useless for treating illnesses), those who did mostly focused on the enabling factors which influence their decision-making.

Enabling Factors:

For most households that used FCHV services, convenience and proximity dictated the decision. Basically, the FCHV's house was nearby:

> *"At first I must go to the FCHV nearby. If the treatment she offers doesn't help, then only do I go somewhere else. Her house is nearby here." ~S-MG-8.1 (29, F)*

Not only did households appreciate her proximity, but the fact that she was readily accessible at all times of day:

> *"I like the fact that she replenishes her stock of medicines on time. There are always problems when it comes to children; illnesses occur regardless of the time of day. The situation is good here. I can go nearby and get medicines." ~S-MG-8.1 (29, F)*

She was available even when nobody in the health post was:

> *"Sometimes there is nobody in the health post, but we know where to find the FCHV and she definitely has medicines." ~S-AB-2.4 (38, F)*

More, her services were especially useful during the rainy season when households had difficulty reaching government health facilities. For example, one

such household, located across the river from the government health facility, spoke about the quality of FCHV services and her convenience during the rainy months.

> *"She gives advice and suggestions and visits households. I am also benefitting. She provides suggestions, and during the rainy season we get medicines for diarrhoea from her. She has done a lot." ~P-NK-4.2 (25, F)*

Obviously the quality of FCHV services from one ward to the next is quite variable (something which came up in the surveys and in the FCHV background interviews), but for those who utilise her services, it is her convenience above all else that makes her the ideal first step in a household's care pathway.

> *"I always consult with the FCHV first, and after that she tells me if I should go to the health post." ~T-AB-1.1 (30, F)*

Reasons for Using SHP/HP/PHCC/DH:

While the reasons households adduced for using FCHV services were straight-forward and consisted largely of elaboration of some of the enabling factors, the considerations households cited for influencing their decisions to use other government services were more complex and not only elaborated on the predisposing, enabling and need factors, but also cited interpersonal processes and individual cognitive process.

Predisposing Factors:

Although the quantitative models only indicated that lower ward-level SES was associated with greater likelihood of using government services over private services (Model D.3), it stands to reason that household-level SES might also

impact the decision to use government providers over other options. Although several households mentioned that the corruption in the government services and their requisite costs as their reasons for not using government services over TH services, when comparing use of government services to other private options, it makes sense that household finances would factor into the decision-making.

For some households it was an issue of weighing the relative costs of seeking care elsewhere, but for poor households this was often not an option.

> *"I use the HP. If I were to take her [daughter] far away, where would I go? I don't have money. Poor people don't have money for the bus and then we need money for food." ~T-MG-3.3 (22, F)*

Poorer households simply did not feel they had the opportunity of seeking care in Hetauda or elsewhere, so their financial situation dictated their ultimate choices to use the government facilities in their own VDCs.

> *"Well, I don't have money. This [SHP] is where we seek treatment. His [son] father doesn't give us any money...People go to Hetauda as soon as someone is sick, or they take them to the next VDC. I do not have money, so I have to come here [SHP]." ~S-MG-4.4 (23, F)*

For those households which opted to seek care at the government primary care facilities nearest their homes, they did so because they felt that financial circumstances forced them to make that particular care decision.

For other, households, however, there were predisposing factors that enabled them to make the informed choice to seek government allopathic care over other options (namely THs). One household member explicitly mentioned higher-level

education as providing her with the skills to make an informed decision about the lack of efficacy of THs, and thus opt for allopathic government care:

> *"I don't really have faith in traditional healers. Maybe because I have received a quality education. When I am sick, I go to the health post." ~T-NK-9.3 (24, F)*

Enabling Factors:

Since households generally cited financial considerations as factoring into their decision-making process, it stands to reason that they would also mention the affordability of government services as a driving factor in their choice to use them. For poor households free services were certainly alluring.

> *"We don't have much money to spend on treatment, and they [PHCC] provide free treatment, so we went there readily." ~P-AA-1.5 (58, F)*
>
> *"It is because it [treatment] doesn't cost anything there [PHCC]." ~P-MG-2.4 (23, M)*

For some households, the prospect of free services even trumped the fact that government facilities only offered a limited number of medicines.

> *"We have this health post [PHCC] here in our village. We don't have to pay for small medicines. We are relieved since we don't have to go far for treatment...Some people don't like it; they complain about the medicine and say they only give cetamol [paracetamol], but I feel good. Even though it is cetamol, we get it for free, which is good in our area. I say, is it better to suffer or get the medicines for free?" ~P-MG-2.6 (34, F)*

Other households explicitly made the conscious decision to use government services instead of private services because of the cost differentials and the quality of services. One household even spoke about the fact that private clinics

often duped patients into purchasing more medicines in a disingenuous effort to increase their sales:

> *"Usually I go to the governmental health post [PHCC] because medicines are free and they also give advice and suggestions. They don't give large doses of medicine at one time, like they do in a private clinic, but in a private clinic they give heavy amounts of medicine just to increase their sales. They don't provide medicine next time. So, we prefer health post...Government is better. It is cheaper and suggestions are provided. They also prescribe medicines of various levels as per the child's requirements." ~P-NK-4.2 (25, F)*

As with the FCHV, for some households it was not just that government medicines were free or more affordable but that the facilities were more conveniently located:

> *"We live in a faraway village. The hospital is not nearby. Now, we can reach there at 11am if we leave early, but earlier it used to be a whole day worth of walking. It is very helpful that the health post is here. If the hospital were here, we wouldn't have to go anywhere else; we wouldn't have to spend any money. If we have to go to the hospital we have to spend money; we have to buy medicines whether they help or not. Here we don't have to buy medicines." ~S-RS-8.1 (61, M) [SHP]*

And the convenience of their location enabled households to save costs on transportation.

> *"The charge we pay for the treatment here goes to the transportation costs if we go elsewhere, so it is better that we treat here with that money." ~P-AA-1.1 (31, F) [PHCC]*

Some households focused almost exclusively on the accessibility of government services above all other considerations.

> *"Before, the medical was nearer than the health post [PHCC], but now the health post is closer, so that is why we go to the health post [PHCC] now." ~P-AB-2.6 (16, F)*

For many households, there was no debate: If we have the facilities here, why not use them?

> *"If the illness is treated in the village itself, why would we go far? That is how I feel." ~S-AA-1.3 (56, F) [SHP]*
>
> *"I thought, we have a health post [SHP] here, so why not go and see if I can be treated there." ~S-MG-2.7 (33, F)*

While affordability and accessibility mattered to most households, the quality of services also factored into several household's decisions.

> *"I went there [PHCC] with a hope that I would get better treatment by a good doctor. After all a hospital [PHCC] is a hospital [PHCC]." ~P-AA-1.2 (28, F)*

Within the larger issue of quality, some specifically cited trained government workers as driving their decisions to use government facilities.

> *"I thought, why take him to the medical when there are trained government workers in the health facility. That is why I took him to the health post even if I had to wait for two days." ~T-MG-3.1 (51, M)*

Even when compared to private facilities, government facilities were seen by some households as having superior, accredited health workers:

> *"It costs a lot of money to get services at a private pharmacy. More importantly, the health post [SHP] has trained health workers whereas a private pharmacy can be opened by anyone regardless of his/her qualifications. Here it's not that same as Hetauda or Kathmandu. So, I don't have much faith in them [pharmacists]." ~S-RS-1.1 (42, F) [SHP]*

Other households, alluding to profit-driven care, criticised the quality of the care provided at private clinics, which blindly prescribed antibiotics without any investigation. This was not the case at government facilities, where workers were said to have analysed the situation before prescribing treatments.

> *"If any patient visits [the PHCC], then they analyse the situation first. It is not like that in a private clinic, where they prescribe antibiotics or strong medicines for small diseases. In our understanding, examining properly they try to cure using normal/average medicines as far as possible." ~P-MG-2.4 (23, M)*

Still, a handful of households had a less positive vision of the affordable, accessible, quality government services, saying they used government services by default more than anything else. They felt their options for care were limited:

> *"We don't have other options in our village except this HP, so I thought about going there." ~T-AA-7.6 (20, F)*

Need Factors:

For some households, government services were perceived as being for minor illnesses, and thus care was sought at the SHP when the illness was not serious enough to warrant care at a bigger facility:

> *"If the illness is serious, then we go to a big hospital, but if the illness is minor, then we just go to the health post [SHP]." ~S-AB-5.2 (18, M)*

Social/Interpersonal Processes:

Although most households stated that the decision to use government services was predominantly guided by predisposing and enabling factors, with need factors barely registering, these decisions did not take place in a vacuum, and as such were also strongly influenced by interpersonal communications, and, more specifically, the advice of others in the community.

> *"The villagers also tell me to go there [SHP]. I should say I believe in them; they also frequently go there." ~S-MG-8.3 (26, F)*

Another household spoke about how the decision to take a child to the SHP was inspired by the advice of a neighbour.

> *"One neighbour told me to take my child there [SHP]. He told me I shouldn't keep him at home any longer and should get him checked up." ~S-AB-5.3 (28, F)*

In short, much as the community exerted a strong influence on the decisions to seek TH-care, the advice of others also seems to guide people to government health services, albeit in fewer cases.

Psychological Processes: Cognition

As much as the community exerted its influence on some households seeking government care, a lot of decisions actually came down to individual household attitudes and cognitive processes. These, in turn, were shaped more by past experiences with government services than anything else.

Positive past experiences with government services had a strong influence on whether or not households opted to use government services in the present or future. One man spoke about how his past experience with the health post guided him there for this illness.

> *"Nothing helped me, so I went to the HP. I used to go there before when I was ill….I thought I had to go to the HP." ~T-AB-1.5 (57, M)*

Another woman spoke about how her positive childhood experiences with the PHCC influenced her present care-seeking decision:

> *"I don't take advice from anyone. I knew to go to the PHCC myself. When I was a child, I used to go to the doctor there for treatment and it worked on me. I don't believe in medicines from the forest or anything. So, I feel like that for my children too." ~P-MG-2.6 (34, F)*

Yet another household mentioned that they were optimistic about treatment at the government health facility because they had been treated there successfully in the past.

> *"During that time, when his [son's] arm was broken...I can't explain how much he cried – he yelled from pain. That doctor [HA at PHCC] healed my son, so I had a feeling that treatment from him would cure, so I went to him again later for care." ~P-AA-3.1 (40, F)*

There were also person-to-person considerations. One of these was the relationships households formed with individual providers.

> *"When I went to Hetauda to get my leg examined, the doctor explained everything in detail to me. When he asked me how my leg got injured I lied and said there was a fight among my husband and brother and that I accidentally got hit. He knew I was lying and told me I was very brave to have gone to the hospital [DH]. He talked to me very nicely....So, I went back when my son got injured."~S-RS-1.2 (37, F)*

Another element in seeking care was the confidence engendered by the length of time a facility or doctor had been in the community.

> *"I rely pretty much on the HA here [at PHCC] because he has been living here for such a long time. I can trust him." ~P-MG-2.6 (34, F)*

The decisions were not always guided by expectations, however. Sometimes the decisions were made simply because a household did not really know what to do and did not want to expend the energy to attempt multiple treatment options.

> *"I am not the type to go here and there, so I don't know what is good and what is bad. All I do is go to the health post. It's up to them to do what they can. If they don't, I just come back home." ~T-AA-1.2 (58, M)*

For other households the decision was not so much predicated on positive expectations or on confusion so much as it was a rational decision made through a process of elimination. If other options had been tried unsuccessfully, eg., herbal medicines, the government facility was the next logical step.

> *"I tried my best to be cured by herbal medicines, but after taking them for so many times it didn't help. Then I went to the HP." ~T-AB-1.5 (57, M)*

Or the next step after THs:

> *"After the THs couldn't do anything we thought we should take her [daughter] to the health post [SHP] for treatment." ~S-AB-1.5 (50, M)*

For others, the government facility was the last resort when all else failed:

> *"When other options are unable to help, we go there [SHP]." ~S-MG-8.1 (29, F)*

In short, the decision about whether or not to use government providers involved household demographics, health facility characteristics, social interactions and other individual cognitive processes guided both by expectations and by trial and error.

Reasons for Not Using Allopathic Services:

While, as discussed in the previous sub-section, the main reasons most households had stopped using or failed to use THs were emotional, the main

reasons households cited for not using allopathic services were mostly logistical – financial reasons, time constraints, distance etc.

These reasons did not differ much between those households selecting not to use government services or those selecting not to use private care services, but for the sake of simplification, we will look at the reasons for not using each in turn.

Reasons for Not Using Allopathic Government Services:

Many of the reasons explicitly cited by households for not using government providers for a particular illness were consistent with the findings from the quantitative survey data analyses – costs, health facility quality, illness severity, distance - although the qualitative data also introduced several additional barriers to care seeking which were not part of the survey findings – loss of faith in services, permission from other household members and time/workload constraints. These responses have been grouped according to predisposing, enabling and need factors, in accordance with the quantitative data.

Predisposing Factors:

It is understandable, however, that most households mentioned costs as a reason for not seeking allopathic government care, even if services are allegedly free. Consistent with the findings from the regression models run on the survey data, which indicated that poorer households were less likely to use services outside of home care and that subsistence farming households were less likely to use allopathic providers over traditional healers, when these households were

explicitly asked about the reasons for not seeking care from the SHP, HP or PHCC, many mentioned financial concern as a problem (even at the primary care level). These financial concerns often stemmed from the reliance on subsistence farming in many of the villages.

> *"The major issue is that there's not much earnings in this hilly village. The sons are engaged in their own lives even if they come home sometimes. They also don't earn that much; they're managing basic personal expenses. There's not much money in farming here either; it's hardly enough for basic expenses, let alone health services." ~S-AA-4.4 (68, M)*

Several households seemed paralysed by financial constraints, and as a result didn't bother to seek any type of allopathic care.

> *"Where would I go [for care]? We have no money. I'm not going anywhere now." ~T-RS-3.3 (63, F)*

Other households felt that they wouldn't be getting quality medicines at the primary care facilities unless they were willing to pay for them. As a result, they did nothing to treat their illnesses.

> *"I keep thinking I could be feeling healthier if I were taking good medicines. However, I don't have money to get the good medicines. I keep thinking I should take vitamins and injections that give strength, I am very weak. Because I don't have money, I cannot do anything." ~S-AA-1.3 (56, F)*

Financial constraints also prevented many households from seeking care from government facilities beyond the primary care level, even when they were necessary:

> *"Well, I don't have money to go to another health facility. This [SHP] is where we seek treatment. His [son's] father doesn't give us any money...People go to Hetauda [DH] as soon as someone is sick if they take them to the next VDC. I have not got any money, so I use the SHP." ~S-MG-4.4 (23, F)*

For many households, though, it was not just an issue of the costs of services. There was also the time that seeking care would require – the time away from work and the time away from family responsibilities. This is time few households have:

> *"Yes, indeed it [SHP] is free, but it takes a lot of time once you go there. They take great care of emergency patients, but aren't very attentive to other regular patients. I usually don't have a lot of time, so I don't go." ~S-AB-2.4 (38, F)*
>
> *"She [neighbour] had told me her child was sick and was saying we should go down to the plains [SHP] to get the child examined. I told her I couldn't as I didn't have time. She also didn't end up going." ~S-AA-8.2 (25, F)*

Even an FCHV herself admitted she didn't have time to get care:

> *"I haven't done anything other than drink warm water. Everyone tells me I should be better about seeking care as I am the FCHV myself. I cried while I talked to my son and asked him why he hadn't inquired about my health after I have been sick for so long. He asked me why I hadn't seen a doctor yet despite understanding what I needed to do regarding my illness. I alone have to work in two capacities. So, it is hard to manage time for everything. If someone comes to seek advice, a part of my day goes by." ~S-RS-1.1 (42, F)*

For other households it was not just the amount of time required, but the logistics of finding someone to look after the children if one were to seek care outside of the home:

> *"What can I say? There's no one at home to help me with my work. I have to work no matter what. I tie a cloth around my head when my head aches...I worry who would look after the house and where would I get the expenses from if I have to go to the hospital. I also worry, wondering who would look after my son and what would happen to him...So I didn't do anything. When the pain was intense, I rubbed my stomach and cried. Then, I tied a shawl tightly around my stomach and continued what I was doing." ~S-MG-3.5 (22, F)*
>
> *"The AHW told me to bring him [son] back after six months, but I couldn't do it. The expense is significant, and I have to go by myself – his father wasn't there. I have two other daughters. Who could I have called upon? So I didn't go, and I sometimes think that maybe that is why he is sick...The AHW told me to bring him, but I couldn't; these are the difficulties of living in the village." ~T-MG-3.1 (30, F)*

And there was another factor. For some households it was about getting permission from the head of the household to seek care. In several households where the females were interviewed, they mentioned being thwarted from seeking government care because of their husbands or fathers. For example, one woman mentioned her husband never allowed her to seek care from any providers, government or otherwise.

> *"Sometimes others go to Hetauda for checkups, but my husband doesn't allow me to go anywhere for care. Because my children died before, he doesn't trust the services and doesn't think I should go anywhere for treatment. It is a pity." ~P-RS-7.4 (49, F)*

In short, household SES and household dynamics dramatically factor into the overall health-seeking decision process.

Enabling Factors:

Predisposing factors, such as costs, workload or household SES, however, were not the only things that seemed to prevent households from seeking care from

government providers. Households also mentioned several enabling (health service) factors as contributing to their decision-making processes. Specifically, several households mentioned the poor quality of government services as their reasons for not using them. This finding was consistent with the findings from the quantitative analyses, which found that households were less likely to use allopathic providers if the nearby government facility was of lower quality.

Even more specifically, the lack of available providers at government facilities was one reason cited by households for not availing of their services.

> *"If they [government health workers] stayed there, it would be helpful. The only person who is there is the FCHV and she isn't even given a room. The AHW sometimes doesn't show up in a whole month. We have to go there and keep waiting despite it being so far. Who would want to go there?" ~S-AA-8.2 (25, F)*

Lack of useful diagnostic equipment was another reason cited by households for not using government primary care facilities.

> *"The HP lacks equipment, so we don't go there." ~T-AA-1.3 (43, F)*

Expired medicines were yet a third reason also cited as a deterrent.

> *"Even the HP here only gives expired medicines, so why go there?" ~T-MG-3.4 (64, M)*

Some households mentioned a more general loss of faith in the primary care facilities because of the lack of adequate services. One household, for example, mentioned that they had stopped using SHP services because of their dissatisfaction with the overall services there:

> *"Nothing is determined at the SHP. I have stopped going there." ~S-NK-5.1 (42, F)*

Even when households did decide to attempt seeking care from government providers, they were often thwarted because of absenteeism. One household spoke about their attempts to utilise multiple government providers for an illness before finally giving up:

> *"I went to the FCHV, but she didn't give me the medicines. Her services are only for children under the age of five. And when I went to the health post [SHP], the doctor [AHW] wasn't there and the MCVH was also at home. So I gave up." ~S-MG-3.5 (22, F).*

For many households, it was not just an issue of quality of services, but also of the costs of services. Even though government services are supposed to be free, high levels of corruption, as discussed in Chapter 4, means they often are not even at the primary care level.

> *"They charge money for medicines. We cannot manage money that easily in the village. Those medicines [at HP] are from the government. Who should be satisfied if they have to pay for medicines sent by the government? No one from this village is satisfied with that, not just us. We don't use their services. There are many people in this village who have less than us. If they fall sick and don't have money, won't they die? There's no treatment here without money. Even if they treat us, they charge us. I mean, if people have money, they take it, but those people who don't have money for treatment, won't they die? For people in our village, making money is not so easy. Female labourers make about 100 rupees a day and if old people go for labour, they earn only 1 litre of oil." ~T-AB-1.4 (33, F)*

Beyond the quality of the facilities, accessibility may also deter families from seeking care there, which also integrates with the time factor.

> *"It [the HP] is there. It takes about one hour to reach. If you have to go there carrying a child, though, then it will take one and a half or two hours. So, we cannot always go." ~T-AA-4.5 (25, F)*

This was also consistent with the quantitative models, which found that households were less likely to seek outside care if the government health facility was further away from their homes (Model D.2)

For many, households, however, in addition to the issue of distance was that of terrain, which led households to attempt more vigorous home remedies before seeking care from government facilities.

> *"He is a 2 month old child. It is hard to carry him around, and we have to walk uphill and downhill to get to there [SHP]. So, I am trying to treat him at home as much as possible." ~S-MG-8.3 (26, F)*

And especially for females in the household there was the concern of travelling alone that prevented them from seeking care at government facilities.

> *"It is a long way [to the HP], how can I go there alone?"*
> *~T-NK-7.6 (28, F)*

What was found to be the case for the utilisation of facility-based government providers, was also found to be the case for utilisation of the FCHV's services. If the FCHV was inconveniently located, households did not avail themselves of her services unless she came to them.

> *"She [FCHV] is at the bottom of the hill, and we are at the top. So we usually don't go to her unless she comes to give polio vaccinations or vitamins" ~T-NK-7.6 (28, F)*

In short, the quality of government facilities and accessibility also strongly influence households' care decisions.

Need Factors:

While predisposing factors and enabling factors were both often mentioned by households as influencing their decisions not to seek government care, need factors (such as illness severity) were also mentioned by several households, albeit much less frequently, as the driving force behind the decision-making process.

For several households, certain illnesses were not considered severe enough to necessitate utilisation of allopathic services. This finding is also consistent with the findings from the regression models, which showed that households were less likely to seek care outside of their homes (Model D.2) and were more likely to use traditional healers versus allopathic/pharmacy care for less severe illnesses. A handful of households said that if they did not think the illness would result in death, they did not bother seeking allopathic care:

> *"I never fees like it will kill me; it hurts for a bit and disappears. I shouldn't go to see a doctor or go to the SHP when the symptoms are so minor. Even then, who does that without being critical?"*
> *~S-AB-1.6 (25, F)*

In short, illness severity also matters when it comes to households' care decisions, but overall, households seem less acutely aware of the impact of illness severity on their choices, and they often do not cite lack of illness severity as a major determining factor in not seeking allopathic government care when explicitly asked.

The reasons for using or not-using private services were a bit less convoluted.

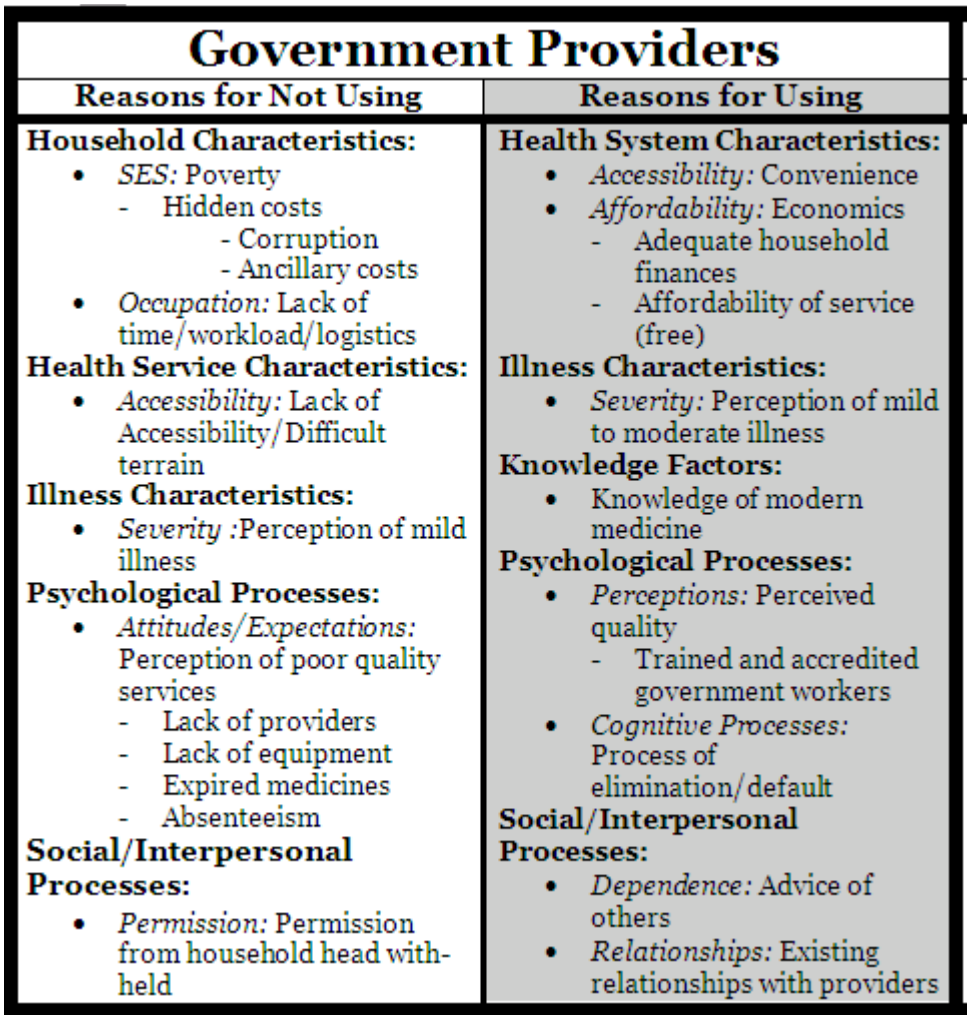


Figure 7.26 Summary of the reasons people gave for using or not using government providers.

7.5e Allopathic Providers: Private Services

Reasons for Using Private Services:

Despite their higher costs and despite their logistical constraints, many households still opted to seek care from private providers or facilities rather than from government providers or traditional healers. These decisions, according to the qualitative results, seemed to be primarily determined by enabling factors,

although need factors, interpersonal-processes and individual cognitive processes were also mentioned as contributing. Since none of these factors arose in the quantitative analyses, the qualitative data really enabled an understanding of these behaviours.

Enabling Factors:

If a household is going to opt for care at a more expensive facility, it stands to reason that other aspects of that care must trump the costs. For many households, the superior quality of the care provided at private facilities was what led to their utilisation of these facilities over other options. According to one household, the primary care facilities provided superior and more efficient services than the government alternative.

> *"The doctors there [at the private facility] check on patients frequently; they ask how you they are feeling from time to time. Compared to the government hospital [DH], you receive faster service at this hospital. However, they do charge a lot of money, but at the government hospital one has to wait 4-5 hours to be examined by the doctor."*
> *~S-NK-5.3 (46, M)*

In fact, for some households, it was not so much that they felt private services offered such excellent care, but that, despite the fact others extolled the trained government workers, that government services offered such poor care these households had to seek care elsewhere.

> *"What should I say? Medical officers here [at PHCC] lack qualifications and experience. Even for a normal fever, they give 2-3 bottles of saline water along with injections and vitamins. Costs come around 800-900, but still they are unable to cure the disease. Sadly, we are forced to seek other ways at 'bigger' facilities [private facilities]" ~P-MG-8.1 (33, F)*

Or they complained that government facilities lacked necessary medicines, so drugs would have to be procured from elsewhere, even for more commonplace illnesses.

> *"They [the staff at the HP] said they didn't have the medicines for pneumonia, so I would have to go to Pakanai hospital [private hospital]." ~T-AB-1.4 (21, F)*
>
> *"Now we get the medicines from another health facility. I brought the letter from Kanti [private hospital] and took it to the health post here. They told me that the medicines [for TB] are not available here and I would have to buy it, and that I should get it from the same place that I got it before [a private facility]." ~T-NK-9.5 (22, M)*

Or they complained that staff at the government facilities were unavailable in times of need, forcing households to seek other care options.

> *"There was no doctor at the health post [SHP]. Perhaps it was vacation time. There was no one. We didn't go to Hetauda [DH] or Bhimphedi [PHCC], but went straight to Kathmandu [to a private facility]..." ~S-AB-5.2 (18, M)*

In some cases, health workers at government facilities actually referred households to private facilities with the realisation that their own treatment could only do so much, and that private services (located in bigger cities) were superior.

> *"He [AHW at HP] told me that if this medicine doesn't work, then my son has to be taken to Kathmandu [to a private hospital]. He told me, 'this is all I can do, if my treatment doesn't cure him, then take him to Kathmandu." ~T-AA-1.3 (43, F)*

So when households opted to use private services, it was often in part because of the failure of the government services and not so much an explicit recognition that private facilities were of superior quality, although this recognition may have been implicit in some of the responses.

Social/Interpersonal Processes:

Once again, it is virtually impossible to tease out the influence of others within the community or extended family on the care decision, though we know that social context matters. In fact, it is often the case that a household's perceptions of the quality of services are sculpted by those around them.

For instance, one family talked about how they chose to use a private provider in Kathmandu because others said it was the best option.

> *"We have people we know in Kathmandu. They said it [private hospital] was it was the best option and that everyone went there. So, we also went there directly." ~S-AB-5.2 (18, M)*

While for some households, interpersonal processes shaped their perceptions about the quality of private health services, for other families, interpersonal processes dictated even some logistical aspects of care seeking. One household said they took their child to a private facility because they were already going to Hetauda to visit another relative:

> *"My father was sick in Hetauda, so I could see him and also get my son examined [at a private facility there]." ~S-AA-8.2 (25, F)*

People chose private providers because they had family members or neighbours who guided them through the system and helped them to navigate it. For example:

> *"I go for treatment wherever I know people. My older sister is in Kathmandu, so I go there. She helps me." ~T-NK-9.4 (35, F)*

Need Factors:

While interpersonal processes had at least a small role to play in private provider choices, two households mentioned illness severity as yet another determining factor in their decisions to seek care from a private provider. It was almost as if households knew that certain illnesses were too severe to be treated by government facilities and necessitated care at 'bigger' hospitals. For most households, bigger seemed to be equated with better.

> *"If someone gets fatigued quickly and they cannot eat their food, this means they are serious. And then they cannot be cured here [at PHCC] and must be taken to a 'big' [private] hospital." ~P-AA-1.3 (28, F)*

Psychological Processes: Attitudes and Expectations

Finally, just as positive past experiences with government services can increase a household's likelihood of using them in the future, so too can negative experiences increase a household's likelihood of using alternative types of care. Positive and negative experiences shape a household's expectations for care, and thus indirectly determine its care decisions. For example, one household talked about how they always sought private care because they had witnessed many other people fall ill and fail to be treated at the government facility. In this case, they automatically expected to get superior care at the private facilities.

> *"I go to Hetauda or Kathmandu [for private care] no matter what the illness. Sometimes people fall sick in the middle of the night and have to be carried away. They are never treated at the SHP." ~S-NK-5.1 (42, F)*

Another household talked about their complete loss of faith in government providers because of one negative past experience. This negative experience

completely changed their perceptions of government services and dictated their future usage behaviours. They felt so strongly that they were even willing to overcome some of the financial barriers to private service utilisation.

> *"Yes, I took him [son] to a private facility. Once I took him to the government-owned clinic. They said the child this old cannot suffer from pneumonia. What is the relationship between a child's age and the disease! They should know the diseases! After that, I didn't go there again. Instead, I will pay money for the medical [private facility], but I won't go to a government facility." ~P-NK-4.1 (19, F)*

Once again, the reasons cited by households for using private providers illustrates that every health decision is extremely complicated and involves multiple different layers of explanatory variables and underlying processes. It is a decision guided by, among other things, the characteristics of the health system, by the identity of the illnesses, by the pressure of the larger social environment

***Reasons for Not Using Private Services*:**

When it came to households' reasons for not utilising private services, the responses focused almost exclusively on the financial burdens and logistical burdens and could be grouped once again according to predisposing, enabling and need factors.

Predisposing Factors:

Although the quantitative analyses showed that households located in more well-off wards were more likely to use private providers first over government services, (Model D.3), many households mentioned individual financial

constraints as preventing them from seeking private care elsewhere. When referring to reasons for not using private providers, many households echoed much of what was said about reasons for not being able to utilise government services – namely, the costs. But costs were even more pertinent in deterring people from using private providers especially when those providers were not local. In fact several households which did not cite financial constraints as preventing them from seeking care from government facilities within their own villages were daunted by the costs of seeking private care.

> *"Money becomes a difficulty for farmers like us. If it [an illness] can be treated here, it is fine, but if we have to go somewhere else, then we have to take a loan from someone. It becomes a problem as we don't have a job." ~S-AB-5.1 (24, M)*

The costs, then, were a function not only of treatment but of transportation and other aspects of the care-seeking process.

> *"To go to a 'big' hospital [private facility], most importantly, I would need money. I would also need a vehicle." ~S-RS-2.1 (50, M)*

Essentially, it came down to money:

> *"Money obviously matters. If you have to go to Hetauda [where most private facilities are], you would certainly need some money. There are transportation costs to consider and personal expenses to cover while you stay there. So the first thing you would think about is money. We have no other big problems..The most important thing you need in money." ~S-RS-2.2 (42, M)*

In one household, the wife of the head mentioned she has been unable to go to private hospitals ('big hospitals') to treat her recurring illness, after having already availed of the government services, because of money.

> *"I go to the health post,..that is all. I haven't been to the big [private] hospitals. Everyone tells me to go. I haven't gone because of financial problems...what could I do but not be satisfied with my treatment for now. Where would I go? I will just let it stay as it is. I will work and die like this. What would I do? I don't have money for treatment. I will rest when I am ill." ~S-RS-1.5 (41, F)*

Even for very serious conditions, households mentioned they were unable to get the next level of treatment necessary at private institutions because of financial constraints. For example, this is what one respondent said when talking about ovarian cancer:

> *"We have no property, nor are we rich. To have surgery and to remove my uterus takes a lot of money. How to treat it? I would rather take minor treatments. I just tolerate it." ~T-AB-1.1 (30, F)*

This is what another household said when referring to their daughter's serious heart condition:

> *"What can we do? If we had money we could think of some treatment options. We have a feeling that our daughter would be cured if we visit a big hospital." ~P-MG-8.2 (41, F)*

There seemed to be an understanding amongst households that if they could save up enough money, they could take advantage of private services in other areas.

> *"To make sure this illness doesn't happen again, I have to earn some money. Perhaps I can earn some money from somewhere, somehow. Then, I could spend around the 5,000 to 6,00 rupees to go to Bharatpur [ZH]." ~S-AB-2.4 (38, F)*

Put simply, many households chose not to seek allopathic care from private providers because of their financial situations.

Enabling Factors:

Obviously, when it comes to care-seeking, it is not just about the sending end of the equation; the receiving end also matters. While it was often the poor quality of government services that deterred households from seeking care there, it seems to be the prohibitive costs of private doctors that deterred many households from seeking care from them. This is where the predisposing factor of lack of money met the enabling factor of exorbitant cost. Many households felt you had to pay to get quality services (something which, one should add, several households also felt to be true of government services).

> *"Doctors are capable of doing everything if we are able to afford them. But, if we aren't, then they cannot help. If we don't have money, will the doctor treat us? No, they will leave us." ~P-MG-8.2 (41, F)*
>
> *"One obviously has to spend money if one wants to be treated." ~S-RS-1.4 (40, F)*

There was also the anticipation of how one would be treated without money. Several households felt they would be turned away by private providers.

> *"I'd get more treatment if I had enough money, but once you go to the hospital, be it you or me, it costs too much. That is too much for a poor man like me. What to do? For me, nothing is easy, as I am a man near to my last days. Wherever I go, until and unless I have money, I won't get treated. Isn't it true – for treatment I need money? Without money it will be like earlier times, no matter what the doctor did, I wasn't cured." ~T-AA-1.1 (77, M)*

Although costs of private services were cited by most households as the largest barrier preventing their use, location was mentioned as yet another barrier since private facilities were often not as readily accessible to most households as

government ones. Many households expressed a desire to seek private care elsewhere, but said they simply did not have sufficient time to do so.

> *"I would've liked to go to Kathmandu [for treatment], but I wouldn't have time for that. It is too far and too long." ~S-AB-1.6 (25, F)*

In order to get to private providers, household members had to leave their VDCs and travel by bus to Hetauda, something which was seldom easy and which did not always result in households getting the care they may have originally intended.

> *"I had left home saying I would seek treatment as much as possible. I didn't meet a doctor and it was getting late. I was afraid I would miss the bus...I didn't have time to go to the hospital, so I just got medicines from the shop." ~S-AA-1.6 (36, M)*

In short, the exorbitant costs of private providers and the logistics of getting to the private facilities were what prevented most households from seeking care from them.

Need Factors:

Despite the importance of need factors in the quantitative results, no households mentioned illness type or illness severity as being a component of their decision-making process about why they chose not to seek care from private providers.

Private Providers	
Reasons for Not Using	**Reasons for Using**
Household Characteristics: • *Occupation:* Lack of time **Health System Characteristics:** • *Affordability:* High expense	**Health Service Characteristics:** • Referrals **Illness Characteristics:** • *Severity:* Perception of severe illness **Psychological Processes:** • *Expectations:* Expectation of superior quality of service and care • *Attitudes:* Bad past experiences with government services • *Perceptions:* Perception of poor quality of government services - Absenteeism - Lack of medicines **Social/Interpersonal Processes:** • *Dependence:* Advice of others • *Relationships:* Existing relationships with providers **Psychological Processes:** • *Cognitive Processes:* Process of elimination/default

Figure 7.27 Summary of the reasons people gave for using or not using private providers.

7.5f Pharmacy Care

When it came to the reasons households cited for using or not using pharmacy care, it almost always came down to enabling factors:

Reasons for Using Pharmacy Care:

Enabling Factors:

Regardless of the greater costs, more households opted to use pharmacy care in response to their illnesses because of the superior quality services they felt were

provided there. For one, they felt the pharmacies had certain medicines which were not available at government facilities.

> *"I didn't go to the health post [SHP] because cough syrup isn't available there. That is why I went to the pharmacy. It would have been better if I had gone to Hetauda [DH], but I kept postponing going there." ~S-NK-5.1 (42, F)*
>
> *"Instead of going to the health post [SHP], I went straight to Hetauda [pharmacy]. The medicines that we get here [in SHP] aren't very good; they also don't have antibiotics. So, I went to Hetauda [pharmacy] with my elder sister." ~AB-5.1 (24, M)*

Households felt the quality of medicines and services more generally were superior at the pharmacy compared to the government facility. In part this was because providers were always available there when needed.

> *"There is a private pharmacy run by an AHW who is also a staff at the government facility [HP]. The service provided there is better than the health post, as good medicines are available there and the AHW is present there all the time." ~S-NK-1.1 (24, M)*

During the holidays when cases were urgent and government staff low, people preferred the pharmacy of necessity.

> *"We had taken him [son] to the medical [pharmacy] as well. Actually, the workers at the HP were off duty as it was the time of Tihar [holiday] and my son had started to look like he would die any second, so we had to take him to the medical after we went to the HP." ~T-AA-1.3 (43, F)*

These findings are almost counter-intuitive when compared to the quantitative results, which indicated that households closer to better quality government facilities were more likely to use pharmacy care first, but this could have

something to do with the socio-economic conditions of the surrounding community and the greater availability of pharmacy providers in them.

Other households felt they had to use pharmacy care because the government medicines were no longer effective on them since they had availed themselves of the stronger pharmacy medicines in the past.

> *"In the past I used to use government medicines, later I started to use medicines from the pharmacy. Since then, the government medicines have no effect on me anymore." ~P-NK-1.6 (28, F)*

Not only were pharmacy services viewed by some as of superior quality to government services, but they were also much more expedient, which matters when households have a limited amount of time:

> *"The government services take a lot of time. Pharmacy is much quicker." ~S-AB-2.4 (38, F)*

In short, pharmacy care was seen by some households as the most convenient and efficient option for treatment. This quote seems to sum up those general sentiments that they may not be the best quality, but they are more convenient than other 'unattainable' options:

> *"We have a saying, 'Kitchen garden ghost is more useful than a far away god.' It [pharmacy] is like a kitchen garden ghost to us." ~P-MG-8.1 (33, F)*

Interpersonal Processes: Media

While the majority of houses focused on the availability of medicines, the availability of providers and the quality of services as being the chief factors that determined their usage of the pharmacy services, one household mentioned

having been swayed to use a pharmacy by a radio advertisement they had heard for that particular pharmacy:

> *"I came to know about Gagan Medical in Hetauda [private pharmacy] from a program called 'Thaaha Sansaar', which aired on Makwanpur FM. That is why I went there." ~P-AA-1.6 (23, M)*

In short, the decision to use pharmacy care was not a particularly complicated one. It was one dictated by convenience and, understandably, by the expectations of superior and more extensive medicines.

Finally, there are those households that opt to use pharmacy care in addition to or instead of government providers, other allopathic private providers or THs. According to the quantitative models, households are more likely to use pharmacy care over THs first if the ill person is older, if they are small shop owners instead of subsistence farmers, if they live closer to better quality government facilities, if they live closer to certain facility types, if they have more severe illnesses and if they have greater knowledge of the government health system. None of these reasons, however, were explicitly echoed in the qualitative findings, which, while they did focus almost exclusively on enabling factors, zeroed in on system affordability and drug availability above anything else.

But as with other provider options, there are a few households which also explicitly state they will refuse to use pharmacy-based care, and give the following rationales, which are also important to take note of.

Reasons for Not Using Pharmacy Care:

Very few households mentioned explicitly in their responses that they would not use pharmacy care in their care-seeking pathways, but those few that did focused almost exclusively on the enabling factors as deterrents.

Enabling Factors:

Money was seen by most as the biggest deterrent for households that decided not to seek care from pharmacies. When the money issue was combined with the severity of the illness, these households generally decided to use a government facility rather than a pharmacy to treat minor diseases.

> *"It costs a lot of money to get services at the private pharmacy. So we go to the health centre for minor illness." ~S-RS-1.2 (37, F)*

In exchange for the greater costs of services, there was perceived to be no value added by the care there versus that at the government facilities.

> *"I find the health post and a private pharmacy to be the same except for the fact that you don't have to pay anything at the health post. In the private pharmacies as well, they usually don't examine you; they only give medicines and don't examine you. I think I would rather go to the hospital." ~S-MG-3.5 (22, F)*

In fact, for some households the pharmacies cost more for inferior quality services provided by untrained personnel.

> *"It costs a lot of money to get services at a private pharmacy. More importantly, the health post has trained health workers whereas a private pharmacy can be opened by anyone regardless of his/her qualifications. Here it is not the same as in Hetauda or Kathamandu. So, I don't have much faith in pharmacies." ~S-RS-1.1 (42, F)*

So, for those households which explicitly stated they did not use pharmacy care, their reasons aligned quite closely with those who explicitly stated they opted not to use private services – higher costs for little to no added value.

Pharmacy Care	
Reasons for Not Using	**Reasons for Using**
Health Service Characteristics: • *Affordability:* High costs of medicines **Psychological Processes:** • *Perceptions:* Perception of inferior quality personnel (without certification)	**Health Service Characteristics:** • *Quality:* Availability of specific medicines • *Availability:* Open frequently • *Efficiency:* Expediency of services **Psychological Processes:** • *Perceptions:* Perceived superior quality of medicines – government drugs lack potency **Social/Interpersonal Processes:** • Advertising

Figure 7.28 Summary of the reasons people gave for using or not using pharmacy care.

7.4g Overall Decision-Making Process

How do you decide where to seek care or treatment for a particular illness?

While the quantitative models necessitate that each individual step in a household's health-seeking pathway be examined individually, taking each provider in turn, HSBs, in reality, do not really play out this way. More often than not, as was seen in determining when to use THs or allopathic providers, health decisions are a more dynamic and reactive process where a household makes an initial determination and then renegotiates that decision at each juncture – seeking care and advice from more than one person or provider within the formal

or informal system. The decision is not often predicated on a single predictor and the result is not often consultation with a single provider on a single date. Given that the quantitative analyses only enabled us to look at one decision at a time, and given that most of the previous sections of this chapter only looked at each provider in turn, as if that provider was the only choice a household ultimately made, this section will look more holistically at the dynamic nature of the HSB process using hypothetical illnesses. These were some of the responses gleaned from households when asked, "How do you decide where to seek care or treatment for an illness?" Obviously, as can be seen from the quantitative results, responses to hypothetical illnesses do not always comport with responses to actual illness.

For some households the hypothetical decision about where to seek treatment was solely predicated on the age of the patient. If the child was young, one type of provider was sought; if the child was older, another provider was used.

> *"At first we take suggestions from volunteer helpers [FCHVs], or if the patient is small, we consult a TH since small patients cannot say what has happened to them. If the patients are older, we consult helpers [FCHVs] as they can talk and say what has happened to them."*
> *~P-NK-4.1 (19, F)*

For other households it was still about money because spending money to deal with an illness meant not having money to eat:

> *"We have to think about conserving money. If we take a meal in the evening, we have nothing to eat in the morning. It is always like that for poor people." ~T-AB-1.4 (21, F)*

Finances were the first thing that needed to be discussed by many families before making care decisions:

> *"I would probably have to discuss with my family regarding the availability of money. We can't seek treatment without money."*
> *~S-AA-4.4 (68, M)*

For still other households it was an issue of finances intermingled with other complicated household logistics:

> *"We have to consider things like who is going to take care of the household, how to manage the money...We are poor and have to think about these things." ~P-RS-7.3 (70, M)*
>
> *"Being from the village, we first think to go to the nearest facility [SHP]. If they cannot provide treatment there, they give us advice on which hospital to go to. Then, I have to think about how to arrange to go there and find money to cover the expenses. We live far off from the city and we don't have transportation facilities. So we can't go somewhere else as soon as we are ill. Sometimes the illness gets severe while waiting to go elsewhere for treatment" ~S-RS-1.3 (28, F)*

Some households didn't even consider logistics or finances at all, but just exhausted all options in turn – moving on to the next option if the previous one failed to work.

> *"First, I take herbs, and if that doesn't work, then only do I visit health post [PHCC]. I haven't consulted the TH recently, but if the medicines fail, then only do I consult the TH." ~P-RS-7.4 (49, F)*
>
> *"We go first to the TH suspecting there to be an influence from the spirits. We then go to the FCHV expecting her to provide us treatment. If she is unable to help, we go to the health post and if that also doesn't work, we go to the hospital." ~S-MG-3.5 (22, F)*

Most households when asked hypothetically said they would go wherever they felt they would be cured, regardless of expense.

> *"Sometimes I go to the health post, sometimes to the FCHV. I'd go wherever I could be cured. My health matters more than the costs of the treatment." ~T-AB-1.5 (57, M)*

> *"I would use all options.…Whoever can cure. If I think maybe the TH can help of maybe the health post can cure me, I go there..."*
> *~T-MG-3.3 (22, F)*

After all, to most households, treatment is an imperative no matter what (at least in theory):

> *"When one needs to be treated, one has to go wherever he can be treated. If the illness can be treated here [SHP], I will go here. If it cannot, I would to go to a hospital. When a doctor cannot treat an illness they usually tell you where to go next." ~S-RS-8.1 (61, M)*
>
> *"Treatment should be sought as much as possible – somewhere, somehow...If the TH cannot treat the illness, then I go to the FCHV, and if she isn't able to help either, I go to the health post [SHP]." ~S-MG-8.1 (29, F)*

And in seeking various treatments, one usually goes as quickly as possible.

> *"I will try to go to the health post first, and then I will go elsewhere. One shouldn't keep a sickness in his body." ~T-MG-1.6 (21, M)*

The decisions, however, often do involve a family discussion as part of the process.

> *"First we go to the FCHV, then she tells us to go uphill to the health post, then if the health post treatment doesn't work, we go wherever we like.…we family members discuss and go. Even if we have to take a loan, we go for treatment. If we have it [money] in our pockets or have to borrow from others, we go." ~T-AB-1.2 (26, F)*

Actually, for some households the family discussion was the most important element in determining care choices. For example, one household mentioned that a decision could not be made without consulting the head of the household:

> *"My father is 78 now. He tells us which illnesses should be treated at the hospital and which illnesses should be treated by the TH. We follow his directions and either go to the hospital or consult the TH...We can't tell what to do or where to go. It's our father who advises us regarding that." ~S-NK-1.1 (24, M)*

For other households, the advice of others was seen as one of the most important factors in the health-seeking decision process.

> *"I feel it is extremely important [to get advice from others]. Whenever anyone gets sick, I like to take advice first." ~P-AA-1.3 (28, F)*
>
> *"That [advice] is very important. When we discuss with others about our problem, they give us good suggestions regarding appropriate places to visit for treatment." ~P-AA-1.4 (33, F)*
>
> *"Yes, we definitely believe the villagers with matters related to health service decisions. Who would we believe other than our villagers?" ~P-MG-8.1 (33, F)*

Most households said they would not make any decisions without consulting other villagers.

> *"I cannot decide myself [where to go for care]. We have educated, experienced people here in our village and they help us decide what to take and how to treat." ~P-RS-7.1 (50, M)*
>
> *"Yes, we definitely believe the villagers with matters related to health decisions. Who would we believe other than our villagers?" ~P-MG-8.1 (33, F)*

In part the decision to consult neighbours for advice and guidance was an issue of reciprocity.

> *"The advices of friends and neighbours are very important because if I became ill and fall sick then they will look after me, and if they fall ill, I should do the same. I think it is important to help one another." ~T-AA-1.4 (35, M)*

For a few households, it was not just about soliciting advice from neighbours, but also about receiving logistical or financial support from them for the HSB process.

> *"If you don't have people to help you go places for treatment, nothing is easy as I can't do it alone. It is not easy for people like us nowadays in Kathmandu. Not like earlier days." ~T-AA-1.1 (77, M)*

> *"Sometimes you have to ask neighbours for things. For borrowing money you have to make them have faith in you. At times you also need advise from others. Without hearing what they have to say, you can't go anywhere. That is what I have to say." ~T-AA-1.1 (77, M)*

Some households always started with the nearest government facility and solicited advice there before going elsewhere. For them, it is the referral process that determines their health pathways.

> *"First the health post examines the patient and then they decide where to send us in the report…According to what they advise. If they say they can treat the illness here, then we wait for 3-4 days, but if they say they can't, then we take the patient to another place. Til now we have been doing things like that." ~T-AA-1.3 (43, F)*
>
> *"First we go to the health post for a check-up, and they tell us what to do. If they can't cure us, they refer us to other places by giving us a card. They tell us to take certain medicines and if those medicines are not available there, they tell us to get them from somewhere else." ~T-AA-4.5 (25, F)*

Finally, there were those households which predicated their decisions not so much on the advice or support of others, but on their own personal experiences. If they had had previous experiences with a specific provider for a specific illness, this shaped their future hypothetical care-seeking.

> *"I have a lot of experience with this [illness]. If I had some new illness, then I would likely go to the health post. However, if it is the same one, I know that I won't be treated there as I have already been there. The service that I need is not available here; I feel I will have to go somewhere else." ~S-AB-1.6 (25, F)*

In short, when households are asked about their hypothetical decisions regarding care-choices and HSBs more generally, while they mention finances, logistics and patient characteristics, social factors and interpersonal processes seem to be the most important determinants, cited over and over as influencing household choices. More, when asked as a hypothetical, most households said they would do

whatever they could to get cured, despite the costs. This response defies the realities of HSBs, which are far more often constrained by circumstances or dictated by the quality of available health services, the demographics of the household and communities and the specific illness characteristics.

Factors People Say They Consider in Seeking Treatment

- **Patient Characteristics:** Patient's age
- **Household Characteristics/Health Service Characteristics:** Financial considerations
- **Household Characteristics/Health Service Characteristics:** Logistical considerations
- **Psychological Processes:** Perceptions about most efficacious treatment
- **Social/Interpersonal Processes:** Family opinions (discussion amongst family members)
- **Social/Interpersonal Processes:** Advice of others (external to the family)
- **Psychological Processes:** Personal past experiences with services (guiding future expectations)

Figure 7.29 Summary of the factors people say they consider in making their treatment decisions when asked about hypothetical illnesses and treatment-seeking scenarios.

7.4h Summary of Objective 2b: Qualitative Findings

Overall, when self-report data was collected on the explicit factors households state as influencing their choice of providers for curative care, the following were found to be important:

- **Patient Characteristics:** age
- **Household Characteristics:** socioeconomic status, workload, family dynamics, logistical considerations
- **Health Service Characteristics:** costs, accessibility, availability of medicines, availability of providers, availability of equipment, location of facility
- **Illness Characteristics:** illness type, illness severity
- **Psychological process:** beliefs about aetiology of illnesses, expectations for specific providers and treatment, attitudes towards providers predicated on past experiences, perceptions of illness severity, trial and error, fear/worry
- **Social/Interpersonal Processes:** advice of others, beliefs of others, relationships with providers, logistical support of others, discussions amongst family members
- **Cultural Processes:** culturally-patterned ideas about illness, traditions and norms

In summary, the qualitative results indicate the complexities of the multiple different factors and processes which dialectically influence care decisions, and illustrate that sometimes households may not even be aware of all of the various factors that come into play in their decision-making processes.

III. Discussion of Objectives 2a & 2b:

Understanding HSBs and the Reasons for Delays, Provider Choices and Order of Care

While the last section presented an overview of the main findings from objectives 2a and 2b, this section will bring both those sets of results together and discuss the main findings in greater detail, breaking them down by each objective factor and each subjective process and drawing on necessary literature to explain them. The implications of these findings are discussed at the end of the section.

While it is reasonably easy to describe some of the objective factors which may influence HSBs, and while it is reasonably easy to describe where people go for care and how they move through the system, it is a much more complicated proposition to actually understand why people make the choices they do in the order that they make them. HSBs are usually determined by a whole conglomeration of different factors acting in chorus, mediated by different complex processes, and exerting their effect on individuals and households across time (Shaikh & Hatcher, 2007). In fact, as Colvin et al. (2013) concluded in their systematic review of HSBs in Sub Saharan Africa, "treatment decision-making is a dynamic process characterized by uncertainty and debate, experimentation with multiple and simultaneous treatments, and shifting interpretations of the course of the illness and best treatment options." In short, it is an incredibly complicated process to understand in any context, which is why so many have attempted it using different lenses and frameworks. In this study, we attempted to look both at the objective factors which subconsciously and consciously may influence these decisions and some of the more subjective processes that mediate

the decision-making process. In the results sections the findings were broken down according to the particular providers or care choices a household made – focusing on the decisions and working backwards from those. In looking at our original theoretical framework, though, if we really want to understand all the different ways in which these objective factors are related to different choices and the ways in which these subjective processes exert their influences on the behaviour, it makes sense to take each of the different factors and processes in turn and examine what each has to say about HSBs and care decisions in this context. It is important to note yet again that all of these factors and processes exert influences on one another as much as they influence ultimate decisions and it is no simple thing to look at each in isolation. Inevitably, the objective factors are mediated by the subjective processes, which mediate each other in turn, to produce an ultimate decision. For example, there are objective characteristics that each of the government health facilities possess, but it is how the individual perceives these characteristics (perceptions which are based, among other things, on past experiences, the attitudes of the larger community, the influence of broader cultural forces) that dictates whether or not a household avails itself of their services. So it is really no simple thing to tease apart the objective factors from the subjective processes by which they are arbitrated, but in studying them most studies have taken only the objective factors or only the subjective processes in isolation. While it does make sense to walk through each objective factor in turn, it is also important to understand that these objective factors do not in-and-of-themselves produce a decision, so we must bring the subjective processes back to bear on each of them to really understand how a decision is ultimately made.

In some ways we can think of it as an external and internal dichotomy (Mulder et al., 2008). The external forces are all of those things outside of an individual or households' control, which exert influence on them. The internal factors are all the subjective processes – emotions, cognition, perceptions, social pressures, cultural constructions – which re-shape these external influences and result in a decision about where to seek care and how to seek it (figure 7.30)

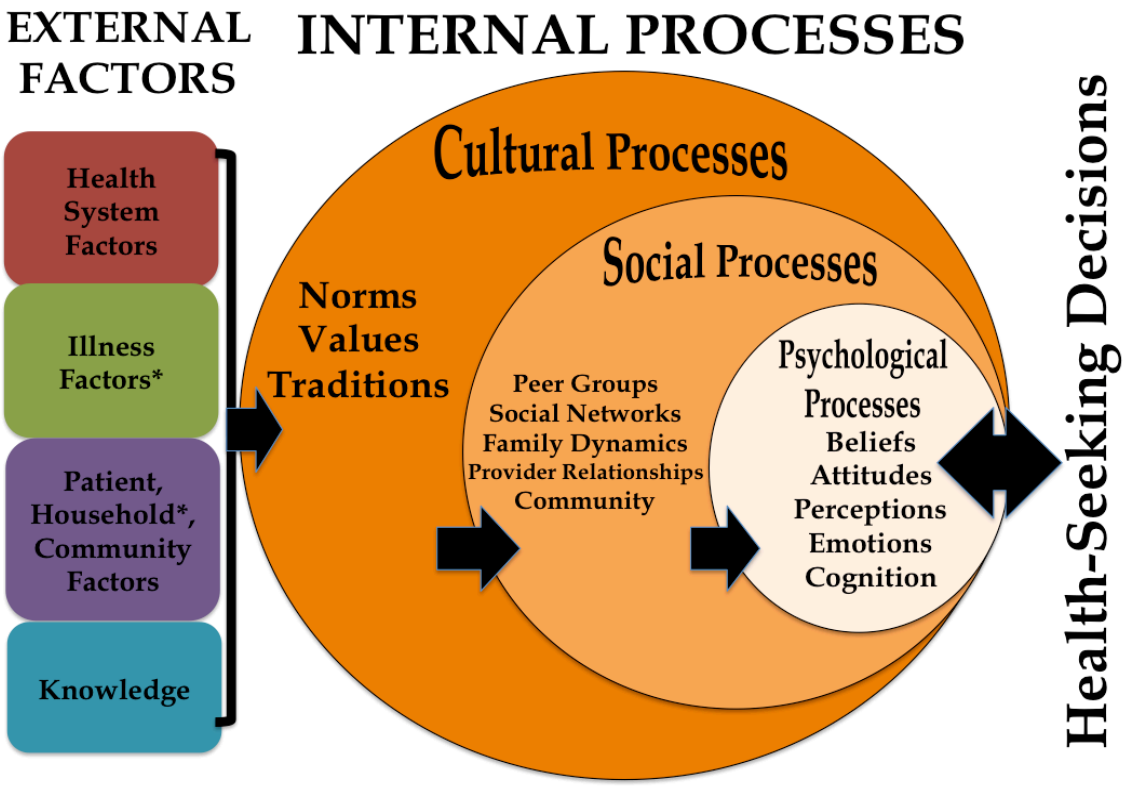


Figure 7.30 At look back at the comprehensive theoretical model to help understand how all of the different pieces of this chapter fit together.

Now that we have had a chance to establish the relationships between various 'external' or 'objective' factors and HSBs, it is important to really understand them. Here we take each of the objective factors and examine why it may impact specific HSBs. Given that there were so many regression models run, each with

eighteen independent variables, we will only discuss those factors which were found to be significant at a p value <0.01. Those variables which were found not to be significant, will not be discussed. Finally, an attempt will be made to draw on the qualitative findings to explain the quantitative ones:

7.6 *Understanding the Relationship between **Objective Factors** and Care Decisions*

By using household survey data to study how different objective factors were related to care choices we can better understand some of the subconscious or non-explicit reasons why households made the care decisions they did. Of course, these factors don't exist in a one-to-one relationship to a HSB. Each decision was influenced by a host of factors operating at multiple levels. Relationships that were significant in isolation were rendered insignificant when combined with other demographic variables or health system variables in these blockwise regression models, making it very difficult to tease apart the actual impacts of each. By combining this survey data with interview data and other literatures, a better picture of how each of these variables can influence care decisions and delays emerges.

7.6a Patient Characteristics

This is the most basic level at which HSBs can operate.

Age:

Numerous other HSB studies both from Nepal and elsewhere have found a relationship between the age of the patient and care-seeking decisions (Abbas &

Walker, 1986; Abdulraheem, 2007; Nchinda, 1977; Olusanya, Alakija & Inem, 2009; Raj Sharma, 2008; Reniers & Tesfai, 2009; Winston & Patel, 1995). For example, increases in maternal age were associated with a greater likelihood of using ANC services in Jordan (Abbas & Walker, 1986). In Zimbabwe and the Gambia, patient age was positively associated with a greater likelihood of using THs or alternative health providers (Kasse et al., 2006; Winston & Patel, 1995). In Indonesia, the age of a child was strongly negatively associated with whether or not a mother took the child for western medical care for an illness (Sutrisna et al., 1993). In Nepal specifically, patient age was found to be positively associated with outside care-seeking for malaria (Raj Sharma, 2008). If we look beyond patient age to a caretaker's age, other studies have even found a relationship between maternal age and care-seeking for a child's illness (McCue et al., 1985; Olaogun et al., 2006).

As in these previous studies, our study showed a relationship between age and certain care decisions. In fact, when households were interviewed about the factors that contribute to the overall decision-making process, patient age was mentioned by many of them as being an important consideration. It was also explicitly mentioned as a factor in whether or not home herbal treatments were attempted since they were not considered to be child-appealing. In the quantitative findings, patient age was found to be positively associated with the choice of allopathic and/or pharmacy care versus care from THs -- specifically, older patients were more likely to opt for allopathic care or pharmacy care than for TH care initially. Although this is opposite from what Winston & Patel (1995),

Kasse et al. (2000) and Fontahun & Degu (2oo3) found in their studies, it comports with findings from other studies indicating a greater likelihood of older people using allopathic care over other traditional care options (Clausen et al., 2000; Nuwaha, 2006; Sutrisna et al., 1993). Part of the reason for this finding in this context could be that adults are better able to articulate their symptoms and make an informed decision to use a specific allopathic provider. When a patient is younger (especially if the patient is a child) he/she is not able to articulate his/her feelings, and there is likely to be more uncertainty about the illness. That confusion could in turn result in a gut reaction to seek care from a TH initially -- later followed by other care options, since THs were rarely sought in isolation. This explanation corroborates with the qualitative findings. Households articulated that they used THs first for cases of unknown origin and to appease their 'hearts' in response to an initial emotional reaction or panic, especially when children are involved.

In Makwanpur, patient age was also found to be negatively associated with using more than one provider for an illness episode. In other words, younger patients were more likely to consult multiple providers. This is also consistent with the finding that older patients were less likely to use allopathic providers and THs at least once in their care trajectories. Again, these results can potentially be explained by the same logic used above or it could be that when a patient is older a household gives up more quickly and does not bother with consulting more than one option or even trying any options. This was also confirmed by the qualitative findings. Several of the older people in the sample mentioned they had

given up on seeking care after consulting with one provider or just using home care because they were old and could not be bothered to do more or simply didn't care enough. Other HSB studies of the elderly population reached the same conclusion (Ladha et al., 2009; Fontahun & Degu, 2003).

In short, older people were just generally less likely to use any type of provider, but given the choice between allopathic or pharmacy and THs, they were more likely to use the former than the latter.

While other studies have also found a relationship between patient age and the length of delays (Godfrey et al., 2002; Nicholls et al., 2005), at the $p<0.01$ level this study did not find any significant relationship (although at the $p<0.05$ level, patient age was positively associated with delay to outside care).

Gender:

Like patient age, a host of different HSB studies outside of Nepal have established a relationship between gender and different care decisions and between gender and length of delays in seeking care, although the nature and direction of this relationship is not consistent from one study to the next and from one context to the next (Ahmed et al., 2009; Bai& Xiao; Pearson & Makadzange, 2008; Suleman, 1996; Utarini et al., 2007; Weeks et al., 2005;Woldemicael&Tenkorang, 2009; Yimer et al., 2009). For example, women in Pakistan were found to attend clinics twice as frequently as males (Suleman, 1996). In other contexts, they were more likely to use CHWs (Utarini et al., 2007) or other health providers (Mwabu,

Ainsworth & Nyamete, 1993) and were less likely to delay seeking care (Pearson & Makadzange, 2008). Conversely, in Ethiopia, women were less likely to visit health providers (Yimer et al., 2009), and in China and Kenya they were more likely to delay longer when seeking treatment for cough or STIs (Bai& Xiao, 2004; Fonck et al., 2002). Specifically within the context of Nepal studies have found that women usually delay longer and visit THs first for TB or that parents are less likely to perceive their female children as being ill, leading to less frequent care-seeking for female children (Pokhrel & Sauerborn, 2004;Yamasaki-Nakagawa et al., 2001). In a study on leprosy in Nepal, there were significant gender differences in adequate treatment-seeking, with women seeking care much less frequently than men (Kumar et al., 2004). In another study of child health care utilisation in Nepal, gender was found to be a significant factor in health care provider choice and illness expenses (Pokhrel et al., 2005).

In this study, gender was a significant variable (at $p<0.01$ level) in only one of the final models (four if we set $p<0.05$), and it did not arise at all in the qualitative results. In the quantitative results, males were found to be more likely than females to use allopathic providers at least once in their care trajectories (the preliminary analyses also indicated that males were more likely to use government providers first when compared to females). This is somewhat consistent with other findings from Nepal even though it does not indicate that males were more likely to seek care generally than females, which was found to be true in other Nepal studies (Kumar et al., 2004; Pokhrel & Sauerborn, 2004). Part of the reason for this finding could be related to female autonomy within this

context (Acharya et al., 2010; Sharma, Sawangdee & Sirirassamee, 2007). Many activities (especially those involving finances) require permission from the household head, who is usually male. Lack of female autonomy in Nepal has been found to constrain women's access to skilled health care (Furuta & Salway, 2006) and to influence their care seeking more generally (Sharma, Sawangdee & Sirirassamee, 2007). In fact, in the qualitative results from this study, several women mentioned they were unable to seek care from government providers because they could not get permission from their husband to do so, even in incredibly dire cases. Males not only can act as a barrier to care-seeking for women, but they generally have more autonomy, allowing them to travel more easily, which puts them in closer proximity to health facilities. Several men in the qualitative interviews and surveys mentioned they used specific care options because they were already there on business and had ready access to those facilities. Conversely, most women mentioned having to stay home and look after children or work in the fields, constraining their care choices and making them less likely to consult allopathic providers at least once.

7.6b Household Characteristics:

If we take a step back from the individual patient and look instead at the characteristics of the entire household, it is apparent that household SES is very important in HSBs and care decisions. It is so important, in fact, that countless studies, both within Nepal and elsewhere, have explored the relationship between different SES variables and HSBs and have found many of the variables and behaviors to be significantly related (Amin et al., 2010; Bichmann et al., 1991;

Dhakal et al., 2007; Motsumara & Gubhaju, 2001; Uzochukwu & Onwujekwe, 2004). Conversely, a handful of studies have found SES variables not to be significant in determining care choices or delays, depending on particular outcomes (Danso-Appiah et al., 2004; Fassin et al., 1988; Godfrey-Faussett et al., 2002; Griffiths & Stephenson, 2001; Sutrinsa et al., 1993). Since SES is itself comprised of a great many elements, it is important to understand the role that each element might play.

Wealth Quintile:

Household SES in its most basic sense is obviously a function of household income or wealth.[1] It does not require a huge leap of imagination to understand why household income may dictate care choices given that healthcare is in many respects a consumer good, even in contexts where it is allegedly free (Hotchkiss et al., 1998; Pokhrel et al., 2005; Rous & Hotchkiss, 2003). Many studies have demonstrated a clear relationship between care choices and household income or household assets. For example, in Ethiopia, higher wealth quintiles were associated with greater likelihood of using modern allopathic providers (Reniers & Tesfai, 2009). In Nigeria, low and middle class households were found to be much less likely to give birth in facilities than higher income families (Olusanya, Alakija & Inem, 2009) and were more likely to use THs or CHWs than private facilities (Uzochukwu & Onwujekwe, 2004). In Tanzania, usage of government services increased with increasing wealth (Wyss et al., 1996). In Peru, usage of

[1]Given that household income is notoriously difficult to measure in these contexts, wealth quintile were created using assets and housing infrastructure as proxies as has been done on other surveys in Nepal (DHS & NLSS I, II, III). This index was found to be highly correlated with crowding index, land ownership, land value, livestock ownership and self-reported income.

professionals for cold, cough and diarrhoea was found to differ drastically between poorest and wealthiest households (Kristiansson et al., 2009). In Indonesia, the top 4% of income earners made up half of all hospital outpatients and a quarter of all health centre patients (Gish, Malik & Sudharto, 1988). Lack of money and financial difficulties can even deter households from seeking care altogether regardless of the context (Abdulraheem, 2007; Danso-Appiah et al., 2004; Ladha et al., 2009; Mbagaya, Odhiambo & Oniang'o, 2005; Taffa & Chepngeno, 2005; Winston & Patel, 1995).

In Nepal specifically, a few studies have established a relationship between household wealth and usage of services, although predominantly for maternal healthcare (Dhakal et al., 2007; Matsumura & Gubhaju, 2001; Sawangdee & Srirassamee, 2007; Sharma, Sreeramareddy et al., 2006). Several other studies of health service usage in Nepal have illustrated a distinct trend between increased likelihood of using private care and increased wealth quintile (Pokhrel & Sauerborn, 2004; RTI, 2010) – a trend which can be seen somewhat in our data given that 50% of the households using allopathic care in the 5th wealth quintile used private care, while only 36% of those using allopathic care in the 1st wealth quintile used private care and given that 19% of households in the 5th wealth quintile used private providers first, while only 10% of the households in the 1st wealth quintile used them first. (This difference did not emerge as significant in the final models).

In this particular study, despite many interviewees mentioning the importance of hidden costs and ancillary costs in deterring them from seeking government care, and despite many households mentioning financial considerations as very important in determining their overall care trajectories, and despite some trends like those mentioned above, in the final models, household wealth quintile did not seem to be particularly important in many of the care-seeking decisions related to order of provider usage and choice of providers. It was found to only be significantly associated with some care versus no care at the $p<0.01$ level. In other words, households in higher wealth quintiles were more likely to use some care (be it home or outside) for their illnesses than households in lower wealth quintiles (at the $p<0.05$ level they were also found to be more likely to use outside care versus home care). This makes sense given that costs were cited in the qualitative interviews as being one of the major reasons for not using private services or pharmacy care or even government care in some cases, and it stands to reason that wealthier households would have access to more care of all kinds (be they home remedies or outside care options) and therefore would be more likely to avail themselves of these in times of need. These findings are consistent with many of the findings from other studies (some mentioned above), which indicate that lower household income can prevent households from using care, not only because of the costs of the services themselves, but because of other subsidiary costs such as transport or medicines (Ahmed et al., 2005; Dongre, Deshmukh & Garg, 2008; Ladha et al., 2009; Luque, Whiteford & Tobin, 2008; Naaz, Dharmaraj & Duttagupta, 2012; Ndegwa et al., 2005; Taffa & Chepngeno, 2005; Weeks et al., 2005).

While this study found that wealth quintiles were not significantly associated (at the $p<0.01$ level) with care choices or order of provider selection, we did find a significant relationship between wealth quintiles and delays. In fact, increased wealth quintile was associated with both a decreased delay before seeking allopathic care and a decreased delay between first and second care providers (for those households that sought more than one outside provider). This is actually consistent with other findings from Nepal, which showed that prompt and appropriate care was correlated with household income (Sreeramareddy et al., 2006). This might be explained by the fact that for poorer households, with more logistical constraints, the activation energy for seeking allopathic care is much higher, and thus they delay longer both because it takes longer to sort out the logistics of losing a day of work and arranging to pay the necessary costs and because they are waiting to see if they get better of their own accord. Waiting has been found in other studies to be a critical component of the care process and a decision in-and-of-itself especially for those financially constrained (Colvin et al., 2013; Mwabu, 1986; Ryan, 1998). Logistical constraints were also frequently mentioned in the qualitative results as impacting care choices. This same explanation could pertain to the decrease in delay between different providers. Wealthier households are more likely to be able to overcome some of the logistical and financial constraints required to get from one provider to the next, given that that second provider is often more expensive than the first.

The fact that so few significant relationships were found between wealth quintile and HSBs could be due to the fact that in rural Nepal there is not as stark of a contrast between the different wealth quintiles as you would get in urban areas, where most of these other studies were conducted. In fact, in rural areas, the income differences are often minuscule. We might observe a larger effect if we included urban areas in the study sample or if we did not control for some of the other SES variables.

Education of Household Head:

Education, another critical component of SES, has had a big impact on where households go for care and how they navigate through their different provider options in part because it can provide a better understanding of health and illness and the links between different treatment options and care outcomes. More, education can increase the likelihood of using health services generally (Aday et al., 1993; Newacheck, 1992; Newacheck & Halfron, 1986) or the odds of using specific formal allopathic practitioners (Abdulraheem, 2007; Ahmed et al., 2005; Mwabu, Ainsworth & Nyamete, 1993;Ndegwa et al., 2005; Reniers & Tesfai, 2009) or specialists (Alberts et al., 1997). Conversely, more education can also lead to a reduction in unnecessary service usage (Bruijnzeels, 1996; Tessler, 1978) or a reduction in usage of government services (Wyss et al., 1996). In Nepal specifically, women's education was found to be related to greater utilisation of maternal health services (Sharma, Sawangdee & Srirassamee, 2007).

What has been found to be true about the relationship between education of patients and care-seeking has also been found to be true for education of household heads and household care decisions, even if the head was not the person who was ill. These studies, however, were much fewer in number (Fontahun&Degu, 2003; Zhang et al., 2008).

In this particular study, education was only mentioned once in passing in the qualitative interview as a reason for choosing government care. In the quantitative results the education of the household head was only found to have an impact in the final models on usage of home care first. It seemed to relate to no other provider choices or care sequences. The results indicated that households with more educated heads were more likely to use home care before other options. (The preliminary results also revealed that households with more educated heads were more likely to use private care and pharmacy care first and ever and TH care least, but these results were not significant in the final models). Although no other studies have found a significant relationship between increased education and greater likelihood of self-care first, and although these results seem to be somewhat in opposition with the findings from another study of care seeking for malaria in Nepal, which indicated that higher education was associated with greater likelihood of outside care seeking (Raj Sharma, 2008), these results do in fact make sense when you consider that people with higher education are less likely to use health services un-necessarily (Bruijnzeels, 1996; Sreeramareddy et al., 2006; Tessler, 1978;) indicating that they may triage themselves before seeking outside care and only seek outside care when they

deem it absolutely necessary -- using home-based care first before unnecessarily seeking care from a health facility. This also makes sense when you consider that education allows for a better understanding of the relationship between prevention and cure, and therefore a better appreciation for the care that can be administered within the home as a first step (World Bank, 1994, pg 37).

Education has been shown to not only impact care choices, but also can influence the length of treatment delays. While other studies have shown that less educated individuals delay longer before seeking treatment, and that more educated mothers are more likely to seek prompt care for their children's illnesses, this particular study did not demonstrate any significant relationship between education and length of delays (Mfinanga et al., 2008; Sreeramareddy et al., 2006). This is consistent, however, with other studies that did not establish a relationship between care seeking and delays (Fassin et al., 1988; Godfrey-Faussett et al., 2002).

It is possible that the reason so few significant relationships emerged is because we used the education of the household head rather than the education of the patient or education of the mother as most other HSB studies have done. If individuals within a household have differing educational levels, and if the household head is not consulted as part of the decision-making process, it is possible that his/her education may ultimately have no impact on most of the care decision made. Given that the household head was directly responsible for decision making only about half of the time within this study, it would be useful

to look at the education of the patient or the patient's mother to get a true sense of the relationship between education and care seeking within this context. That being said, the qualitative results did indicate the importance of familial advice and familial consultations in the care decision-making, so whoever ultimately makes the care decision is inevitably influenced by the opinions of others within the family.

Occupation:

If household income and education have been correlated with care choices, it stands to reason that household occupation might also be an important factor in these decisions, although it has been studied less than these other factors. One study in Thailand and one study in China found that certain occupations were associated with greater likelihood of using health centers (Hu, Xu & Zhao, 2004; Shrestha & Ittiravivongs, 1994;). In Guatemala maternal employment was associated with greater usage of modern medical services for ANC and PNC (Stuyft et al., 1996), while in Nigeria, maternal occupation was positively associated with allopathic care-seeking for febrile illness in children (Olaogun et al., 2006). In Tanzania, unemployment of an individual was associated with longer delays to treatment for TB (Mfinanga et al., 2008).

In the quantitative component of this study, however, the preliminary analyses (and not the final models) only revealed a relationship between occupation and choice of pharmacy care and THs at least once in a household's care pathway. The

final models revealed no other significant associations. (If we use a p value of <0.05, however, a host of other relationships emerge as significant).

While very few relationships emerged as significant at the $p<0.01$ level in the quantitative data, in the qualitative interviews occupation was mentioned by several families as an indirect barrier to seeking government care or private care. For some, it was impossible to leave working in the fields to seek care. These findings are similar to another study from Nepal, which showed that if women were employed in unskilled labour or agriculture, they were less likely than those who were unemployed to utilise maternal health services or post-natal services (Sharma, Sawangdee & Sirirassamee, 2007). The explanation given is the same that applies here – employed women were too busy to leave their work to avail themselves of services. This finding may not have emerged as significant in the quantitative analyses, however, because overall the majority of households were engaged in subsistence farming and the sample of those not engaged in subsistence farming was not large enough to allow for significant differences to emerge.

Once again, it is also possible that because we analysed the quantitative data in terms of occupation of the primary income-earner rather than the occupation of the ill individual, that we got fewer significant results than we would have had we taken the occupation of each individual in turn and established relationships between occupation of the patient and care decisions. That being said, this choice was made intentionally because, as mentioned before, decision-making takes

place at the level of the household and not at the level of the individual, and most individuals within the households were engaged in the same occupation as the main income-earner.

Composition:

Household composition – family size and number of children -- has also been studied as a factor which impacts HSBs, although much less frequently than other SES measures. One study in Nigeria showed that larger households were less likely to use private hospitals and more likely to use government providers (Awoyemi, Obayelu & Opaluwa, 2011), while another study in Nepal found that household size was positively associated with outside of home care seeking for malaria (Raj Sharma, 2008). Yet another study in Thailand showed no relationship between household size and health centre usage (Shrestha & Ittiravivongs, 1994). With regard to the number of children in a household, one study in Pakistan found that the number of children in a household was a significant predictor of health visits, and that the more children in a household, the more likely it was that they would be sent to visit health providers (Naaz, Dharmaraj & Duttagupta, 2012), while another study on maternal health service usage in Nepal found that the more children in a household, the less likely a woman was to avail herself of maternal services (Hotchkiss, 2001). The same thing was also found to be true in Turkey (Celik & Hotchkiss, 2000). Conversely, another study in Nepal showed that the more children in a family, the greater the probability of using modern allopathic services (Niraula, 1994).

In this study, no significant relationships were established between care decisions and the number of children within a household, nor was household composition ever explicitly mentioned in the qualitative interviews as being a factor that dictated care decisions. The reason for this may be that once you control for other SES variables and for patient age, and eliminate all those households that didn't experience illness, the effects of household composition no longer impact the care decisions. These other studies did not control for all of the same SES variables or include patient age as a variable of interest.

Caste:

As with the results for household composition, while a host of other studies have found relationships between ethnicity and HSBs (Basu, 1990; Matthews et al., 2005; McCue et al., 1985; Newacheck & Halfon, 1986; Olusanya, Alakija & Inem, 2009; Otusanya et al., 2007; Tessler & Mechanic, 1978), this particular study did not reveal any significant relationships between household caste and care choices, provider order or delays. This could be due to the fact that the majority of households in the study were Tamang (~67%) and therefore behaved quite similarly, or it may also have been due to the fact that, like household composition, once other SES variables were controlled for, such as household wealth quintile and education, caste, in-and-of-itself, did not exert any significant influence on care decisions. In other words, caste does not directly influence behaviour in this context except by creating SES differentials. Caste was, however,

found to be a contributor to whether or not a household experienced illnesses, but once we eliminated those households that did not suffer illness, the differences in behaviours melted away. This makes sense given that the majority of these other studies were either qualitative anthropological explorations of the role of culture on care decisions or explained the ethnic differences by referring to differences in education, occupation or SES. This also makes sense when we consider the qualitative results. Households of all different castes spoke about the influence of the broader 'village' culture on their decisions, not specifically about the influence of their own ethnicity on their decisions. Culture, in this case, seemed to cut across castes.

7.6c Community Characteristics:

It is also important to take yet another step back from the household level and examine HSBs within the context of the larger community, in this case the ward. The community can impact the individual in a number of ways – be in through the community's physical infrastructure, its location (ie., proximity to facilities), the broader culture of the community which shapes individuals behaviours and thoughts, and social support systems within the community which can enable service usage etc. Studying the impact of this community level can be quite complex and difficult to do objectively. As a result, very few studies have examined the impact of the community on care decisions or delays, but the few that have have found specific community characteristics to be important parts of the decision-making process. In Indonesia, differences were found between urban and rural communities in terms of care-seeking, while in Pakistan whether

or not a village had a girl's school was associated with greater likelihood of care-seeking for children (Nurrudin et al., 2009; Titaley, Dibley & Roberts, 2010). In Tanzania, an increase in residential zone infrastructure was associated with greater usage of government services (Wyss et al., 1996). A few other studies also found a similar relationship between community-level SES and care decisions (Alberts et al., 1997; Develay, Sauerborn & Diesfeld, 1996; Van der Stuyft et al., 1996). In Nepal specifically, area of residence was found to be strongly associated with maternal service usage, although this probably had more to do with service accessibility than anything (Sharma, Sawangdee & Srirassamee, 2007).

Ward Infrastructure:

In this study the preliminary chi-squared analyses revealed significant differences among the different ward-levels in terms of private provider usage first, government provider usage first, pharmacy usage first, home care usage first and pharmacy usage ever, but these differences were not significant in the final analyses. The only significant community-based relationship we found in the final analyses was between ward-level infrastructure and whether or not care was sought within the same ward or outside of the ward. Increased ward infrastructure was associated with greater likelihood of seeking care outside of the ward. While this seems somewhat counter-intuitive at first, given that in higher infrastructure wards there were more health facilities and therefore more opportunity to avail oneself of services within the wards themselves, higher infrastructure wards also had more paved roads and better access to other wards

or other VDCs where better quality care may have been sought. If we look at the results that were significant when p was less than 0.05, this result makes more sense because at $p<0.05$, higher ward infrastructure was associated with greater likelihood of using private providers. Given that private providers are often located in more urban or peri-urban VDCs (very few of them were located in the surveyed areas), it makes more sense that those households which were using private care were more likely to be seeking it outside of their own wards, and were able to do so because of paved roads or other factors. Difficult terrain came up several times within the qualitative interviews as preventing households from seeking allopathic care. These findings also comport with those studies which identified better physical infrastructure within the communities as the reason for greater usage of health facilities (Titaley, Dibley & Roberts, 2010; Wyss et al., 1996).

Ward-level infrastructure was not found to be significantly related to initial provider selections or delays. Once again, this most likely has to do with the fact that once other household-level SES variables are controlled for, the community level SES variables do not exert an independent objective influence on these decisions, but rather impact decision-making more through shaping perceptions and attitudes and beliefs.

7.6d Health Service Characteristics:

If patient, household and community demographic factors can shape care decisions on the sending end, so too can health provider, health facility and health system characteristics shape care decisions from the receiving end. In fact, some studies have shown that supply side factors are more important than patient characteristics in determining usage of providers (Andersen, 1973). As touched upon before, care decisions are in many ways a balancing act between these predisposing (demographic) factors and these enabling (health system/facility) factors, and in order to understand the overall equation, both of these must be factored in. Since predisposing demographic factors were already discussed, it makes sense to focus on how enabling health service factors influence these decisions as well. Many quantitative and qualitative HSB studies have also focused on the health systems end of the equation although most of them have done so by collecting data at the household level – simply asking people about services and service perceptions – rather than collecting more objective data from the facilities themselves or marrying the two subjective/objective data sets together (Abbas & Walker, 1986; Bichmann et al., 1991; Chawla & Ellis, 2000; Enyioko et al., 2012; Hotchkiss et al., 1998; Rahman et al., 2011). It stands to reason that most other studies exploring multiple different providers have opted to look at subjective health service factors from the point of view of households more frequently than the objective characteristics of the health facilities/providers, because there are no universal metrics for health service/provider quality and the creation of such a metric would necessitate

collection of data not just from the household level, but also from the health facilities themselves. It is obviously also straightforward to measure the impact of health services on HSBs if you are only dealing with a single type of provider, but much more difficult when you begin to factor in all the other informal and formal providers that households consult – how do you measure the objective quality of each? That being said, since everyone in theory should have access to a government facility, and since one of the primary goals was to understand how government facilities can impact care-seeking, all of the health facility data that was factored into the final models for this study was taken from the government facilities closest physically to the household being surveyed. As a result, the characteristics and availability of other non-governmental providers were not considered, which obviously has its limitations.

Another limitation was the fact that the final models were circumscribed by the number of health facility variables which could be included in them. An attempt was made to look both at subjective and objective factors with the models, but to also explore the subjective factors in greater depth in the qualitative interviews. Attitudes towards and perceptions of health care options will be discussed further in the subjective processes section. Finally, there were only a limited number of government facilities being used by people in this sample, so most households within a VDC were consulting the same government facilities, and therefore the objective quality measures, although evaluated at a household-level are actually only referring to nineteen different facilities across the sample VDCs. The following health service factors -- costs, health facility type, access, health facility

objective quality and health facility subjective ratings -- and the impact they have on HSBs is discussed below:

Costs of Services:

Although a host of other studies have focused on costs of services as one of the primary health service factors influencing decision-making and treatment delays, and although a few studies in Nepal specifically have explored how cost of services can be a barrier to adequate and timely treatment, in this study cost was left out of the quantitative models entirely because in theory all government services are free for essential services and medicines, so in theory cost should be the same for almost every household (Abbas & Walker, 1986; Alfani & Lahaye, 1989; Awoyemi, Obayelu & Opaluwa, 2011; Ayepong & Manderson, 1994; Bichmann et al., 1991; Ellis et al., 2007; Hotchkiss et al., 1998; Litvak & Bodart, 1993; Macq et al., 2004; Moses et al., 1992; Niraula, 1994; Pokhrel & Sauerborn, 2003; Sreeramareddy et al., 2006; Tolhurst & Nyonator, 2006). Obviously, this is not the case, but it is difficult to determine the exact costs of under-the-table payments or indirect costs for services from one facility to the next, so rather than exploring costs as part of the regression models as a factor which influenced choices, cost of services were explored descriptively as part of a separate sub-study.

That being said, costs did come up quite frequently in the qualitative interviews as both a reason for and a deterrent against seeking particular care options –

namely hidden costs prevented households from using government providers or THs, while at the same time their relative affordability is what encouraged households to use them both, while high costs prevented households from using private providers or pharmacy care. So, while the costs were not explored quantitatively, the qualitative results revealed their overall importance in household care choices.

Nearest Government Health Facility Type:

While costs may be important, so to is the type of nearby facility in determining HSBs and health service usage. Although the impact of the nearest health facility type has not ever really been explored as an independent contributor to HSBs except in one study, it was included here because it is important to understand how government facility type may actually influence care seeking in this context (Malik et al., 2006). This understanding can in turn help with facility distribution plans. The only significant finding in the final models at $p<0.01$, however, was that households closer to HPs delayed less on average between different outside care options than those closer to SHPs. Given that ward infrastructure was controlled for, one of the possible reasons for this finding could be that households nearer to HPs tend to also live nearer to other providers and other care options compared to households nearer to SHPs, which tend to be in more remote areas with fewer alternative providers (this was not factored into the final models). As a result, it is much easier for them to seek care from multiple

different providers without delays in between. In other words, it is most likely an issue of provider availability and the fact that when there are more providers around, people delay less in between providers. There were too few households near to PHCCs for this difference to be significant for them, however, we would speculate that by this logic, if we increased the sample size and had more houses nearer to PHCC, this trend might be even more pronounced for those households (assuming this explanation is true). In the future, we would need to also factor availability of various other health providers into the equation to see the impact that this might have on the final model (DeWinter, 1992).

Another possible explanation is that the referral behaviour of the providers at the HP differ from those at other centers, and households nearest to HPs, that consult at the HP as a first point of care, are simply moved through the system faster than those consulting at SHPs or PHCC first (WHO Country Office, 2009).

Access: Distance to Nearest Government Health Facility:

Perhaps even more important than the nearest type of facility in dictating care decisions, though, is the distance required to reach it. Countless studies have examined the relationship between distances and care-seeking, and the majority of them have found significant relationships between increased distance and decreased likelihood of facility-usage and increased length of delays (Awoyemi, Obayelu & Opaluwa, 2011; Bair & Xiao, 2004; Barlow & Diop, 1995; Godfrey-Faussett et al., 2002; Kloos et al., 1987; Kunda et al., 2007; Materia et al., 1993; Mfinganga et al., 2008; Naaz, Charmaraj & Duttagupta, 2012; Parker et al., 1979;

Sutrisna et al., 1993). Not only is it an issue of distance, but also of terrain (Hang & Byass, 2009; Malik et al., 2006). In fact many studies in Nepal specifically have demonstrated a strong relationship between distances and care-seeking. One study of pregnant women and newborns found the women tended to use home remedies and THs more frequently when health facilities were further away and terrain was difficult (Syed et al., 2008). Other studies found that people tend to use alternative care and traditional remedies because of difficulty accessing government providers, and that likelihood of seeking treatment at modern allopathic facilities decreased significantly when facilities were further away (Niraula, 1994; Shankar, Partha & Sheway, 2003). Even for dire cases, geography and transit pose a problem for treatment-seeking in Nepal (Meska et al., 2003).

Unfortunately, despite the fact that a host of studies have established a strong relationship between distance and care-seeking, the quantitative results from this study only found one significant association between distance and care-seeking within the VDC: greater distance to the government facility was associated with reduced likelihood of seeking care in another VDC as opposed to ones own VDC. This makes sense given that most households which have to travel greater distances to get to the health facilities in their own VDCs usually have to travel even greater distances to get to adjoining VDCs than those households closer to the centre (ie. closer to the government health facility, which is usually at the center of the VDC), with easier access to roads and therefore easier access to neighbouring VDCs.

Despite very few significant quantitative findings, accessibility was mentioned frequently in the qualitative interviews as being both a barrier to and a reason for choosing particular providers. In particular, lack of accessibility deterred some from seeking care at government facilities and encouraged them to seek care from the more conveniently located THs or FCHVs or to use home-based care instead, a finding which has been corroborated in other studies (Shankar, Partha & Sheway, 2003; Sikder et al., 2012; Syed et al., 2008; Weerasinghe, 2005).

Still, while physical accessibility in this context does factor into households' conscious thought processes a lot, it does not seem to play a very large role in their subconscious decision-making. This could be due to the fact that compared to what used to be the situation, accessibility of facilities has improved greatly and most people have government facilities within their reach. In fact, a study on decentralisation of the government system illustrated that the decentralisation process was associated with increased accessibility and therefore greater usage of government services in Nepal (Regmi et al., 2009). Since most households were within 5km of a government facility, distance may no longer be the most important factor in the decision-making process. This has actually been confirmed in other studies from Nepal, which showed only a moderate impact of distance on care-seeking (Hotchkiss, 2001). One study even found that quality of health facilities trumped accessibility, and that people were willing to travel greater distances if the facilities were presumed to be of high enough quality (Acharya & Cleland, 2000). The limited number of significant results, though, could also be a problem with the study data. Given that accurate GPS mapping

could not be done for every households in every VDC, and given that is was difficult to factor the topography into the accessibility equation, most of the distances between households and health facilities may have been moderately inaccurate, therefore resulting in fewer significant findings than we would expect if more accurate distances had been calculated. That being said, given that every distance between toles and VDCs was comparably inaccurate for all measures, it would be assumed that these inaccuracies might cancel each other out since the relative differences would be comparable.

Government Health Facility Quality: Objective Index

As discovered by Acharya and Cleland (2000) in their study mentioned above, health facility quality is probably one of the most important variables in pulling people towards or deterring them from using different care options in the system both on a conscious and subconscious level. It is important, though, to make a distinction between quality in an objective sense and quality as it is perceived, because inevitable both impact decisions. Objective quality is really a measure of facility infrastructure, equipment availability, hours, manpower, availability and technical capabilities of the staff. As mentioned in the methods, in order to assess this a composite measure of facility quality was created based on government standards, and government facilities were categorised accordingly (as was also mentioned in the methods, there was no multicollinearity between the facility type and objective facility quality, so these were considered separate independent contributors). In other studies, objective facility quality was found to be

associated with treatment choices and delays (Chawla & Ellis, 2000). One study demonstrated that lack of available medicines increased delay times before treatment seeking from public providers, while another study found that the restrictive hours on health facilities were the primary reason households were unable to seek timely care in Ecuador (Chibwana et al., 2009; Luque, Whiteford & Tobin, 2008). Similarly, in Nigeria, irregular hours and poor service quality were also associated with low government service utilisation, as were chronic drug shortages (Attah, 1986; Osubor, Fatusi & Chiwuzie, 2006). Long facility wait times were the best predictor of public health facility underutilisation for children in Bangladesh, while short consultation times were associated with not seeking ANC or PNC (Rahman et al., 2010). Absenteeism and medicine shortages were associated with not using government facilities in India (Singh, Yadav & Pandey, 2005; Naaz, Dharmaraj & Duttagupta, 2012). Conversely, in Ghana, qualified personnel, availability of lab services and injections and good quality medicines were what attracted people to hospital facilities there (Asenso-Okyere et al., 1998).

In this study, many households mentioned facility quality as a factor for choosing or not choosing particular providers in the qualitative results, and in the quantitative results, the objective quality of the nearest government facility was significantly associated with quite a few decisions – whether or not pharmacy care was used first, whether or not home care was used first, whether or not allopathic/pharmacy care was used last, and whether or not care was sought in other wards or other VDCs. It is interesting to note, however, that it was not

associated in the final models with usage of allopathic providers first or allopathic providers ever, although in the preliminary chi-squared analyses, a higher percentage of households nearest to higher quality facilities were more likely to use them first (26% of those nearest good facilities compared to 18% for those nearest fair facilities and 16% of those nearest poor facilities), but the quality of the nearest facility did not seem to matter much if we look overall at whether or not allopathic care was used at least once, not just as an initial option (48% of those nearest to poor quality facilities use allopathic care at least once, while 42% of those nearest to fair facilities and 47% of those nearest to good quality facilities). Once we control for other health facility, household and illness variables, however, whether or not allopathic care was sought first becomes insignificant.

Health facility quality was also not found to be associated significantly with any delays in care-seeking, but this could also have to do more with the way in which delay data was collected than anything.

Let's start to examine the significant results by looking at initial provider selections. Higher objective facility quality was associated with lower likelihood of using home care first and higher likelihood of using pharmacy care first. Regarding home care, it makes sense that a household would be less likely to opt for home care first if they had a better quality facility nearby because one of the reasons people opt for home care first is because of convenience not quality. So, if you have access to a high quality facility, it makes sense that people avail of the

services there initially given that most people spoke about using allopathic facilities and pharmacy care because it was better quality and more effective than herbs. Although this exact finding is not corroborated in the literature given that very few studies have effectively studied the impact of objective facility quality on care order, this finding was indirectly corroborated by the qualitative findings and by other studies which indicated that people were more willing to seek facility based care if the facilities were of higher quality, leading us to extrapolate, they were less likely to use home care if a high quality facility was nearby (Acharya & Cleland, 2000; Asenseo-Okyere et al., 1998; Lewis, Eskeland & Traa-Valerezo, 2004).

The home care finding also makes sense when you consider that households were more likely to use pharmacy care first if they lived nearer to a high quality government facility (and more people were likely to use government care in the preliminary analyses). Since initial provider choices are a zero sum equation, greater likelihood of using one provider goes hand-in-hand with lower likelihood of using another option – in this case, home care. While the pharmacy usage doesn't seem to make sense, given that one would suspect that households nearer to better quality government facilities would avail of them first, it might be explained by the fact that there are simply more pharmacies available in areas surrounding better quality facilities since higher quality facilities are more likely to be used and therefore more opportunities for nearby medical shops to spring up. It is simply an issue of supply and demand: greater demand for health services, means greater demand for medicines not available at health facilities,

which means greater likelihood of someone opening a medical shop or pharmacy nearby, which means greater likelihood of someone living nearby using one of these medical shops/pharmacies as a first point of care, since care there is expedient and versatile (according to the qualitative findings). Those nearer to poorer quality facilities do not necessarily have the option of pharmacy care and therefore resort to home care or other providers first. Unfortunately, while we can speculate that this might be the case, this was not measured, although anecdotally we can attest to the fact that more drug suppliers were clustered around higher quality facilities, which tended to be in areas of generally higher infrastructure (although multicollinearity between facility quality and ward infrastructure was not found for any of the models). Other studies have shown that usage of facilities is in part a product of their availability – if a facility is available, people will use it, which makes logical sense (Coulton & Frost, 1982; Makuc et al., 1991).

Households were not only more likely to use pharmacy care first if they were nearer to a good quality facility, but were also more likely to use allopathic providers or pharmacy care last if they were closest to a 'fair' or 'good' quality government facility. This also makes sense given the logic used above – that there simply are more pharmacies around good quality facilities -- but it also makes sense when you consider that people tend to use a process of trial and error in their care seeking – starting with those care options which might be easiest and closest and building up to those providers which are considered most efficacious (Colvin et al., 2013). In this case, it stands to reason that if a household lived near

to a good quality facility, it might be a last port of call after other options had been attempted, whereas if a household lives closer to a poorer facility, that government facility might be trialed earlier if at all.

Finally, in terms of location of care choices, households closer to higher quality government facilities were less likely to seek care from other wards or from other VDCs. This finding makes sense, because why go elsewhere and travel further for good quality care if you have it already available in your own ward or at least in your own VDC?

Objective health facility quality was not found to be associated with delays in care seeking.

Government Health Facility Quality: Subjective Ratings

As much as objective facility quality can subconsciously impact household's care decisions, it perhaps more important to understand the ways in which feelings towards government services and subjective quality ratings influence these decisions on a more conscious level. Several other studies have explored the relationships between poor perception -- poor provider attitudes and poor quality treatment -- and decreased health facility utilisation (Ager & Pepper, 2004; Attah, 1986; Bichmann et al., 1991; Kyomuhendo, 2003; Mbagaya, Odhiambo & Oniang'o, 2005; Nuwaha, 2006; ten Asbroek et al., 2008; Uzochukwu & Onwujekwe, 2004). Although perceptions and expectations of services will be

discussed in greater detail as part of the psychological processes that govern facility choices, it is important to acknowledge that household ratings of government facilities in terms of perceptions of accessibility, affordability, quality of care and quality of providers are also significantly associated with specific care choices in the quantitative models, namely whether or not allopathic/pharmacy care was used last, whether or not allopathic care was used ever and whether or not care was sought within one's own ward. Subjective quality, just like objective quality, was not found to be associated with delays.

Households who rated their nearest government health facilities more highly were both more likely to use allopathic providers at least once in their care pathways and more likely to use allopathic/pharmacy care last. This makes sense since perceptions of services are an indication of past experiences with services, and past behaviour has been shown to be one of the biggest predictors of future care behaviour, so if a household has had a positive past experience with a government provider, they are more likely to use that provider again, hence the greater likelihood of using an allopathic provider at least once (Colvin et al., 2013; Hausmann-Muela & Riber, 2003; VR Kamat & Nyoto, 2010; Nsabagasani et al., 2007). Perceptions are not only an indicator of past experiences, but also an indication of trust in services, which means if a household trusts a provider, they are more likely to consider it is an important last resort – hence the finding that households with higher perceptions tended to use allopathic care or pharmacy care as a last resort. This makes sense with the existing literature that shows that good perceptions lead to increased utilisation of services and bad

perceptions can lead to decreased utilisation of services (Ager & Pepper, 2004; Asenso-Okyere et al., 1998; Colvin et al., 2013; Masatu et al., 2001; Naaz, Dharmaraj & Duttagupta, 2012; Uzochukwu & Onwujekwe, 2004).

Finally, just like objective facility quality, higher subjective ratings were associated with decreased likelihood of seeking care in another ward as opposed to one's own. Again, this makes sense given the logic discussed above – if you perceive that the facility nearby you is of better quality (whether or not that perception is related to the reality of the objective facility quality), then you are less likely to feel the need to go further afield for care than if you perceive the facility to be of worse quality.

7.6e Illness Characteristics:

If care-seeking is a balancing act between predisposing and enabling factors, then need factors (illness characteristics) are the final straw which can tip the scales in one direction or another. Just like health facility characteristics, illness characteristics are both a combination of objective facts (symptoms, diagnoses, duration of illness etc.) and perceptions (perceptions of severity, pain, worry etc.) which taken in conjunction influence a care decision. Innumerable studies have also explored the relationship between various illness factors and various care choices, but for the purpose of this research a decision was made to focus exclusively on illness type and illness severity (as perceived by the patient, which was highly correlated with objective ratings and doctor's ratings) as two very important illness characteristics.

Illness Type:

Just like countless studies have explored the relationship between various demographic factors or health facility factors and care decisions, so too have a handful of studies explored the relationship between illness type and care decisions in many different contexts, many of them as part of the same studies which explored other factors as well. In short, what all these studies have found is that the nature of the illness matters in influencing the type of care that is sought, even in Nepal (Abdulraheem, 2007; Basu, 1990; Colvin et al., 2013; Niraula, 1994; Raj Sharma, 2008; Reniers & Tesfai, 2009; Sepehri et al. 2008). In fact, in one study the nature of the illness was found to be the most important determinant factor in care choices (Fassin et al., 1988).

In this study, illness type also seems to matter quite a lot. Not only did illness type come up in the qualitative interviews as one of the most important factors in determining whether or not allopathic providers or THs were to be consulted, it also came up as significantly associated with a handful of different care choices in the quantitative analyses. In the qualitative findings, THs were to be consulted first if illnesses onset suddenly, if the pain radiated, if the origin of the disease were uncertain or if it caused dizziness, fainting, heart palpitations, or vomiting. Allopathic providers were to be consulted if the illness was slow to onset, if the pain was localized, if the origin of the illness was known or if the illness was associated with coughing, other respiratory symptoms or with diarrhea. All of these results have actually been echoed in other studies in other contexts and

elsewhere in Nepal, where certain illnesses were seen as the purview of western medicines and others were seen as the purview of traditional healing (Colvin et al., 2013; Nchinda, 1977; Niraula, 1994; Winston & Patel, 1995).

The qualitative finds seem to match up nicely with the quantitative results, which indicate that for respiratory illnesses, home care was more likely to be used first and some care was less likely to be sought overall. This makes sense when you consider that the majority of respiratory illnesses were colds or coughs, which either resolve on their own (hence the reason most households did not opt for any care) or are often treated with a host of home remedies (including hot water with lemon, ash, hot water with salt etc.). So, for a common cold, it makes sense that outside care would not be sought as frequently as it was for parasitic or infectious diseases or other, less common diseases, which were more likely to be the purview of THs or allopathic providers.

That being said, for less common illnesses (not respiratory or infectious/parasitic diseases), households were more likely to seek care within their own wards or own VDCs than outside of their own wards or own VDCs. In some ways, given the qualitative results, this makes sense, because often households rely on THs for diseases which they are less familiar with, and THs are usually present in every ward of every VDC. This finding, however, was not actually substantiated by the initial quantitative results, which indicated that only 25% of those with 'Other' illnesses used THs at least once and 20% used them first, while 45% of them used allopathic providers at least once and 40% used allopathic providers first. The

other possible explanation, then, is simply that people with more uncommon diseases were more likely to have allopathic health providers located within their wards and as a result were less likely to have to leave their wards or VDCs to obtain allopathic treatment. This makes sense when you also consider the fact that when people experience less well-known illnesses which they are less certain about, they are more likely to seek treatment from the nearest possible provider rather than traveling further afield. In this case, it seems as if the nearest possible providers were often allopathic ones.

Illness Severity:

Perhaps even more important than the type of illnesses experienced in terms of determining care choices, is the severity of those illnesses as perceived by the patients (which was found to be highly correlated in this context with more objective illness severity indicators). In several studies specifically from Nepal, perceptions of illness severity were seen as the most important predictor of whether or not outside care was sought or prompt and appropriate care was sought for childhood illnesses (Pokhrel & Sauerborn, 2004; Sreeramareddy et al., 2006). In other contexts outside of Nepal, more severe illnesses, more symptoms or illnesses with longer durations were consistently associated with greater usage of modern allopathic providers (Engelkes, 1992; Hildenwall et al., 2007; Mabilia, 2000, p. 196; Mulder et al., 2008; Taffa & Chepngeno, 2005; Weller, Ruebush II & Klein, 1997; Yimer et al., 2009; Zhang et al., 2008). Conversely, less severe diseases were associated with lower usage of allopathic care, higher usage of

home care or greater length of delays before seeking care at a health facility (Ali &de Muynck, 2005; Engelkes, 1992; Mulder et al., 2008). Other studies have found that people tend to switch providers, from traditional to allopathic, as the severity of their illnesses increases (Amenu et al., 2000). Still a few other studies did not find any relationship between severity and choice of providers (Danso-Appiah et al., 2004; Hang & Byass, 2009).

In this study, not only did illness severity come up in the qualitative results -- low illness severity was a reason for not seeking government care, while high illness severity was a reason for seeking government care or private care – but it was also found to be significantly associate with home care first, some care, outside care, allopathic care ever and care within the ward. Specifically, for more severe illnesses, home care was less likely to be used first, and some care was more likely to be sought overall, as was outside care. If we look at the preliminary quantitative results, a clear trend emerges, for the most severe illnesses, more than half of them sought both THs and allopathic providers at least once. All of these findings make common sense and comports with the existing literature from Nepal and elsewhere that increased severity leads to greater likelihood of seeking some care, and that if a household perceives an illness to be more severe, they will usually opt for outside care first, bypassing home care altogether (Engelkes, 1992; Mulder et al., 2008; Niraula, 1994; Pokhrel & Sauerborn, 2004; Sreeramareddy et al., 2006; Taffa & Chepngeno, 2005; Weller, Ruebush II & Klein, 1997; Yimer et al., 2009; Zhang et al., 2008). This also comports with the finding that households which perceived their illnesses as more severe were more

likely to use allopathic care at least once. This can be explained by the fact that most households in the qualitative sample said they felt allopathic medicines were more powerful and fast acting than herbs, a finding which has been confirmed in other contexts as well (Iyun & Oke, 2000; Maslove et al., 2009). Finally, this also makes sense when you consider that more severe illnesses were also associated with lower likelihood of seeking care from another ward. It is possible that, the urgency of a severe illness necessitated that care be sought close-bye whenever possible, which also seems to be consistent with the findings on illness type and care-seeking, although increased illness severity was also not significantly associated with decreased delay times.

7.6f Health System Knowledge:

Finally, it is important to also look at the role that household knowledge has to play in the care-decision-making process. Knowledge does not really fit into any of the predisposing, enabling or need categories because it is really a combination of education and prior experiences or prior exposure to health services, which is why a decision was made to include it in its own category altogether. Most studies which have factored knowledge into the HSB process have looked at illness or treatment knowledge and the relationship between that type of knowledge and care-seeking. Specifically, other studies have looked at the relationship between knowledge of respiratory infections (RTIs) or sexually transmitted diseases (STIs) and likelihood of seeking treatment, knowledge of ORS and attendance at clinics for child illnesses, knowledge of TB symptoms and delays in care-seeking, knowledge of danger signs for neonatal illnesses and care seeking, knowledge of

URTIs and appropriate care seeking etc. (Ahmed et al., 2009; Dongre, Deshmukh & Garg, 2008; Materia et al., 1993; Mfinanga et al., 2008; Ndegwa et al., 2005; Ngo et al., 2007; Tan et al., 2006). Several studies from Nepal specifically have examined the relationship between knowledge of STIs and usage of THs and knowledge of dangers signs and care seeking for newborns (Syed et al., 2008; Poudel & Mac Dougall, 2003). Very few studies, on the other hand, within Nepal or elsewhere, have looked at the relationship between health system knowledge and care-seeking, and the one study from Nepal that did found a positive relationship between knowledge of health workers and health facility usage (Niraula, 1994).

This particular study tried to ascertain the relationship between health system knowledge (those factors discussed in the section above) and care choices and care delays with the belief that knowledge of the broader health care system might also have a role to play in the overall decision-making process. While the preliminary results revealed that households with higher knowledge of government services were more likely to use government providers first and overall and were least likely to use THs first or at all, the final models, in which other variables were controlled for, only revealed a significant relationship between higher knowledge and lower likelihood of using THs first. It may be that once education is controlled for, which is also highly associated with allopathic care usage, the impact of knowledge on allopathic care choice is no longer significant, but TH-usage is independent of education (no final models where run to determine the relationship between knowledge and 'TH ever' usage). It makes

sense that TH-usage would be negatively associated with knowledge of health services in part because those who use government health services more frequently are more likely to be familiar with them and their functioning, be more capable of navigating the allopathic care system, and therefore probably use TH services less overall (both initially and at other points in their care pathways), which is a finding corroborated in the initial analyses in **Appendix 7.1**. Knowledge, in this case, is indicative of past care-seeking behaviour, which is a predictor of future care-seeking behaviour (Colvin et al., 2013). These findings are also consistent with the literature, which indicates a relationship between greater knowledge of both illnesses and health workers and greater usage of allopathic care facilities as opposed to THs (Niraula, 1994; Syed et al., 2008; Poudel & Mac Dougall, 2003). It is also possible, however, that rather than good system knowledge preceding care choices and influencing them, that households actually only have good knowledge because they used allopathic providers for this episode rather than THs, so it is difficult to discern whether knowledge in this case is a product of the care-decision or an antecedent of it. Future studies would have to use prospective data collection methods to tease apart this distinction.

Knowledge was also not associated with any delays in care-seeking.

7.6g Putting All The Objective Factors Together:
A Narrative of HSBs in Makwanpur

While it helps with comprehension to look at each objective variables in our theoretical model one at a time to understand the relationships they each have with specific care decisions and the potential reasons for those relationships, it is important to be able to knit them all together into a coherent narrative about what factors most influence care choices and specific care decisions in this context. After all, it is this kind of broad-based understanding that will help with designing of future programs and health services. In order to do this, it helps to break each decision down into a series of smaller, step-wised decisions and determine what factors are significant at each step and which categories of variables explain the greatest percent variance in the final models (ie. have the greatest impact on the decisions overall).

Let's start by looking at the most basic decision a household needs to make once an illness is recognised: whether or not they will do anything for treatment or whether they will just wait and see if the illness resolves on its own. A household is more likely to do something to deal with their illness if they are in a higher wealth quintile, if the illness is not a respiratory disease and if the illness is more severe, which all makes sense. At this step, illness variables account for the most variance in the final models.

Once a decision has been made to do something, a second decision needs to be made about whether or not home care will be attempted first or outside care will

be sought right away. Illness severity and illness type continue to matter in this decision, but in addition to those, a household is more likely to use home care first if they are located closer to a poorer quality government facility and if the head of the household is more educated. Wealth quintile no longer seems to be significant, so it seems like once a decision has been made to do something, the financial status of the household is not a significant determinant, in this context, of whether or not outside care is sought. Once again, illness variables explain the greatest percentage of variance in this overall model.

For those households which bypass home-based care altogether and opt for allopathic care first, no single variables are significantly associated with that choice in the final analysis, but both household variables and illness variables have a comparable effect on the overall model variance. Alternatively, for those households which bypass home-based care and opt for THs first, illness severity no longer seems to matter, but knowledge of the government health system does – those households with less knowledge are more likely to use THs first. Household variables have the biggest impact on the overall model variance.

Finally, for those households which bypass home care and use pharmacy care first instead, severity of the illness continues to matter – the more severe an illness, the more likely pharmacy care is to be used first – but so too does the quality of the nearest government facility. Households nearer to higher quality government facilities are more likely to use pharmacy care first, the complete opposite of the findings for those who opted for home care initially. We can only

assume this has more to do with the availability of pharmacy care nearer to high quality facilities than anything else. Again, as was the case for TH usage first, household variables collectively have the biggest impact on the overall model variance.

For those households which opt for home based care initially, those with less severe illnesses continue to use home based care only, while those with more severe illnesses opt for some form of outside care (illness variables again have the greatest impact on overall model variance). For those households which opt for outside care, illness severity continues to matter for those households which ultimately select allopathic providers at some point in their care pathways, as does patient gender, patient age and subjective ratings of government facilities – households with more severe illnesses, male patients, younger patients and those household which rate government services more highly are more likely to use government services at least once in their care pathways. In this case, despite the significance of some of the patient factors, illness factors seem to explain the greatest percent variance overall in the final model.

Once allopathic care has been decided on, a further decision must be made about whether or not to use government or private providers first. When it comes to the decision between government providers or private providers no single variables seem to matter significantly in the final models, but greatest percentage of overall model variance is attributed to household level variables again.

Taking yet another step along the decision pathway, those who opt for government care must make a decision between whether or not to seek care from FCHVs or facility-based government care, a decision which is significantly associated with illness severity – the more severe an illness, the more likely a household is to select facility-based government care. Again, the greatest percentage of overall model variance is attributed to household level variables.

Finally, for those who opt for allopathic care at some point, a decision needs to be made about whether or not this will be their terminal point of care or whether additional care will be sought. This decision is not associated with illness severity or any illness variables, for that matter, but rather with objective and subjective government facility quality – the higher the quality, the more likely it is that a household will select allopathic providers last. Most of the variance in this model, however, is still explained by household-level variables despite the individual significance of some of the health facility variables.

For those households which opt for more than one provider for a single episode, only patient age seems to impact this decision – the older the patient, the less likely they are to consult multiple providers -- so it makes sense that most of the model variance would be attributed to patient variables.

When it comes to location of providers used, ward-level factors, health facility quality, illness type and severity were significantly associated with whether a household leaves their ward for care. Once a decision to leave a ward has been

made, severity, subjective quality ratings and ward-level SES are not longer associated with the decision, but distance becomes significant in determining whether or not households seek care within their own VDCs or go to another VDC for care. Again, for this decision, most of the variance can be explained by household-level variables even if no single household level variables are significantly associated with the choice.

Finally, when it comes to household delays before seeking allopathic care or in between outside care providers, household wealth quintiles matter – households in higher wealth quintiles delay less. Again, household variables explain the greatest percentage of model variance for delays.

When it comes to overall decision-making processes, though, there really are no consistent rules and there is no string theory to unify all of the disparate decisions households make – in fact, depending on what decisions we look at, any number of different objective variables are significant (figure 7.31, table 7.20). Still, it is important to note the following about overall decisions: illness severity is significantly associate with multiple different decisions starting with whether or not any care is used and working all the way up through specific allopathic provider choices; Individual household-level variables are only significantly associated with the initial step about whether or not any care is sought; Overall, illness variables collectively seem to be most important during the first few, broad decision-making steps – whether or not some care is sought, whether or not home care is tried first, whether or not outside care is used, whether or not

allopathic providers are consulted at least once – while household variables, despite their individual insignificance in most of the final models, collectively seem to be most important in influencing specific provider choices– whether or not THs or pharmacy care are used first, whether or not private or government providers are used first, whether or not FCHVs or facility-based care are selected first and whether or not care is sought within the same VDC – and length of delays. These findings are consistent with the existing literature from other contexts which have repeatedly shown that need factors (illness factors) are dominant predictors of health service usage in some cases, while household variables are most important in other cases (Abuldraheem, 2007; McAuley & Arling, 1984; Wollinsky & Coe, 1984).

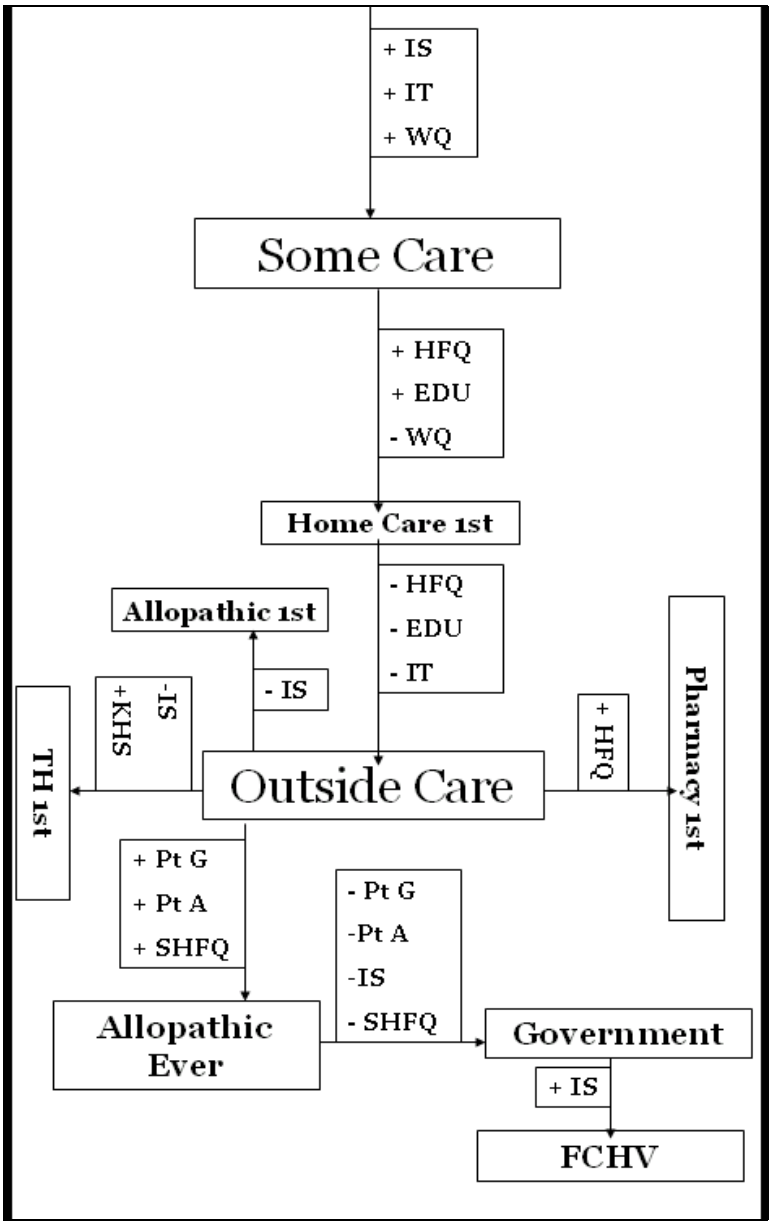


Figure 7.31 Overview of what objective factors become significant (+) or insignificant (-) moving from one care decision to the next. For example, for those households which moved from using home care first to outside care, health facility quality, education of head and illness type were no longer significant, while illness severity still continued to be significant in the final model.

Key: IS = illness severity; IT = illness type; HFQ = health facility quality; SHFQ = subjective health facility quality; EDU = education of head; KHS = knowledge of health services; WQ = wealth quintile; Pt G = patient gender; Pt A = patient age

Table 7.20 Overview of all of the significant findings from all the final models (including those only discussed in the appendices) broken down by objective factors.

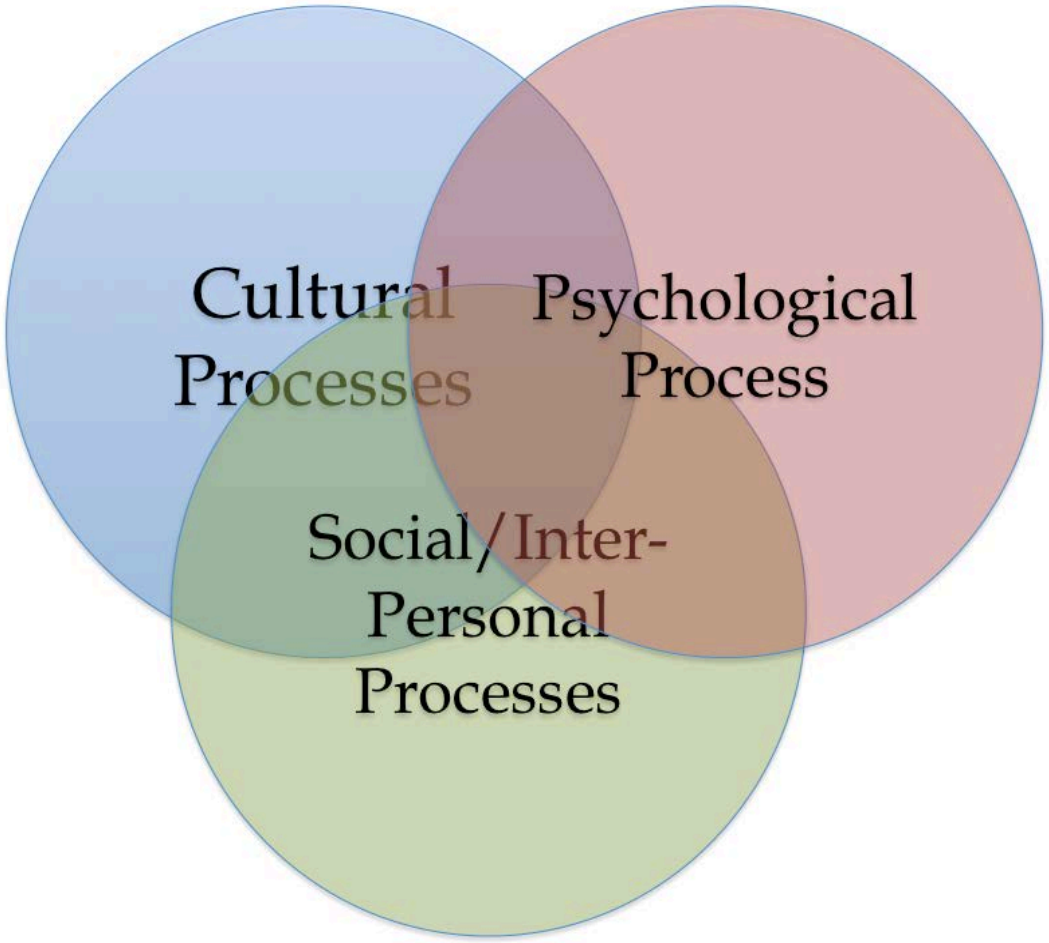
Patient Age	Patient Gender	Household Wealth Quintile	Household Head Education
• TH First • Delay to outside care • Home vs. outside care • **TH vs. allopathic/ pharmacy care (first)**** • **TH vs. pharmacy (first)**** • Own ward vs. other ward • **One provider vs. more than one provider**** • **Allopathic ever**** • **TH ever**	• Allopathic Provider first • None vs. some care • Home vs. outside care • TH vs. allopathic care (first) • Allopathic ever	• **Delay to allopathic care**** • **Delay btw first and second outside providers**** • **None vs. some care**** • Home vs. outside care • Own vs. other VDC • Allopathic ever	• **Home care first**** • **Pharmacy care ever**
Household Occupation	**Household Composition**	**Household Caste**	**Ward Level Index**
• Allopathic/ pharmacy care last • None vs. some care • TH vs. allopathic care ONLY • TH vs. pharmacy care (first) • Allopathic vs. pharmacy care (first) • Own vs. other VDC • TH ever • **Pharmacy care ever**	None	• Allopathic ever • TH ever	• Home care first • Delay to outside care • None vs. some care • Home vs. outside care • Government vs. private provider (first) • **Own vs. other ward**
Gov Health Facility Type	**Gov Health Facility Quality**	**Health Facility Subjective Rating**	**Distance to Gov. Health Facility**
• Pharmacy care first • **Delay btw first and second outside providers**** • Home vs. outside care • TH vs. pharmacy care (first) • Allopathic vs. pharmacy care (first) • Pharmacy ever	• **Pharmacy care first**** • **Home care first**** • **Allopathic/pharmacy last**** • TH vs. allopathic/ pharmacy care (first) • TH vs. allopathic care ONLY • TH vs. pharmacy care (first) • Allopathic vs. pharmacy care (first) • **Own vs. other VDC**** • **Own vs. other ward**** • **TH ever**	• **Allopathic/ pharmacy care last**** • **TH vs. allopathic care ONLY**** • FCHV vs. facility-based government care (first) • **Own vs. other ward**** • **Allopathic ever**	• Home vs. outside care • **Own vs. other VDC**** • Allopathic ever

** Significant for $p<0.01$ (these are the only results discussed in the text above although the $p<0.05$ results are discussed in the results chapter as well)

Illness Type	Illness Severity	Knowledge	
• Allopathic care first • **Home care first**** • **None vs. some care**** • TH vs. allopathic are ONLY • FCHV vs. facility-based government care (first) • **TH vs. pharmacy care (first)**** • Allopathic vs. pharmacy care (first) • **Own vs. other VDC**** • **Own vs. other ward****	• Allopathic provider first • **Home care first**** • **None vs. some care**** • **Home vs. outside care**** • TH vs. allopathic/ pharmacy care (first) • **TH vs. pharmacy care (first)**** • Own vs. other VDC • **Own vs. other ward**** • **Allopathic ever**** • **TH ever**	• **TH first**** • Allopathic care first • TH vs. allopathic providers (first) • **TH vs. allopathic/ pharmacy care (first)**** • TH vs. pharmacy care (first) • One provider vs. more than one provider • **TH ever**	

** Significant for $p<0.01$ (these are the only results discussed in the text above although the $p<0.05$ results are discussed in the results chapter as well)

7.7 *Understanding the Relationship between **Subjective Processes** and Care Decisions*



While understanding the relationship between these various objective factors and care decisions can help us to paint a broad-brush, overarching picture of some of the subconscious factors at work in the HSB process at a population level, the subjective process are really what drive conscious decision-making at an individual household-level. Understanding these processes may ultimately help us to understand some of the explicit reasons why certain individual health decisions are made and therefore help us to understand at a more individual level

how these behaviours can be shaped to reduce morbidity and mortality and increase adequate service-usage in this context. For example, while wealth quintiles alone may not be significantly associated in the final models with whether or not a household uses allopathic services at the population level, costs of services and household's perceptions of their affordability certainly do impact care choices on an individual household-level, but this relationship may not be captured with controlled regression models alone. In fact, rarely does human behaviour – which if often irrational and shaped by many different convoluted internal and external forces -- loan itself nicely to statistical models. This is why the various interconnected psychological, social and cultural processes must also be explored in order to paint the fullest picture of the why and hows of HSBs in Nepal. In fact, many studies have shown that usage of services goes beyond various objective factors, and really boils down to the subjective processes - cultural barriers, perceptions of facility quality, interpersonal processes and self-efficacy beliefs (Anis, 1981; Colvin et al., 2013; Kowalewski et al., 2000; Mac Rorie, 1998; Thaddeus & Maine, 1994). Although each of these processes is intimately connected with the rest – psychological processes are inevitably shaped by the social and cultural environment – we will take each in turn and look at how it shaped health-seeking decisions in Makwanpur:

7.7a Psychological Processes

While a series of objective facts exist about patient characteristics, household characteristics, illness characteristics, health facility characteristics etc., these objective factors inevitably pass through individual psychology – individual

perceptions, attitudes, beliefs, emotions and cognitions -- before they are shaped into a final decision about care-seeking. Countless qualitative studies of HSBs have shown how perceptions of medicines, attitudes toward various service providers, and previous experiences can shape care-decisions (Attah, 1986; Baltussen et al., 2002; Fontahun & Degu, 2003; Hall et al., 1987; Godfrey-Faussett et al., 2002; Mulder et al., 2008; Shrestha & Ittiravivongs, 1994; Wallston et al., 1978). Handfuls of other studies have shown how household decision-making is pragmatic and shaped by trial and error (Asenso-Okyere et al., 1998; Fosu, 1989; Winston & Patel, 1995). While others have demonstrated that decision-making is completely irrational and guided more by emotions, anxieties and fears than anything else (Adamson et al., 2009; Chintu & Susu, 1994; Colvin et al., 2013; Ngo et al., 2007; Poudel-Tandukar, Poudel & MacDougall, 2003; Zhang et al., 2008).

In this study, decisions were shaped by a combination of different psychological processes:

Attitudes and Perceptions

In Makwanpur, perceptions of services, expectations of care and attitudes towards certain providers matter in determining where people go for treatment. It is not just a matter of how close or how far away a facility actually is, but how accessible a household perceives it to be that influences whether or not care is sought there; It is not how much a facility charges, but how affordable a household perceives it to be that influences whether or a household is willing to

pay; It is not how good the facility is in objective terms, but how a household perceives its quality to be that influences whether or not a household trusts a specific provider. All of these factors influence decision-making, and while one household may perceive a facility to be affordable and good quality, another household may perceive it to be expensive and poor quality. In fact, while many households cited affordability and high quality as reasons for choosing government facilities, other households cited high costs and poor quality as the reasons for not choosing those same government facilities – it is all a matter of perception. In fact, for many households perceptions of good quality facilities trumped other objective health service factors when it came to selection of private providers or pharmacy care.

The role of perceptions in health provider choices has been explored in many other contexts with similar results. In other studies in Nepal, perceived quality of government health services was a determining factor in their usage (Acharya & Cleland, 2000; Mariko, 2003; Niraula, 1994). The same has been found in studies outside of Nepal. Perceptions of poor quality government services in Uganda and Nigeria prevented people from using the services there, while confidence in THs and distrust in modern pharmaceuticals was the main reason households selected THs in Benin (Attah, 1986; Bichmann et al., 1991; Ndyomugyenyi, Neema & Magnussen, 1998). In India, Uganda and Ethiopia, perceptions that private services were more efficient, more effective and offered superior services led most household to prefer them over government services, while another study in Ethiopia found people perceived that modern services were of poor quality and

were not beneficial and therefore did not utilise modern allopathic providers (Deressa, Ali & Hailemariam, 2008; Fontahun & Degu, 2003; Griffiths & Stephenson, 2001; Naaz, Dharmaraj & Duttacupta, 2012; Nuwaha et al., 2006). In Zambia, poor perceptions of government services led to increased delays in treatment-seeking (Godfrey-Faussett et al., 2002). So, poor perceptions can have a strong influence on decreased service utilisation, while good perceptions can have a strong influence on increased service utilisation.

While these perceptions of services or attitudes towards providers can obviously be influenced or shaped by the broader social and cultural spheres and while they are obviously anchored somewhat in realities, they are also directly influenced by past experiences with health services. In fact, in our study, good past experiences with various providers seemed to contribute to greater future usage of those providers, while bad past experiences had the opposite effect. This has also been documented in other studies from contexts outside of Nepal (Fosu, 1989; Godfrey-Faussett et al., 2002; Hausmann-Muela & Ribera, 2003; V.R Kamat & Nyato, 2010; Malik et al., 2006; Materia, 1993; Matthews et al., 2005; Nsabagasani et al., 2007; Yimer et al., 2009).

Beliefs and Illness Aetiologies

As much as individual perceptions of services and provider expectations can influence care decisions, in some cases it is not so much that the services are perceived to be of poor quality so much as people simply don't believe in them. In part this lack of faith in various providers has to do with beliefs surrounding

illnesses and their causes, and beliefs that certain providers are not capable of treating certain illnesses (Fontahun & Degu, 2003; Sing, Yadav & Pandey, 2005). These disparate belief systems and people's explanatory models of illness have been used to explain why people consult multiple different providers in Nepal's pluralistic care setting (Subedi & Subedi, 1992; Subedi, 2000).

In this study, beliefs about the causes of illnesses also played a large role in whether or not allopathic providers or THs were selected first, as some illnesses were seen as the territory of THs, while others were the territory of allopathic medicines. For a few households, lack of belief in supernatural factors is what prevented them from using THs in their care trajectories. These same findings have been documented in other studies from Nepal and elsewhere – illness beliefs shape provider choices so that there is a matching between the perceived beliefs and the provider's expertise (Dongre, Deshmukh & Garg, 2008; Mulder et al., 2008; Pearson & Makadzange, 2008; Subedi & Subedi, 1992; Subedi, 2000). Many studies have also found that when a household attributes their illness to supernatural forces, this leads to greater delays in biomedical care-seeking (Beirsmann et al., 2007; Comoro et al., 2003; Dillip et al., 2009; Makundi et al., 2006).

Cognitive Processes

As much as attitudes towards health services and beliefs in different systems of medicine dictate choices of providers, the actual processes by which these attitudes and beliefs shape decisions can be at times a very rational and

pragmatic one involving weighing of pros and cons and making the most suitable selection for a given illness, at a given time, predicated on given circumstances (Leeson, 1974; Streefland, 1985; Subedi, 1989). There is typically a process of trial and error by which a specific provider is selected as the initial and the terminal points of care, with a range of other providers sometimes consulted along the way (Colvin et al., 2013; Mota et al., 2009; Sutrisna et al., 1993). By this logic, if one option fails, a household consults others until they are finally treated and cured (Asense-Okyere et al., 1998; Fosu, 1989). Waiting is even seen as a logical step in the process, because a household is waiting to see the effects of the previous treatment option before seeking care elsewhere (Mwabu, 1986).

This trial and error process also seems to be important in Makwanpur as one of the many factors that determines why people go to government providers, private providers or THs. Several households mentioned they ended up at these providers because of a process of trial and error – other options failed them, so they kept on trying new ones. Obviously, this finding has also been corroborated in other HSB studies (Asense-Okyere et al., Colvin et al., 2013; 1998; Fosu, 1989; Mota et al., 2009; Sutrisna et al., 1993).

Emotional Processes

As much as care-seeking can be a rational process involving weighing pros and cons of different choices, it is also at times a completely irrational process dictated by panic and fear. This panic can cause uncertainty, which in turn can lead to usage of a wide array of multiple providers (Adetuji, 1991; Baume et al.,

2000; Chuma et al., 2007; Cominsky et al., 1993; Hugenholtz, Broer & van Daalen, 2009). Alternatively, this fear can be paralysing, preventing people from seeking care altogether (Chintu&Susu, 1994; Mulder et al., 2008; Ngo et al., 2007; Poudel-Tandukar, Poudel & MacDougall, 2003; Zhang et al., 2008). In this study panic was also cited by some households as the motivating factor behind consulting multiple different providers. They went here and there almost haphazardly in an effort to put their minds at ease, rather than making calculated, rational decisions about their consultations.

7.7b Social/Interpersonal Processes

As much as decisions were found to be influenced by individual perceptions, beliefs cognition and emotions, it is hard to extract these from the larger social context in which decision-making inevitably plays out. Since this was a study on household decision-making the dynamics of the decision making process within the household itself are every bit as important as where people go when they step outside of their homes, as is the role of the broader village in shaping beliefs, perceptions and ultimate decisions.

Household Dynamics

Most health decisions take place initially within the household. It is here where symptoms are processed, logistics are considered, permission is sought and treatment plans are hatched (Charles et al., 2008; Chibwana et al., 2009; Franckel & Lalou et al., 2009; Ijzermans & Oskam, 1990; Sepehri et al., 2008). In

Nepal, this is also a very important step in the decision-making process, but one that we did not explore in great depth in this study. Many households, however, mentioned the importance of family consultations and permissions from husbands or household heads as being a critical first step in the longer pathways. Several women even mentioned they were unable to seek allopathic services because they were not granted the permission by their husbands, a finding which has corroborated in other contexts as well (Adetunji, 1991; Agyepong & Manderson, 1994; Chibwana et al., 2009; Nwokocha & Awomoyi, 2009). Although only a few studies in Nepal have dealt explicitly with the roles of household heads in the decision making process, one study found that mother-in-laws can have a very negative impact on care-seeking because they discourage their daughter-in-laws from seeking necessary care by citing their household duties and obligations (Acharya et al., 2010; Sharma, Sawangdee & Sirirassamee, 2007; Simkhada, Porter & van Teijlingen, 2010).

Influence of Neighbours & Broader Social Networks

While decision-making surrounding illness often begins within the household, it usually expands to include broader social networks (Ofoywe et al., 2002). This is as much the case in Nepal as it is elsewhere, where perceptions and beliefs are sculpted and defined by an individuals social surroundings and social networks (Durkin-Longley, 1982; Justice, 1981; Mesko et al., 2003). Not only are neighbours and other villagers consulted for their advice and for the logistical support required for the care-process, but their attitudes towards health services

and beliefs in various illness aetiologies inevitably also shape the beliefs and attitudes of other households (Mulder et al., 2008; Stephenson et al., 2006; Young, 1999; Wondergem et al., 1989). Many households in this study mentioned being influenced both directly and indirectly by the other villagers or being given direct advice from neighbours, especially when it came to utilisation of THs. When asked about their illness beliefs, many households used "we believe" instead of "I believe," an indication of the strong impact of 'group-think' in sculpting health beliefs. These same results on the role of social networks in HSBs have been found in other studies both in Nepal and elsewhere. In Nepal, peer support was found to influence treatment trajectories for TB, and usage of local care for other illnesses was strongly influenced by peer pressures (Mesko et al., 2003; ten Asbroek et al., 2008). In Vietnam, women's treatment seeking decisions for STIs were influenced strongly by the complex interplay of social relationship and community discourse (Ngo et al., 2007). In Uganda, women depended very heavily on other villagers for financial and logistical support for care seeking (Weeks et al., 2005). This reliance on family and friends, however, has the potential to delay necessary care –seeking (Subedi, 1989).

Relationships with Providers

As much as neighbours and peers can shape thoughts and encourage certain treatment choices with both sticks and carrots, so too can relationships with health providers influence care decisions both positively and negatively. Several studies have demonstrated that good interpersonal provider relationships can

have a huge impact on utilisation of services (D'Ambruoso, Abbey & Hussein, 2005; Ditto et al., 1995). Similarly, relationships established with uncertified providers can be a reason households use them instead (Sikder et al., 2012). People are more likely to use providers when they perceive there to be less social distance between themselves and the providers, which is probably one of the reasons why households rely on THs sometimes more than doctors (Kroeger & Franken, 1981). In this study, several households mentioned that they used government providers or private providers because they had an existing relationship with the AHW/HA or doctor, and they trusted him as a result.

7.7c Cultural Processes

> *"So important are culture and ethnicity to health outcomes, that even if structural constraints are removed in the health sector, desired results are unlikely to be achieved unless the cultures of communities, health policymakers and planners, and providers of health care are taken into consideration" (World Bank, 1994, p. 37).*

If we think of these processes as a series of concentric rings each exerting influence on the next, the individual psychological processes are embedded within the social processes, which are in turn embedded in the broadest sphere – cultural processes. Several studies of HSBs have explicitly elucidated the role of this cultural sphere on treatment decision-making, although the mechanisms by which culture exerts its influence are less tangibly discernable, and it always seem to operate as the backdrop of most decisions regardless of context. Just like individual psychology and peer networks can shape beliefs, so too does culture have a role to play in shaping illness aetiology beliefs, norms and traditions. Even

before treatment is sought, culture impacts how people construct meanings of their illness and interpret their symptoms (construction of explanatory models), and eventually the choices of providers they make in light of these constructs (Asenso-Okyere et al., 1998; Barlow & Diop, 1995; Basu, 1990; Chibwana et al., 2009; Feyisetan, Asa & Ebigbola, 1997; Friend-du Preez, Cameron & Griffiths, 2009; Kamat, 2006; Patel et al., 1995; Subedi&Subedi, 2000; Subedi, 1989). The role of culture is so powerful in some cases that it can render everything else completely irrelevant in dictating provider choices (Feyisetan, Asa & Ebigbola, 1997).

In this study, culture was mentioned repeatedly and dogmatically as the reason for selecting THs or for using local herbs for treatment of illnesses. “It is our culture”, seemed to be what most people defaulted to saying when asked about why they had selected to use a TH. In fact, the influence of culture was so strong here that people seemed to almost blindly adhere to it despite beliefs systems that did not always comport and despite an increasing belief in biomedicine. This was found to be the case in other studies on faith healer usage in Nepal, but usually allopathic options were tried if the TH failed treatment after multiple attempts (Niraula, 1994; Poudel-Tandukar, Poudel & MacDougall, 2003). Traditional beliefs in Nepal not only shaped TH usage through shaping aetiology beliefs and construction of norms, but culture can also act as a barrier to outside treatment completely, as seemed to be the case when people in our sample relied exclusively on herbs for their treatments, citing traditions of generations past as the reason. This finding was also echoed in other studies from this context. One study on

care-seeking for children in Nepal found that traditional cultural beliefs about illness prevented women from seeking care for their children outside of the home (Syed et al., 2008). Yet another study on maternal health care in Nepal found that cultural attitudes towards pregnancy prevented women from seeking care outside of the home for pregnancy-related complications (Meska et al., 2003).

So, individual psychological processes, social process and the broader cultural sphere all have a role to play in shaping final decision-making on a conscious level.

Chapter 8:
Final Discussion & Conclusions

This section will briefly summarise all the previous results sections and discuss this study's main contributions to knowledge as well as its limitations, areas for future research and areas for future practice and policy prior to the final conclusions.

I. Contributions & Future Directions

8.1 *Summary of Study Results*

Before we can start to think about future implications, it is important to look back at the narrative arc of what we have learned thus far. Understanding how people navigate through their health landscapes and make healthcare decisions is critical to devising future health interventions, policies and plans.

In **Chapter 5** (objective 1a) we discovered the following: First, illnesses are a regular occurrence in rural Nepal, and most of these illnesses are infectious or respiratory diseases; Second, greater likelihood of illness is connected to SES at the household, ward and VDC-levels; Third, government health services are riddled with inadequacies despite people's general ratings of satisfaction with them. Fourth, people have very low knowledge of the government care system.

In **Chapter 6** (objective 1b) we discovered the following: First, most people do something to try to treat their illnesses, and the majority at least attempt self-care; Second, of those who do seek outside care, most delay at least 24 hours, and most use allopathic government services; Third, of those who choose to use THs,

most do so first and then seek care from an allopathic provider; Fourth, of those who choose to use pharmacies, most do so last after allopathic care; Finally, about a third of household opt for more than one different provider.

In **Chapter 7** (objectives 2a & 2b) we discovered that care-seeking was associated with a host of different factors and processes: First, delays in care seeking are associated with household wealth and SES factors; Second, order of provider choices are most strongly influenced by household-level variables, except for the choice of home care first, which is most strongly influenced by illness variables; Third, specific provider choices, such as facility-based care versus community-based care or private care versus government care, are most strongly influenced by household level factors, but whether or not some care is sought or outside care is sought are both most strongly influenced by illness factors; Fourth, number of providers used is most strongly influenced by patient factors; Fifth, whether or not care is sought within the VDC is most strongly influenced by household factors while whether or not care is sought in the ward is most strongly influenced by community-level factors; Sixth, whether or not allopathic care is used at all is significantly associated with patient age, gender, ratings of government facilities and illness severity; Finally, there are often discrepancies between the conscious and subconscious factors that dictate care choices, and psychological, social, and cultural processes all influence specific choice of providers by shaping attitudes, expectations and beliefs.

So, what then are this study's main contributions and main take-aways?

8.2 *Main Contributions to Knowledge*

Even if behaviours are somewhat universal, and even if these findings have been echoed elsewhere in other contexts, this study still contributes to our knowledge of health-seeking behaviours beyond just providing corroboration:

- Most broad-based population-wide studies have tended to minimize illness burden. This study is one of the few that focuses on the true illness burden in rural Nepal with the consequence that we find fewer people are actually availing themselves of services than originally estimated, and preventative efforts may not be having as much of an impact as intended.

- Most other studies of health services in this context or elsewhere have taken a very narrow look at health facility quality and the impact it has on HSBs. This study takes a more holistic look at what constitutes both subjective and objective quality, and as a result it enables us to have a better understanding of the role actual and perceived facility quality may play in care decision making.

- Most other HSB studies use either quantitative or qualitative methods in isolation. This study offers one of the first extensive mixed-methods study of HSBs in Nepal, and as a result allows us to get inside the data and better understand the whys as well as the whats.

- Most studies of care processes or health service delivery focus exclusively on the costs, accessibility, and efficiency of services within the formal care sector. This study offers a look at the functioning of both formal and informal services in this context -- including looking at the costs and treatments provided by THs and not just allopathic providers.

- Few studies have looked at the role of community health workers as part of people's health pathways. This study looks explicitly at some of the reasons why people chose to use FCHVs in their care pathways.

- Most studies of HSBs look only at maternal care-seeking or care-seeking for childhood illnesses. This study offers a unique comprehensive look at care-seeking regardless of age or gender.

- Most studies of HSBs look exclusively at where people go as a first point of care, but fail to acknowledge the entirety of the care process. This study considers the entire care pathway and the factors that govern provider usage at different points along that pathway.

- Most studies of HSBs were conducted back in the 1980's and 1990's, with only a handful being conducted in the 21st century. The most recent HSB studies from Nepal took place in early 2000's. This study offers an up-to-date look at HSBs in context of a constantly changing environment.

- Most studies approach HSBs using different models and different theoretical frameworks depending on the discipline or context. This study attempts to offer a comprehensive theoretical framework which transcends a single discipline or a single context and can be applied universally to study HSBs both within other areas of Nepal and elsewhere in the world.

8.3 *Study Limitations*

Regardless of those contributions, it is both important and necessary to acknowledge this study was not without its limitations and that the results must be interpreted with certain caveats.

8.3a Limitations of the Quantitative Component

First, there are the limitations with the study design itself. As comprehensive as I would have liked the study to have been in looking at all the variables that could potentially influence these behaviours, it was obviously not possible to incorporate every factor. Instead, a narrow list of 15 final, potential explanatory variables were selected for further examination, leaving countless other variables un-examined (as is evident by the amount of residual confounding which was found in the final models). That being said, given the fact that the number of

variables that could potentially be examined is almost unlimited (Cummings, Becker & Maile, 1980) and given the fact that no other HSB studies have used more than 15 variables in their final models, this study still offers a valuable, albeit incomplete, look at the factors dictating HSBs.

Among the potentially critical factors left out of the final models were past usage of health services, knowledge of diseases and availability of different providers in the area surrounding the household, all of which were found to be of critical importance in other studies, and all of which are worth examining in the future within this context (Colvin et al., 2013). Some of these factors were picked up in the qualitative results, however.

What is true of the explanatory variables can also be said to be true of the dependent variables. Since it was impossible to examine all possible decision processes, inevitably the study focused on what were deemed the most important decisions for the final analyses. Still, no previous HSB studies have looked at more than one or two outcomes of interest, so even with its limitations, this study offered a more comprehensive look at overall health pathways than most. More, in order to arrive at the final models, hundreds of preliminary models were run, and those with too few cases were dropped.

In terms of the actual data collected, this study relied heavily on self-report data, which has been shown to often be inaccurate and biased (CHSC, 2011; Gordon, Hiatt & Lampert, 1993; Newell et al., 1999). Self-reported data can introduce

recall bias or social desirability bias, leading to inaccurate responses (especially as it pertained to specifics of costs, timing or medicines prescribed) and can overestimate the number of people who used allopathic providers, which was seen as the socially desirable option (Coughlin, 1990; Fisher, 1993; Nederhof, 1985). An attempt was made to minimize these biases by using a list of tracer conditions, anchoring memory in relation to specific holidays or events and focusing solely on a very short recall period (two weeks to a month) to reduce recall bias and increase accuracy of reporting (Kroeger, 1983). Each person in the household was asked individually about his/her illnesses and individual symptoms to reduce the likelihood of under-reporting or mis-representing any illnesses, and for each episode selected, each potential provider type was asked about in turn (to ensure no providers were left out of the responses). Whenever possible, the person who experienced the illnesses were asked to report on them, and if a proxy respondent was required this information was recorded and analysed accordingly. Also, to increase the reported accuracy of medicines prescribed and the length of the facility wait times, the respondent was asked to produce the prescription or the pill bottle whenever it was available and was asked in detail about the number of people waiting at the health facility prior to his or her consultation.

Regarding social desirability bias, given that the results were based predominantly on factual information which was not particularly sensitive in nature, we would expect there to be minimal social-desirability bias overall. In order to minimize any bias in favour of allopathic treatment reporting, however,

each interviewer introduced the survey by saying that we were not looking for any particular answers, were not affiliated with any hospitals or the government and were looking for as accurate information as possible. As mentioned above, each provider type was asked about in turn and the question was prefaced by the statement, "We know people in this community sometimes use provider X for their illnesses. Did you use this provider type for treatment of your illness?" Finally, an attempt was made to verify all provider usage against health facility registers or via informal provider interviews whenever possible.

Unfortunately, when it came to the issue of delay before care seeking, it was often very difficult to get an accurate response given data heaping and the tendency for people to round up or down to more convenient numbers. Although an attempt was made to extract as accurate a delay period as possible by asking people how many hours they actually waited and trying to anchor their responses in relation to where the sun was in the sky, most of the delays tended to cluster around 12, 24, 36 or 48 hours. As a result, the data for this particular outcome may be less than accurate, and when the data was analysed, it was impossible to transform it so that it resembled a perfect normal distribution (despite having attempted multiple different transformation mechanisms). In the future, the data should be converted into a categorical variable rather than analysed as a continuous variable.

Beyond the limitations of the study design itself and the potential bias of the interviews, there were also limitations to the data collection process as well. In

terms of data collected on the major illnesses affecting people in this area, it is important to interpret the illness data with caution. Obviously, this illness data was only collected for a four-month period prior to the full onset of the monsoon season, and thus it does not represent the illness burden in this context over the course of an entire year. As other studies of seasonal variations in illness in Nepal have shown, disease burdens are contingent on weather patterns and other environmental factors, and thus fluctuate quite drastically throughout the year (Armstrong, 2006; Bull, 1973; Driscoll, 1971; Jha & Gurung, 2007; Karkey et al., 2008; Saez et al., 1995). So while capturing the data for only a one-month period prior to the survey may decrease recall biases and increase the likelihood of obtaining more accurate data on decision making in response to an illness, it also only represents one slice of the overall pie and cannot be assumed to hold true for the rest of the year. As a result, the same may be true of HSBs, which will obviously differ somewhat during the monsoon season when landslides are more likely, rivers rise and general accessibility overall decreases. Unfortunately, there is not a whole lot that could have been done to deal with this, given the logistical difficulties of collecting data over the course of a full year and especially during the monsoon season, when some of these villages were inaccessible. Future studies should collect HSB data right after the monsoon season to see if behaviours differed during that period.

While the illness data only offered a snapshot of a particular period, there were also limitations to the ways in which diagnoses were made since they could not be predicated on serology or clinical testing, and in most cases, no formal diagnoses

were documented in health registers. Instead, for diagnoses of illnesses we relied on verbal autopsies of a list of symptoms, which is obviously not as accurate as data based on clinical tests. To increase the accuracy of these diagnoses, however, a long list of symptoms was collected using standardised clinical algorithms and diagnostic guidelines used at all peripheral health facilities in Nepal. Further, for each diagnosis, two doctors familiar with the disease profile of rural areas independently went over the list of symptoms to arrive at an independent conclusion. Whenever there was disagreement on a diagnosis, the case was discussed and a diagnosis was agreed upon. Obviously, these diagnoses are not one hundred percent accurate, but they are as accurate as they may have been had we collected diagnostic information from the government health facility registers, which often report 'pyrexia of unknown origin' rather than a more specific diagnosis.

Distance calculations were also not as accurate as we would have liked given that not all houses could be GPS mapped and estimations of latitude and longitude coordinates needed to be made using aerial maps of the district. That being said, each distance was calculated in the same way, ensuring that the relative differences among them were maintained, and an attempt was made to triangulate distance data against other sources from the district profiles, self-report data and health facility interview data. Still, the accuracy of this data may have contributed to an underestimation of the importance of this factor in care decisions.

The satisfaction rating scales used to assess subjective views of health facility quality, although already validated in other contexts, may have also introduced "courtesy bias," which has been associated in other studies with an over-estimation of people's actual satisfaction with services (Andersson, 2011; Bitran, 1995). In order to account for this, the qualitative results were used to elicit more information about household perceptions of services – a technique which has been shown to provide a more accurate picture of people's actual feelings towards services (Atkinson, 1993; Bertrand et al., 2001). Free-response answers were also collected at the end of the rating scales and, again, it was made obvious at the outset that we were not associated with any hospital or health facility and thus were looking for as accurate a response as possible.

It is also possible that as much as the distances, ratings and diagnoses may have introduced some minor inaccuracies, the interviewers themselves may have been responsible for introducing bias and error into the results given that six different people were responsible for carrying out the surveys. Previous studies have shown that there are numerous ways in which interviewers can introduce bias into a study: based on his/her own attitudes and perceptions, based on his/her physical characteristics and perceived SES and through errors in the data collection process itself (Boyd & Westfall, 1970; Davis et al., 2009; Williams, 1964;). Paying attention to interviewer characteristics is particularly important in South Asia, where caste dynamics can significantly impact data collection (Miltiades, 2008; Schuler et al., 1985; Schuler & Goldstein, 1986; Tiwari, 2008). That being said, to reduce interviewer error and person biases, all of the

interviewers were extensively trained prior to the start of the data collection and were carefully monitored and observed throughout the data collection period. They were told to abide by a standardised script, and pre-coded response categories were used for each of the questions to ensure consistency from one interview to the next. The importance of consistency was stressed throughout the training period. Data was checked on a daily basis by myself and another RA to ensure completeness and quality. Data was also analysed initially using the interviewer as the independent variable to ensure that there were no significant differences in terms of illnesses reported or outcomes of care based on the interviewer. (There were found to be none.) In order to minimize interviewer biases, many of the methods suggested by Davis and his colleagues (2009) were followed. In addition both male and female interviewers were employed in equal numbers to ensure that potential interviewer gender bias would be balanced, and interviewers were randomly assigned to households. Interviewers came from different caste groups (including Tamang) as well, in an attempt to address the problems associate with social distances between interviewers and respondents.

Finally, in terms of the overall validity of study results, we can assume that they are for the most part valid given that there seemed to have been no selection bias (a very small percentage of households actually turned us down) and given that the questions elicited factual responses, which are much easier for people to provide. Standardised scales and pre-validated questions were also used whenever possible. Measurement bias was minimised as much as possible, and instruments were translated and back-translated following a rigorous

methodology to ensure they were actually testing what we wanted them to test (Ghimire et al., 2010; Kirkpatrick & van Teijlingen, 2009; Van Ommeren, 1999). Although it was not possible, given logistical constraints, to validate our responses using the test-retest methods, informal cognitive debriefing was done during the piloting period with all participants, and the qualitative data was used to triangulate and corroborate the results whenever possible, as has been suggested elsewhere (Schmidt & Bullinger, 2003; Stone & Campell, 2008; Turner et al., 2007).

While there were obvious limitations in the study design and data collection logistics, there were also limitations to the data analysis. First, rather than being able to look at the complexities of the decision-making process in a single model, each step-wise decision had to be dichotomised and examined separately for the purpose of logistical regression. Second, given the sample size, we were unable to use nested-regression models or multi-level modelling for the various levels of factors involved in the final models (Gorard, 2003). Instead, all of the different levels of data were brought down to the household level and the models were run this way. Third, given the fact that 15 different explanatory variables were included in the final models, there was a high probability of type I errors and problems with multiple testing which will need to be controlled for in future analyses (Benjamini & Hochberg, 1994; Benjamini & Yekutieli, 2001). In order to decrease the probability of type I errors a p value of less than 0.01 was used for the discussion of significant results. This still may have resulted in type I errors, however, because it was a slightly higher p value than would have been needed

for a Bonferroni correction (Cabin & Mitchell, 2000). Fourth, type II errors were also possible given that several of the models involved fewer cases than the ideal 1:20 variable to case ratio (Hosmer & Lemeshow, 1989). Finally, give the fact that none of the models had an R-squared value above 25%, we can assume there was a lot of residual confounding taking place. Given how complex and multi-faceted health-seeking behaviours are, however, we can actually assume that, despite residual confounding, the percent variance explained by the final models is actually reasonable for these types of studies (Kennedy, 1988).

8.3b Limitations of the Qualitative Component

While the quantitative component of the study had its limitations, we must also acknowledge limitations of the qualitative data. Unlike quantitative research, when one deals with qualitative research there are no hard and fast rules for what constitutes valid and reliably collected data, but, as some have pointed out, it is important to be systematic and self-aware in the research design and data collection methods (DiCiccio-Bloom & Crabtree, 2006; Mays & Pope; van Teijlingen et al.). An attempt was made to maximise systematic data collection methods with special attention being paid to the areas in which potential biases or errors could be introduced.

In terms of the actual data collection instruments, rigorous translation and piloting methods were used to ensure they were valid, sensitive and accessible (Ghimire et al., 2010; Kirkpatrick & van Teijlingen, 2009; Van Ommeren, 1999).

In terms of translations of the interview transcripts, qualified experts were used, and the translations were all double checked by someone not familiar with the study to ensure content equivalence, semantic equivalence and conceptual equivalence (Flaherty et al., 1988). The responses from the interviews were also triangulated against the quantitative results. Triangulation has been offered up as a way to validate and check the integrity of qualitative study results (Cohen et al., 2007). That being said, since the qualitative VDCs were not the same VDCs as the quantitative ones, it is possible that the methods of triangulation were not perfect. Data was also collected, however, from the perspectives of providers in these areas as yet another method of triangulation.

Respondent validation is also another technique that can be used to check the quality of qualitative data (Mays, 2000; Ritchie & Lewis, 2003). Unfortunately, it was logistically difficult to get respondent validation for the results within the study time-frame, but an attempt will be made in the future to organise a series of forums for each of the individual VDCs included in the study to solicit advice and feedback from the participants.

In terms of the logistics of the data collection, as much as interviewers can impact the survey data collection, they are more likely to impact the results of qualitative data collection, and therefore careful attention must be paid to their role and the impact it has on data reporting. That being said, while I was not able to observe the individual interviews, I made the decision not to participate in the interviewing process myself because I feared, based on my findings from the

piloting and training period, that my presence as an educated foreigner would introduce bias into the responses. Of course, my interviewers also had the potential to introduce bias as educated Nepalis from Kathmandu. In order to try to reduce the bias that may have been introduced and to increase the quality of the actual interviews, the interviewers were all extensively trained and were selected specifically to represent the diversity of respondents in the district. Unfortunately, it is still possible that caste and social dynamics may have biased the responses. In order to try and reduce any discomfort the respondents may have felt, all interviewers were taught techniques on how to make respondents feel comfortable and on how to reduce any confirmation or selection biases by introducing the questions in a non-judgmental way, and by remaining neutral throughout. They were trained to sit on the same level as the participant in order to try to minimise social distances. They were also trained on how to deal with sensitive topics and how to respond to interviews that elicited emotions.

Finally, in terms of analysing the data, a decision was made to use thematic analyses based on themes emerging from the quantitative data rather than build the themes from the ground up using ground theory. Thematic analyses have obvious limitations, however, because you enter the study with preconceived ideas about what you are looking for and therefore can introduce confirmation bias into the findings. Nevertheless, since the findings were supposed to pick up on the quantitative results, it makes sense that the quantitative results would be brought to bear on the qualitative results. In the future, however, an attempt will be made to analyse the results using ground theory instead.

So while the qualitative and quantitative data are certainly not without their limitations, an attempt has been made to increase validity, reduce bias and ensure generalisability whenever possible at each phase of the study, from the instrument and study design up through the data analysis phase.

8.4 *Priorities for Future Research*

As others have pointed out, HSB studies often illustrate how people behave, but rarely offer useful advice for how to change or influence these behaviours because they fail to recognise all of the complexities of the processes involved (MacKian et al., 2004). Although this study offered a first step in understanding why people make decisions within this context, it left a lot to still be explored.

First of all, it in an effort to be comprehensive, future research should pick up on some of the critical variables which were excluded from this study. For example, future studies should include a look at knowledge of illnesses and biomedicine, hidden costs, the specific role of females in the decision-making processes, and the roles of past experiences, since all of these factors have been found in other contexts to significantly impact service usage. More, future studies should attempt to control for availability of different providers and attempt to find a way to assess the quality, not just of the available government services, but of other informal services as well, since quality of health services was found to be one of the most important factors in both subconsciously and consciously influencing decisions. For example, it would be interesting to look at specifically whether or

not the FCHV can have any impact on care decisions and health behaviours. In terms of methodology, future studies should include sample sizes that are large enough to allow for multi-level modelling to assess the impact of these different levels on the individual.

More than just adding additional variables and finding new ways to analyse the data, it is important that future HSB studies in this context get further inside individual and collective psychologies and understand, through a psychological and sociological lens, how different personality traits and belief systems really influence decisions and behaviours. While this study skims the surface of this topic, it does not offer the in-depth insights that would be necessary to more fully understand how best to change individual psychologies and perceptions in this context. Moreover, given the collectivist nature of Nepali culture, future studies need to move beyond individual households and focus on community dynamics to understand the actual ways in which these dynamics can influence perceptions and attitudes and ultimately decisions. Others have referred to these types of analysis at how behaviours reflect society and society reflects behaviours as "reflexive communities" (Lash, 2000). Such studies of these reflexive communities could use FGDs and other sociological and anthropological methods to assess interactions among participants and the ways in which individual responses are shaped by the collective. These types of understanding would enable more sensitive and responsive policy that could offer valuable insights for behaviour change. Not only should these studies focus on the role of the wider community on shaping decisions, but also the decision-making processes as they

play out within the households. While family dynamics have been touched upon as important in shaping HSBs in this context, it would be useful to get a more in-depth look at the actual processes and internal dynamics involved (Colvin et al., 2013).

Finally, while this study offered a unique methodological perspective on HSBs by combining both quantitative and qualitative data sets, if researchers really want to understand how to shape behaviours and impact decision-making, different methods might be necessary. Future studies might deploy RCT methods to see the impact that different systemic and individual changes might have on care decisions.

Given how complex this behaviour is and given how little we still seem to understand it, there are countless avenues for future research in terms of the variables examined, methods employed, data analysis techniques utilised, locations included and thematic constructs applied. While this study can offer a stepping stone and a new theoretical framework, it is by no means an exhaustive look at the decision-making process.

8.5 *Priorities for Future Policies & Practice*[1]

So what can we do with what we have learned? While we cannot predict individual behaviours and while we cannot make any hard and fast, inviolable rules about what leads people to make particular care-seeking decisions, we can begin to understand the aggregate decision-making processes and begin to see where potential interventions or systemic changes might fit in. For example, we can begin to understand that removing THs from the landscape entirely may reduce care-seeking delays somewhat, but it may not change overall morbidity and mortality statistics. We can begin to understand that by relying solely on government-collected illness data, health policy makers and planners may be missing the bigger picture of illnesses which are being treated within people's homes, and that these individuals might require more adequate health education or new home-based interventions. We can begin to understand the importance of refocusing our attention back on the factors causing illnesses in the first place (rather than focusing solely on what people are doing once they are sick) because illnesses are still very commonplace, and despite economic advancements, many illnesses in rural Makwanpur are still associated with poverty. We can begin to understand that while many people may have a broad understanding of the factors which cause disease, there is still a major disconnect between people's knowledge and people's preventative behaviours, and by focusing solely on education about the causes of diseases and general prevention rather than targeted behavioural change, public health professionals may see little to no

[1] For an overview of my dissemination plan both locally and internationally, including publications and presentations planned see **Appendix 9.1**

change in the actual incidence of disease. We can begin to understand that illness beliefs and treatment behaviours are not mutually exclusive; different theories of illness causes and treatment can co-exist within an individual, and this duality should be considered in the drafting of future health policies and plans. We can begin to understand the importance of gender in health seeking and how in order to increase allopathic service usage; efforts should focus on female autonomy and empowerment. We can begin to understand that perceptions of health services go a long way in determining care decisions on a conscious level, while household and illness factors go a long way in determining care decisions on a subconscious-level, so a three-tiered approach to illness education, household-level development, and health facility quality improvement might be required to change behaviours and improve system usage.

When all is said and done, this study shows that health-seeking is an extremely complex process, incorporating numerous factors. As the model illustrates (figure 8.1), HSBs are inextricably linked with individual psychologies and interpersonal relationships, and they are deeply embedded in cultural norms and traditions – so much so that they sometimes seem to defy rationality.

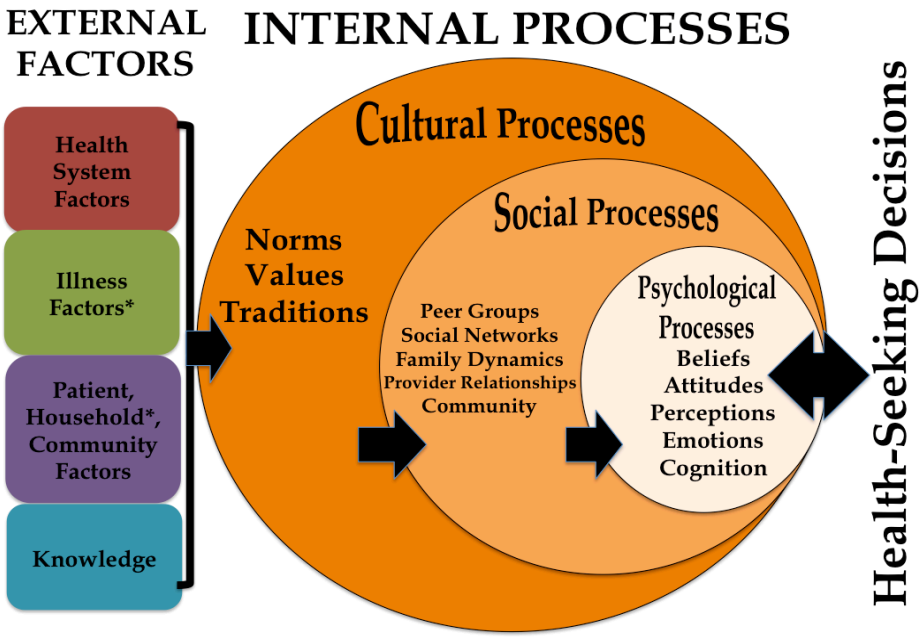


Figure 8.1 Revisiting the final model as an illustration of this complicated decision process. Those factors with a '*' next to them were the factors which were found in the final models to have the greatest impact (contributed the greatest percent variance) on care decisions.

Yet for all the complexity of decision making, the study also suggests that we can benefit by deconstructing decisions into a series of multiple distinct steps that could enable us to understand where issues like delays fit in and where different sets of factors exert their influences. For example, in moving from Step 2 to Step 3, illness variables were found to be most important in dictating those initial choices, but in moving from Step 3 to Step 4, household variables began to matter more (Figure 8.2).

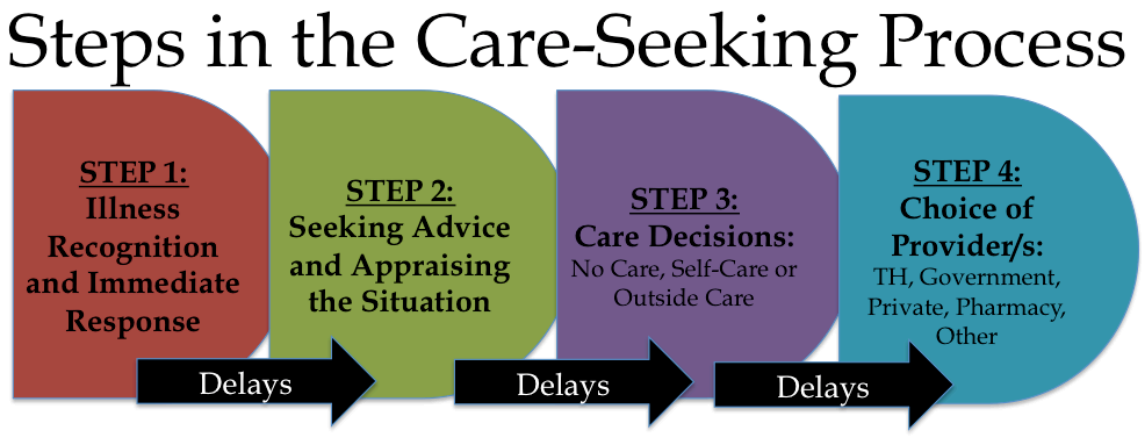


Figure 8.2. Deconstruction of each of the steps in the care-seeking process for a better understanding of how delays fit into the picture and how the impact of different external factors can shift as one moves from one step to the next.

These are generalities. In the end, the main reasons for conducting studies of HSBs is to understand them so that one might use that understanding to generate policy recommendations for health service usage that one hopes will eventually translate into changes in health statistics. The reality is that it is not so much that the Ministry of Health does not recognize the needs of people in rural Nepal or that it is not able to appreciate the ways in which the system may be underperforming, but that, while its visions, plans and policies look great on paper, they have never been fully actualised. In part, this is because many of them are incredibly difficult to enact given the realities of rural Nepal, and in part it is because the Ministry may not fully understand the processes by which individuals make decisions and navigate choices – which is the province of this study. Policy makers generally offer a top down approach to health rather than a bottom up one. This study used a bottom up approach, focusing on household-level data, in an attempt to address those policy goals outlined on the next page:

Policy Goals of This Study

1) Determine the best ways to increase overall usage of allopathic care (specifically government services)

2) Determine the best way to decrease overall delay times to seeking care from allopathic providers

3) Determine the extent to which different health services are being equitably used and how to improve equitable usage

4) Determine, from the users' perspectives, the problems that exist with current health services, and the best ways to improve them

5) Determine the best ways to change HSBs in the future

Before we can look at the specific practice and policy implications of this research, one final important conclusion deserves special emphasis. ***The health-seeking behaviours of Makwanpur were much better than one might have expected based on other studies carried out in Nepal. People generally did seek care and generally did seek allopathic care for most illnesses (particularly if an illness was severe or less common). The problem was not the behaviours themselves so much as the capabilities of the system to serve the patients once they sought care.*** That, of course, does not mean that one could not and should not try to improve the behaviours even as one is trying to improve the quality of the system. What it means is that the deeper problem is systemic, not behavioural.

8.5a Summary of Implications & Recommendations for Each Research Objective

While we can knit each of the implications and policy/practice recommendations stemming from the individual research objective (objectives 1a-2b) together to form some over-arching policy and practice suggestions, addressing each of the policy goals of this study, given the complexity of this research, it makes sense to start by taking the implications and recommendations of each objective in turn before uniting them:

Implications & Recommendations from Objective 1a

- **Focus on behaviour change and prevention:** Given that most illnesses in this context are infectious diseases/parasites or respiratory diseases, it stands to reason that public health and development interventions continue to focus on efforts to reduce these, such as hygiene education, latrine-building, recognition of danger signs of respiratory illness and dehydration, smoking cessation campaigns and smokeless stove innovations. As Suleman (1996) said in one of his articles, "in light of the fact that infectious diseases are still a major public health problem, the need for a sound health policy that focuses on preventative medicine, including behaviour change and not just education, is apparent."

- **Target interventions at lower SES groups:** Given that higher rates of illness are associated with lower household and community-level SES, it makes sense to target health and development efforts to these groups even in more remote areas, where SES may seem more equitable

- **Document distribution of government medicines:** Given that health providers are charging money for medicines which are allegedly free, it might be worthwhile to have a system for better documenting distribution of government medicines and/or labelling them so they are not mixed in with the private pharmacy stocks

- **Increase oversight of the government care system:** Given that provider absenteeism is one of the primary problems with most of the government facilities, it is important to increase oversight of the system so that when providers are absent when they are not supposed to be, it is noted and they are penalized accordingly

- **Improve equipment/instrument supply chain and trainings:** Given that many government health facilities are missing necessary equipment and instruments, it makes sense to put in place a better system for reordering these supplies alongside medicines, as well as for offering technical training on how to properly use and care for medical equipment. It is also important to make government workers more aware of what should be available at each level of the system

- **Increase human resources:** Given that health providers spend very little time with individual patients, it might make sense to increase the number of providers per facility to decrease the burden placed on individual providers or to have health providers attend more patient sensitivity trainings, which are not prioritised in the current medical curriculum

- **Provide health services at the level of the ward:** Given that during certain times of year health facilities are inaccessible to certain households (predominantly due to rising water levels making river crossing impossible), it might make sense to have more medicines and personnel available at the level of the ward rather that the VDC level alone

Implications & Recommendations from Objective 1b

- **Train THs as Referral Agents:** Given that most households which used THs used them first in their care trajectories, and given that about a third of households used multiple providers, if the influence of THs is removed, it stands to reason that most households will go directly to allopathic providers. Alternatively, continuing to train THs as referral agents might increase the number of households that avail of allopathic services after consultations with THs. THs still have a large role to play in helping people connect to allopathic services in a timely and appropriate manner.

- **Focus on illness prevention and service improvements:** Given that allopathic providers (and specifically government providers) did not appear to be underutilised in this context, and THs did not appear to be relied on too heavily in isolation, it does not seem that health service utilisation is one of the factors predominantly contributing to morbidity within this context. Once an illness is identified, most households seem to address it most of the time by consulting an allopathic provider. Therefore, efforts should focus instead on both prevention and service improvement in order for morbidity and mortality to be reduced in this context.

- **Provide education regarding timely and appropriate care:** Given that most households that delayed before seeking allopathic care did so by either waiting or attempting home remedies or THs first, it is critical to focus health education efforts on the importance of timely care and recognition of danger signs that necessitate immediate allopathic treatment.

- **Improve self-care:** Given that most households attempted home care first, it might be useful to focus health educational efforts on how to improve self-care (especially proper wound care, which was a major problem) as well as how to discern when an illness necessitates more than just self-care.

- **Integrate pharmacies and other allopathic services:** Given that most people used pharmacy care after other allopathic providers, it might make sense to have more extensive pharmacy services offered in each government facility to further increase utilisation and decrease the time and effort required to go from one facility to the next.

- **Expand the role of FCHVs:** Given that a lot of households used FCHV or ORC services as an entry point into the government primary care system, it might make sense to increase the FCHVs curative and referral training so they can more accurately help to triage patients at the level of the ward rather than rely solely on the VDC-level facilities to accomplish this.

Implications & Recommendations from Objective 2a

- **Provide education about government health services:** Given that the only significant factor in determining whether or not THs were used first in a household's care pathways was health system knowledge, and given that overall health system knowledge is extremely low in this context (from objective 1a), if we hope to encourage usage of other providers first in lieu of THs, it might make sense to focus educational outreach efforts on informing households about the government system, its structure and the availability of various services at each level within it

- **Improve government health facility quality:** Given that households closer to lower quality government facilities are more likely to use home care first, and given that households closer to high quality facilities are most likely to use allopathic provider last, in order to increase the number of households using outside allopathic providers as a first and final step, efforts should focus on improvement of government health facility quality above all other factors

- **Provide education regarding danger signs and how to assess illness severity accurately:** Given that household perceptions of illness severity are a strong determinant of whether or not outside care is sought, facility-based government care is sought and whether or not pharmacy care is sought initially, in order to encourage appropriate care-seeking it is important to make sure households are well educated about how to identify danger signs and how to determine when an illness is actually severe enough to necessitate biomedical care

- **Focus efforts on younger patients:** Given that younger patients are more likely to consult multiple care providers, and given that most care pathways involving multiple providers involve either THs first followed by allopathic care or allopathic care first followed by pharmacy care (see objective 1b), to encourage usage of allopathic providers as a sole means of care or to encourage more expedient movement from THs to allopathic providers, educational efforts related to the importance of timely care should be focused on mothers and younger patients; In addition allopathic facilities should ensure that they have adequate medicines available for children so additional medicines will not have to be procured from a pharmacy after consultation at a government facility

- **Focus efforts on households of lower SES:** Given that households from higher wealth quintiles are more likely than those from lower wealth quintiles to do something to treat their illnesses (as opposed to just waiting), and given that they are also more likely to delay less time before seeking allopathic care, in order to encourage greater and more prompt care-seeking, it might make sense to focus health outreach services and educational efforts on the importance of timely care-seeking on the areas where more lower-SES families are located (given that they tend to be clustered in rural areas). An effort should be made to better understand their barriers and to assist these families with overcoming logistical and financial barriers to care-seeking

- **Focus on female empowerment:** Given that males are more likely to seek allopathic care at least once than females in larger part because of their greater autonomy, in order to increase utilisation of allopathic providers for females, efforts should be focused on gender equity education, female schooling and female empowerment campaigns

- **Focus on the household-level:** Given that household-level factors have the greatest influence on selection of specific providers outside of the home, in order to change HSBs within this context, efforts should focus on development and education at the household level rather than on health service improvements exclusively

Implications & Recommendations from Objective 2b

- **Improve poor perceptions of government health services:** Given that attitudes towards and perceptions of health services seem to have a big impact on whether or not government services or private services are used, in order to increase utilisation of government services, efforts should be made to change poor perceptions by cracking down on provider absenteeism, improving equipment availability, increasing human resources and ensuring that expired medicines are not distributed

- **Increase accessibility of government services:** Given that many households still perceive government services to be inaccessible due to difficult terrain, efforts should be made to increase facility accessibility by paying attention to topographical barriers and rivers in the planning of the distribution of health facilities in rural areas

- **Increase government facility hours:** Given that logistical barriers, such as juggling children and taking time off from work, prevent many people from seeking adequate care from government or private providers, it is important to increase health facility hours to allow poorer households a longer window during which they can seek care. It is also important to increase outreach efforts, so that care is brought to their doorsteps more frequently

- **Work with communities to generate momentum for change:** Given that health-seeking is a highly social behaviour impacted significantly by the broader family and community context, and given that the majority of people seek advice from others before seeking care, it is important to generate community-wide momentum to encourage adequate and timely care usage and it is important to educate the elders and household heads about biomedicine and the importance of allopathic care instead of or in addition to traditional healing

- **Include culture in all policies and practices:** Given that illness beliefs are deeply embedded in culture and given that provider selection is inextricably linked to cultural norms and traditions, it is important to factor the role of culture into all health policies, plans and programs

By taking the implications of each research objective in turn, several clear themes and patterns emerge despite the complexities of the findings and the numerous avenues for intervention. The following recommendations build on these themes and use all of the study results to address each of the major policy goals of this study (as outlined in the box on page 483):

8.5b Increasing Usage of Allopathic Care:

Before the start of this study, it was assumed that allopathic services were being underutilised and that HSB efforts should focus on ways to improve usage of allopathic services, in particular, government services. While this study did not really find that to be the case, given that almost 80% of households experiencing illnesses sought some form of care, and the majority of those sought care from an allopathic government provider, there are still at least 30% of households which fail to seek allopathic services. So while underutilisation certainly does not seem to be the most pressing problem, this study can still offer insights to encourage even more people to seek appropriate care.

Since allopathic care seeking is a function of many subjective and objective factors -- patient age, patient gender, subjective ratings of government health service and perceptions of quality, illness severity, accessibility, affordability, knowledge, perceptions of quality, advice of others and existing relationships with providers – and since household logistics, household finances, poor attitudes, lack of accessibility and perceptions of illnesses can deter people from seeking allopathic care, increasing allopathic service utilisation requires a multi-facetted approach which acknowledges these disparate factors. Such an approach should include:

- Changing perceptions of services through actual service improvement and outreach campaigns at the level of the community, similar to what was done in Africa through the Bamko Initiative (Knippenberg et al., 1997).

- Increasing affordability by cracking down on under-the-table payments and ensuring people are not being charged for services which are supposed to be free. Before corruption can be cracked down on, however, it is important to first investigate the reasons behind it. As some studies have suggested, raising the wages of those demanding bribes can help to cut down on corruption in the health sector (Ensor & Duran-Moreno, 2002; Tanzi, 1998).

- Increasing accessibility and availability of services through shifting more curative care responsibilities to FCHVs and through increased outreach efforts via ORCs so that subsistence farming households do not need to juggle a full work-load, children and a long walk to a health facility but rather can get curative care delivered to their doorsteps. Many studies have shown task-shifting to be a promising policy for increasing the efficiency and reach of health services (Fulton et al., 2011). In fact, in Nepal, it has proven to be an effective strategy for managing childhood illnesses at the community level (USAID, 2007).

- Focusing on ways of improving provider-patient relationships and provider attitudes by increasing education of health providers on the importance of interpersonal skills and incorporating this into training curriculums. Studies have shown that good relationships with providers can increase treatment adherence (Beach, Keruly & Moore, 2006; Ciechanowski et al., 2001). Patient-centred care as a concept should be introduced into the Nepalese medical training landscape (Robinson et al., 2008)

- Increasing education about health services and health providers through targeted outreach campaigns rather than focusing solely on education related to preventative health behaviours. Health literacy should be the goal of health education (Nutbeam, 2000). Successful health education campaigns have used a combination of different education methods (Stetson & Davis, 1999).

- Encouraging people to use TH services only after they have used allopathic services by creating educational campaigns that debunk some of those strongly ingrained beliefs about when to use THs and when to use allopathic care first. Changing engrained beliefs, however, is incredibly complicated, and most likely to take place over the course a long time , so it might be better to focus efforts on coordination and collaboration

between traditional and allopathic providers, as has been done successfully elsewhere (Green & Makhubu, 1984).

In the end, however, all of these suggestions, like most policy suggestions, are rooted in the individual and stint the importance of the social and cultural environment that shape decisions. Health-seeking behaviours, as we have seen repeatedly, actually involve a much more complicated social and cultural system that reflexively acts on the individual, often causing him/her to behave in somewhat irrational ways. In order to really truly influence behaviours, we must acknowledge the socio-cultural spheres in which they play out and bring them to bear on health interventions and policies. As a result, educational campaigns and health promotion efforts should focus not just on the individual, but on the entire community as being influential in the overall decision-making process (Parkhurst et al., 2003).

8.5c Improving Equitable Usage of Allopathic Health Services:

It follows from the previous set of findings that it is not only important to increase overall service usage, but it is also important, as part of that effort, to ensure that services are being used equitably by households of all castes and socioeconomic levels and patients of all genders and ages. Like previous research in this context which has illustrated discrepancies in service usage based on some of these factors, this study found that gender and age play a role in allopathic care seeking, but in the final analysis nothing else was significant. That being said, caste might also be an important factor because Chepang and Biswokarma

families were more likely to experience illnesses, but were no more likely to use services than other castes, illustrating that the greater need was not necessarily being met with greater service usage. So in order to improve equitable usage of allopathic services, efforts should focus on women, older patients and specific castes. The following should be the primary goals in improving equitable usage:

- Increasing female education and empowerment programs focusing on increasing autonomy to enable greater usage of allopathic services by females. It has been found in other studies of Nepal that education of women can result in improved care seeking both inside and outside of the household for childhood illnesses (Joshi, 1994). Moreover, micro-credit and life skills training has been shown in other contexts to have a positive impact on HSBs, mortality and morbidity for women and children (Ahmed et al., 2003; Stephenson & Tsui, 2002).

- Removing barriers to female utilisation of services by educating husbands, increasing facility hours to enable better balancing between household obligations and care-seeking and by creating more female-friendly services that respond to the needs of women and address their fears and concerns. Other research has pointed out the effectiveness of all of these interventions (Ahmed et al., 2003; Mullany, Becker & Hindin, 2007).

- Improving educational campaigns related to adequate and appropriate care seeking for all adults not just educational and programmatic activities focusing exclusively on children or pregnant women. Since men play a crucial role in the care-seeking of women and children, efforts should focus on ways to include them in the education (Bloom, Wypij & Gupta, 2001). Successful campaigns on involving men in maternity care should be used to guide efforts (USAID, 2004). In Nepal one study on including husbands in antenatal health education found it had very positive results for preparation and care-seeking (Mullany, Becker & Hindin, 2007).

- Increasing educational and outreach efforts specifically focusing on those areas with higher concentrations of Chepang and Biswokarma families.

8.5d Decreasing Delays in Appropriate Care-Seeking:

Even though households in this study were not really underutilising allopathic services to the extent to which we might have anticipated, those services were not necessarily being used equitably, as discussed above, and they were not always being used promptly. It is important, then, to focus on ways to decrease the delay in seeking care. This isn't easy. In this study, the only factor which was found to be significantly associated with care-seeking delays was household wealth quintile, so in order to decrease delays and increase prompt care-seeking, efforts should focus on removing barriers to timely care for those from lower income backgrounds. As with increasing usage of allopathic services, this should include further efforts to remove logistical constraints on care seeking by ensuring greater outreach services through more ORCs and greater scope of FCHV services. In addition, considering how important overall family decision making is to the care-seeking process, it is also critical to understand the ways in which this process can contribute to delays. So efforts should also include education directed at the level of the household about the importance of prompt care seeking.

8.5e Increasing Quality & Improving Affordability of Government Services

As much as efforts can be made to focus on increasing allopathic service usage, increasing equitable usage and decreasing care delays, perhaps the area where there is the need for the greatest efforts is in terms of health service improvements. This study illustrated, as others have, the disconnect between the ways the system should be functioning and the ways in which it actually is functioning. The study found problems with rampant absenteeism, corruption, poor patient-provider relations and inadequate drug and equipment supply, and it demonstrated the ways in which these health system factors can shape negative perceptions which deter people from seeking care at allopathic facilities altogether. To improve health services in this context would require a multi-faceted approach focusing on greater system oversight and more frequent formal and informal facility audits to crackdown on corruption, penalize absenteeism or reward provider performance through incentive programs, ensure free services, improve provider-patient relationships, improve quality of treatment, decrease supply shortages and increase overall system accountability (Khan, 1996; UNDP, 2003). While the government has given lip-service to making the system more client-focused, and has laid out a host of policies which purportedly address health system issues, very few efforts have actually been made to solicit community-level input in service design and delivery and to transfer real responsibility for services from the central to the peripheral level. These are certainly not easy things to improve, but they may be the critical linchpin in

improving service usage. The reality is, again, that HSBs in this context are not especially bad. People are using services for the most part. The problem is not so much one of poor HSBs, but of poor service delivery. As a consequence, rather than focusing primarily on improving HSBs, it makes more sense to focus efforts on improving services. Otherwise there is a risk that the system will actually change the behaviours for the worse. Though hypothetical future care-seeking was found in the study to be independent of outcomes of care, it is logical that if people are not rewarded for their behaviours, they may eventually stop availing themselves of those services in the future and instead opt for informal providers or none at all.

One more observation deserves mention: It is surprising that despite very different contexts and very different cultures, when we look at HSBs and the factors that govern these decisions worldwide, there are enormous similarities between one country and another, as we saw when we brought other literatures to bear on the results of this study. In fact, much of what we have found in this study has been found to be true all over Sub-Saharan Africa in terms of how people make decisions and navigate health providers, despite the extreme difference in culture, ideology and health service structure (Colvin et al., 2013). Even though HSBs are fraught with many individual complexities and intricacies, there seems to be something universal about the way people behave in response to illnesses, and while what we learn in Makwanpur may not seem to pertain even to the rest of Nepal, let alone the rest of the world, there is something almost poetic about these parallels that not only lend this particular study more

credence, but allow us to look beyond Makwanpur, and beyond Nepal at the larger behavioural picture. So, while some of the individual results about which specific factors impact decisions, and the strengths of these impacts, may differ from one context to the next (even from one district in Nepal to the next) depending on health provider availability, the overarching themes are remarkably similar no matter where you look.

8.5f Summary of Morbidity & Morality Prevention Strategies Based on the Results of this Study

When taken all together the results and implications of this study suggest the following potential primary, secondary and tertiary prevention strategies for improving overall morbidity and mortality in the context of rural Nepal:

Primary Prevention Strategies:
In order to prevent mortality in the first place, efforts need to focus on behaviour change not just on the causes of disease (these are already somewhat known). Education should also be provided about the importance of timely care-seeking (especially for young children), about proper strategies for self-care and about the structure and services offered by the government healthcare system. Efforts should be made to focus specifically on female empowerment and increasing gender equality and on changing norms regarding traditional care providers. Not only should system users be educated about all of these things, but so too should providers be included in the educational efforts.

Secondary Prevention Strategies
Once a person has fallen ill, but before anything serious has occurred, it is important to be able to prevent further morbidity and mortality. This study suggests that in order to do this, efforts should focus both on training THs and FCHVs to serve as effective referral agents to other branches of the care system and on improving the quality of service and equipment at the primary care levels (the SHP, HP and PHCC). In order to improve care at the primary level, efforts should focus on increasing and improving drug supply and monitoring, improving provider education and interpersonal skills, increasing facility hours and increasing the supplies and equipment offered at each facility.

Tertiary Prevention Strategies

Once a person has fallen ill and started to manifest symptoms, it is important to be able to arrest the progression of illness, reduce symptoms and minimise any additional complications of the disease. This study suggest that in order to do this in the context of rural Nepal, efforts should focus on improving the referral and transport system beyond the primary care level and enhancing services at the primary care level so that treatment from a secondary or tertiary care facility is not ever necessary for common and simple diseases. Moreover, in line with the work of the Nick Simmon's Institute, an effort should also be made to improve the skills of mid-level health-workers so they can address illness at the level of the village before having to refer further.

II. Final Conclusions:

In Nepal, as elsewhere, health-seeking behaviours and health decisions are incredibly complex and interrelated. Even when you can identify some of the significant factors governing these decisions, they never operate in isolation, and inevitably you cannot capture them all, leaving many residual confounders unexplored. Moreover, even when you identify a factor quantitatively, it inevitably passes through a series of subjective processes to produce a decision, so there is never any simple one-to-one correlation between these independent factors and health choices. Finally, health decision making is not always a rational process, and it defies our rational attempts to study it.

Still, the objective of this study was to try and make sense of this complicated behaviour in the hope of understanding some of the factors that would increase usage of proper treatments and provide a better basis upon which future health policies and programs could be built. Statistically speaking, if we take just the quantitative models, although almost all of the different variables selected for the final models – patient, health system, household, illness and knowledge – were associated with specific provider choices, in the final analyses, when controlling for each of the different categories of variables, illness factors (need factors) – severity and disease type --seem to have the greatest impact on overall model variance early on in the decision making process. More specifically, when it comes to decisions about whether or not to seek any care or whether or not to seek outside care, illness factors are incredibly important. However, when it

comes to decisions about specific provider choices (rather than these gross initial choices) and delays in seeking care, household level variables (predisposing factors) collectively seem to have the greatest impact on overall model variance, although individually, when controlling for other household-level variables, no single household variable was significantly associated with specific care decisions (at the $p<0.01$ level) except for an association between wealth quintiles and the pursuit of some care and wealth quintiles and the length of delays in care seeking. This illustrates how interconnected these factors really are. No single household variables in isolation were significant, but collectively they seem to influence the decisions more than the other categories of factors.

When it came to the qualitative results, however, while household factors and illness factors were mentioned, health facility factors (enabling factors) seem to play a preeminent role in health-seeking decisions. This is interesting given that overall they did not contribute much to explaining the quantitative model variance, although individually many of the models featured significant health facility variables. In the qualitative interviews, households frequently mentioned facility costs, distances and quality as strongly influencing their decisions to seek care or not seek care from a particular provider or facility. Moreover, many households spoke about the broader spheres of influence – social and cultural dynamics – that influence their processes as well as the importance of logistical considerations which were not directly addressed in the quantitative results.

If the goal of HSB studies is really to ensure that people are getting the best care possible to address morbidity and mortality, then, as important as it is to understand the where's and whys of these decisions, it is also critical to acknowledge the very basic what's of the process. After all, the reason for studying these processes is to be able to understand where people are going for care and the extent to which this may need to change. Despite findings from other studies, which have indicated poor HSBs leading to increased morbidity and mortality, in reality, the care decisions people make in this context were not bad. Most people sought allopathic care (especially for serious conditions), most people did not delay for too long before seeking care, and most care decisions seemed to follow a logical pattern that was not all that different from the care-seeking decisions of people in other contexts both in the developed and developing world. So, the real onus, then, is on the system to perform and not on the users to improve their care seeking, because the users are doing what they can to treat their illnesses despite limited options and despite logistical, financial and geographical constraints.

HSBs really don't need to change dramatically, and it is inaccurate to assume that people in this context are not sophisticated in the rationalisation of their care choices. What needs to change is the availability and quality of the services they have at their disposal when they get sick and the quality of the education they receive on preventative care to ensure that they don't get sick in the first place. It is not that education and finances and knowledge don't matter; they do. But it is crucial to understand where in the HSB process they matter. In this case, while

important, education about the causes of illnesses is probably not the most effective way to address people's greatest needs. The educational gap is between understanding preventative behaviours and applying that understanding to those behaviours, so rather than educating people about what causes illnesses or where to seek care once they are already sick (although informing them about the availability of different health services is also important to the HSBs process), it may be of greater significance to focus educational efforts on actual individual behaviour change more than anything else.

In short, while there are a number of factors that effect HSBs, the single most important may be the belief that a patient is going to get good care. People chose the options they feel are going to be most effective while secondarily looking for the most expedient. In order to improve perceptions of care, though, it is important to improve the quality of the care itself. So, if the ministry of health had to re-focus its efforts, this study would suggest a two-pronged strategy: improvement of the quality of health services (to address curative care behaviours) and behaviour change education (to address preventative care behaviours). In essence, the solution lies at the intersection of public health and clinical medicine.

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