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# Staying on Track or Falling Behind?
# Factors Associated with Pre- and Post-Pregnancy Schooling among Adolescent Mothers in South Africa

*DPhil Thesis submitted in partial fulfilment of the Doctorate in Philosophy in Social Intervention and Policy Evaluation by stand-alone papers at the University of Oxford.*

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# Abbreviations

| | |
|---|---|
| **AIDS** | Acquired immunodeficiency syndrome |
| **ART** | Antiretroviral treatment |
| **HEY BABY** | Helping Empower Youth Brought up in Adversity with their Babies and Young Children |
| **HIV** | Human immunodeficiency virus |
| **SDG** | Sustainable Development Goal |
| **LPA** | Latent profile analysis |
| **NGO** | Non-governmental organisation |
| **NPO** | Non-profit organisation |
| **UN** | United Nations |
| **UNESCO** | United Nations Educational, Scientific and Cultural Organisation |
| **UNICEF** | United Nations Children's Fund |
| **WHO** | World Health Organization |

*"Even if you get pregnant at a young age, it's not the end of the world; you can still continue studying because your child depends on you".*[1]

(Adolescent mother, pregnant aged 17)

[1] Quotes from participants are provided throughout this thesis. They constitute responses to open-ended questions from the quantitative HEY BABY questionnaire which was used for this study. The quotes reflect adolescent mothers' answers on what makes them proud as a parent and reflect words of support for fellow young mothers.

# Thesis abstract

**Background:** Adolescent birth rates remain high in Sub-Saharan Africa where about 20% of women under the age of 20 have had their first pregnancy. Despite global concerns about adolescent mothers' impaired school outcomes, few interventions exist that effectively support girls' continued schooling throughout pregnancy and thereafter. As education is a modifiable social determinant of health, supporting adolescent mothers' continued schooling might provide opportunities to strengthen the long-term health for them and their children. In South Africa, laws and policies that support pregnant girls and adolescent mothers' right to education have been implemented. Yet, early pregnancies remain a major reason for girls' school discontinuation and young mothers still face barriers in the process of returning to school. The research to inform programmes to combat school withdrawal among girls has been limited, with little empirical evidence on the factors that enable or hinder continued schooling throughout pregnancy and motherhood. This is especially true for key pre- and post-pregnancy factors, such as medical problems during pregnancy or available childcare postpartum, which have not yet been quantitatively explored in the context of adolescent mothers and schooling within South Africa.

**Objectives:** This DPhil aimed to: (1) Estimate the associations between school withdrawal during pregnancy and hypothesised structural, family, individual, and pregnancy-related correlates, and examine school discontinuation patterns over the course of pregnancy. (2) Investigate the associations between adolescent mothers' postpartum return to school and hypothesised structural, individual, family, pregnancy, and postnatal factors, and examine the mediating mechanisms through which socioeconomic hardship affects school return

after birth. (3) Assess adolescent mothers' timing of school return after birth. (4) Identify subpopulations of adolescent mothers which are characterised by similar patterns of structural and relational characteristics and compare the probabilities for school enrolment across these identified profiles.

**Method:** This thesis addresses its objectives using data from the study Helping Empower Youth Brought up in Adversity with their Babies and Young children (HEY BABY), a cross-sectional survey which was completed by 1,046 adolescent mothers living in the Eastern Cape province of South Africa between 2017 and 2019. Within this sample, pre- and post-pregnancy school enrolment were assessed and a variety of quantitative methods were deployed across four sets of analyses: The first paper analysed the associations between school discontinuation during pregnancy and hypothesised correlates. Patterns of discontinuation over the course of pregnancy were further tested with a Cox proportional hazards model and examined through visualisations of adjusted survival curves. In the second paper, logistic regression was used to investigate the associations between adolescent mothers' postpartum return to school and hypothesised pre- and post-pregnancy factors. In addition, mediation analyses tested the pathways from economic hardship towards school return. The third paper further investigated adolescent mothers' timing of school return after birth. In the fourth paper, a latent profile analysis was used to further interrogate which structural and parenting patterns place adolescent mothers at risk for negative school outcomes. Specifically, this paper characterised latent profiles of adolescent mothers and compared the probabilities for school enrolment across these identified profiles.

**Results:** A large proportion of mothers were enrolled in school at the time of the pregnancy (91%), continued schooling throughout pregnancy (75%), had returned to school after birth (69%), and were still enrolled at the time of the study (59%). Withdrawal from school during pregnancy was associated with being able to afford fewer necessities, grade-delay at the onset of the pregnancy, an unplanned and unwanted pregnancy, and having received less information about the pregnancy from the caregiver. Complementary time-to-event analyses showed that some girls discontinue schooling relatively early on during pregnancy, namely the first trimester. In addition, returning to school after birth was associated with access to more necessities, fewer repeated grades before the pregnancy, continued schooling during pregnancy, the use of formal childcare and childcare provided by the family, and not exclusively breastfeeding in the first six months after birth. Mediation analyses showed that lower levels of poverty were not associated with school return directly but via two indirect pathways, namely continued schooling during pregnancy and the use of formal childcare, respectively. Complementary analyses also showed that many mothers returned to school soon after birth. That is, about 70% of returned mothers have gone back to school within the first two months after birth. Lastly, a latent class analysis showed that three distinct subgroups of adolescent mothers emerged based on their similarities in family and household-, school-, and community-level variables. Compared to the "most deprived" subgroup which experienced food insecurity and lack positive relationships with their caregiver (39%), mothers who are free from most structural and caregiver risks (18%) showed the highest probability of being enrolled in school (i.e., the probably for school enrolment was 72% for the least deprived mothers and 49% for the most deprived mothers).

**Conclusions:** Many girls become mothers during the adolescent years in South Africa. A sizable proportion of these girls are at risk of permanently discontinuing their education, limiting their progress towards several international development goals. This study showed that more than 90% of adolescent mothers were enrolled in school at the onset of their pregnancy, but schools might be losing a quarter and more of these girls due to pregnancy and motherhood. However, the high level of engagement with schools at the onset of the pregnancy might provide the opportunity to expand existing school-based services to prevent pregnant girls' school withdrawal during pregnancy. Such services do not necessarily have to target adolescent mothers, but should be aware that a group of school-going girls might be at a higher risk to withdraw from school once a pregnancy occurs, such as girls whose school trajectories are characterised by grade-repetition. At the same time, the access to affordable or free childcare opportunities might increase adolescent mothers' ability to return to school once the child is born. Even though childcare support is frequently provided by family networks and might help with girls' return to school, the improving access to formal childcare services could be a more sustainable solution which simultaneously alleviates the burden of childcare for other female family members. Any of these efforts must be coupled with the development of aligned national educational and health policies which protect the girls' right to education whilst considering their infant's health and development (e.g., by considering how school re-entry policies match breastfeeding recommendations and practices). Specifically, there appears to be scope to improve policies for pregnant learners and learners with children which do not currently lead to uniform return patterns, nor reflect the needs of the high number of girls who return to school very early after their pregnancy.

Prior to this thesis, there were no known studies which examined the breadth of modifiable factors which could affect pregnant girls and adolescent mothers' continued school enrolment. Despite the cross-sectional nature of the data and the reliance on self-reports, this study provides large-scale evidence that will be valuable for future research on adolescent mothers' support needs and how to address them. Fellow researchers and policy makers aiming to adapt and test existing intervention packages to promote adolescent mothers' schooling will be able to leverage the present results which suggest girls' unmet needs for childcare, information, family-strengthening, and financial support. In addition, future research should further interrogate which potential clusters of risk factors, especially those beyond the individual-level, place adolescent mothers at the greatest risk for an incomplete education. Building on the presented evidence, longitudinal research designs, natural experiments, or carefully constructed randomised controlled trials are needed to cement the causal impact of the factors identified within this thesis. Overall, this thesis has generated evidence on several pre- and post-pregnancy factors and, therefore, addressed an important gap in the available research to inform programmes to combat school withdrawal among adolescent girls who begin childbearing early.

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The backbone of this thesis is the 1,046 adolescent mothers, their children, and families who have welcomed us into their homes to share their stories. Without your participation, this thesis would not have been written; not a single writing-day has gone by where I did not remember the times when our paths crossed in the Eastern Cape. We all think our lives are challenging, but many of your challenges will stay with me long after this thesis has been completed.

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Writing this thesis also reminded me of my high-school English teacher, Herr Schneider, who liked reminding me of my lacking talent for languages and recommended that I 'stay away from anything English in the future' after returning an E- . These memories make me appreciate my younger self who was rightfully unimpressed by such unkind and unhelpful words.

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# Publications and presentations arising from this thesis

The following manuscripts arise directly from this thesis:

**Jochim,** Groves, and Cluver (2020). When do adolescent mothers' return to school? Timing across rural and urban South Africa. *South African Medical Journal, 110 (9),* p.850-854.

**Jochim,** Cluver, Meinck (2021). Learner pregnancy in South Africa: The Factors affecting adolescent girls' school withdrawal during pregnancy. Accepted by the *International Journal of Educational Development.*

**Jochim,** Meinck, and Cluver (in preparation). Going back to school: Factors associated with postpartum school return among South African adolescent mothers. Submitted to *Comparative Education Review.*

Toska*, Lucie D. Cluver*, Saal, Chen, Wittesaele, Langwenya, **Jochim,** Kathryn J. Roberts, Anquandah, Sherr (in preparation). SDG achievement among adolescent mothers and their children in South Africa: Findings from a community mixed-HIV status cohort. Submitted to *BMJ Global Health*
* these authors contributed equally

**Jochim,** Meinck, and Cluver (in preparation). Which factors affect adolescent mothers' school enrolment? A latent class analysis.

The results, analyses, and methodologies used for this thesis were presented and received feedback at the following academic seminars, roundtables, and conferences (most recent first):

1. *"Who goes back to school? Pathways towards school return among adolescent mothers"*. The UKRI Global Challenges Research Fund Accelerating Achievement for Africa's Adolescents Hub February, 2021.

2. "South African adolescent mothers and schooling" Cluver research group, virtual meeting with international members, January 2021.

3. "Drivers of school withdrawal in South African adolescent mothers" Cluver research group, virtual meeting with international members, July, 2020.

4. "Left-behind, not lazy. Factors associated with school dropout among South African adolescent mothers" Children and Families Research Group, University of Edinburgh, June, 2020.

*5. "Adolescent Motherhood and School Outcomes in South African Girls and Young Women".* ESRC-Grand Union, Oxford, December 2019.

*6. "Adolescent Motherhood and School Outcomes in South African Girls and Young Women".* CEBI Research Group, Department of Social Policy and Intervention, Oxford, November 2019.

7. *"Helping Empower Youth Brought Up in Adversity with their Babies and Young Children (HEYBABY) - A mixed-methods study on resilience factors in adolescent mothers in the Eastern Cape, South Africa*". Sexual Violence Research Forum, Cape Town, South Africa, October 2019.

8. *"Adolescent Motherhood and School Outcomes in South African Girls and Young Women".* Green Templeton College, Oxford, June 2019.

# Note on the candidate's role and contribution to the research project

## The candidate's role

The candidate joined the research project, and the fieldwork team in South Africa, in June 2017 whilst the piloting for the HEY BABY (**H**elping **E**mpower **Y**outh **B**rought up in **A**dversity with their **B**abies and **Y**oung children) study on adolescent mothers was underway. Due to the candidate's interest in the pre- and post-birth educational pathways of these adolescent girls, her first contribution to the study involved conceptualising, drafting, and piloting the questions on girls' schooling and its covariates which were subsequently included in the study questionnaire.

Between May and December 2018, the candidate co-managed the data collection of the quantitative arm of the HEY BABY research project in East London, South Africa. The candidate's responsibilities during this time included day-to-day oversight of fieldwork logistics and management of the field team (~50 research assistants and fieldwork coordinators). This work also involved training staff in representing the project to participants and the public, and supporting and renewing relationships with local governments, NGOs, and communities. In addition, the candidate was responsible for in-field data storage and safety, ensuring confidentiality and anonymity of data, troubleshooting problems with programmed questionnaires on mobile tablets, and managing the data transfer to the open-source platform OpenDataKit. The candidate also led problem-solving of data collection issues and managing the participant registers and roster systems, which were used to strategise the fieldwork and monitor the progress of the

study and demographics of the sample which were summarised in weekly reports prepared by the candidate. As a result of the candidate's interest in education and her DPhil focus on school enrolment of adolescent mothers, she led on developing and implementing the schools-recruitment strategy, including task-managing the research assistants who undertook the recruitment in schools.

During this time, the candidate also took the opportunity to engage in conversations with local staff, colleagues, and teachers in order to gain a more nuanced understanding of the circumstances under which young mothers in South Africa live and raise their children. This knowledge was complemented by formal engagements with the Department of Education and support services for vulnerable learners. During these consultations, the candidate solicited feedback on the conceptualisation of the study and presented preliminary results to gather ideas on the relevance of the study findings.

Upon the completion of data collection, the candidate cleaned the data and remained involved in merging different datasets that form the entirety of the HEY BABY baseline study. The data analysis and writing for all papers presented in this dissertation were conceptualised and led by this candidate with guidance from Prof Lucie Cluver and Dr Franziska Meinck.

## Wider project information

The data for this doctoral research was collected within the quantitative arm of the prospective longitudinal HEY BABY research project (led by Dr Elona Toska and Prof Lucie Cluver). In synchrony with the quantitative data collection, qualitative interviews were conducted by a smaller research team led by Prof Rebecca Hodes (Director of the AIDS and Society Research Unit at the University of Cape Town).

This DPhil study uses quantitative data from the first wave of the HEY BABY study which was conducted with 1,046 adolescent mothers from the South African Eastern Cape between 2017-2019. Adolescent mothers who consented to participate in this study completed two questionnaires, including questions on their physical and mental health, sexual experiences, behaviours, their children's development, child support, pregnancy and birth experiences, and the candidate's conceptualised questions on schooling.

The overall research study was conceptualised by Dr Elona Toska (University of Cape Town) in collaboration with the candidate's primary supervisor, Prof Lucie Cluver (University of Oxford), and involved wider collaborations between the University of Oxford, the University of Cape Town, Keiskamma Trust, Pediatric-Adolescent Treatment Africa (PATA), Regional Psychosocial Support Initiative (REPSSI), The Relevance Network, University College London, South African Department of Social Development, South African Department of Basic Education, South African Department of Health, UNICEF, and the WHO.

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The candidate benefitted from these established networks as they provided the scaffolding for all fieldwork processes (with managers based at the South African field site, Cape Town, and Oxford) and the funders covered the infrastructure of the data collection, including cars, office, staff, and all other fieldwork costs.

# Declaration of authorship

I, Janina Jochim, hereby declare that this thesis is my own work, except where otherwise stated.

Signed: 

Date: 06.04.2021

Place: London, United Kingdom

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# Key terms

**Adolescent:** A young person between the ages of 10 and 19 (World Health Organisation, 1998).

**Adolescent pregnancy and adolescent motherhood:** Aligned with the WHO definition of 'adolescent', adolescent pregnancy and adolescent motherhood defines the occurrence of a pregnancy or birth among girls and young women under the age of 19.

**Correlate:** A variable that is associated, either positively or negatively, with another variable. A correlate can be assessed using cross-sectional data. That is, it can be measured at the same time as the outcome and be a consequence or result of it (Offord and Kraemer, 2000). The present study includes correlates with are hypothesised to be negatively associated with school enrolment ('push and pull' correlates) and correlates which are hypothesised to be positively associated with school enrolment (protective correlates).

**Risk factor:** A risk factor is a variable (including an attribute, characteristic, or exposure of an individual) which increases the likelihood of an outcome to occur. Even though a risk factor can be considered a type or correlate because the variable has to be associated with the outcome, the major distinguishing characteristic is that the risk factor has to precede the outcome (Offord and Kraemer, 2000).

**Protective factor:** A protective variable can be defined as one that predicts a low probability of an adverse event or a variable which interact with a risk factor to eliminate its effect are interactive protective factors (Farrington and Ttofi, 2011).

# I. Introduction

Globally, approximately 16 million girls between the ages of 15 and 19, and two million girls younger than 15 years, become pregnant every year (Blum and Gates, 2015). Reducing adolescent birth rates has been on the development agenda for decades which has led to significant progress since the 1990s, particularly in high-income countries (Santelli et al., 2017). Yet, in 2015-2020, adolescent fertility remains high, with 80 births or more per 1,000 adolescent girls aged 15-19 years in 34 countries, of which 29 are in Africa (Kassa et al., 2018; UN, 2020a) (see Figure 1).

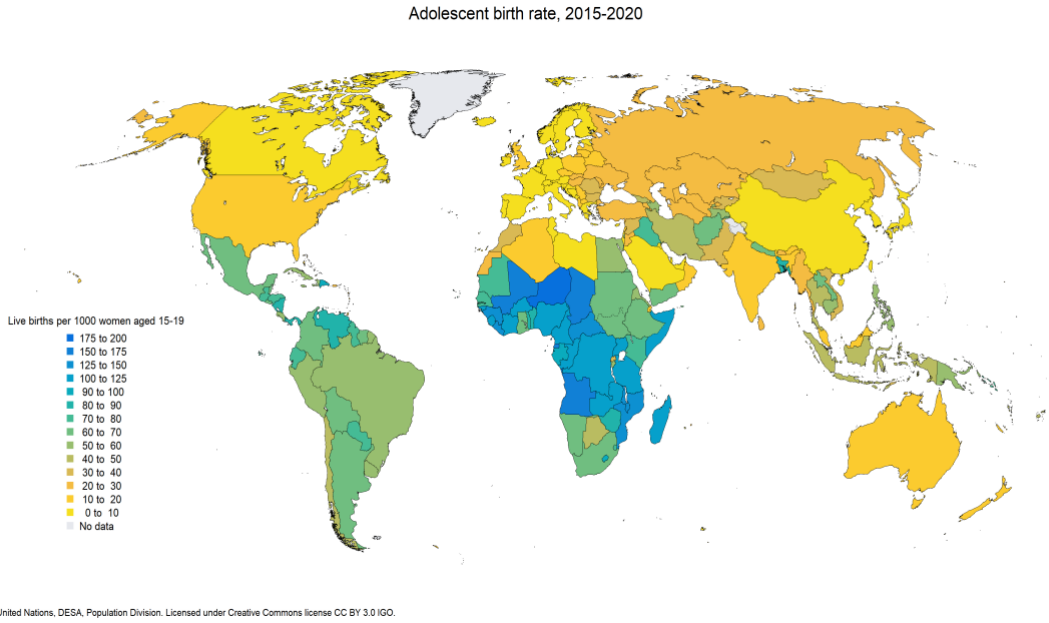



**Figure 2.** Global adolescent birth rates. Retrieved from https://population.un.org/wpp/Maps/

In the 2030 Agenda for Sustainable Development, adolescent birth rates are an indicator for the target of universal access to sexual and reproductive health-care services (target 3.7) (UN, 2020a). However, the disparities in adolescent birth rates across and within countries and between population groups and socioeconomic strata point to the numerous, often

interdependent, drivers of adolescent pregnancy and the complexity in developing effective interventions to reduce adolescent birth rates (Oringanje et al., 2016). Whilst it is clearly important to continue striving for lower adolescent birth rates, it is also crucial to shift the focus to existing adolescent mothers and enquire how to best address the major challenges they face. The present thesis on adolescent mothers in South Africa is a step in that direction.

One key area of concern surrounding adolescent pregnancies is impaired school outcomes. It is often assumed that early motherhood is a major threat to steady educational progress and school completion, which, in turn, worsens girls' economic prospects and perpetuates intergenerational cycles of poverty. This narrative has dominated the long-standing – and still unresolved – debate on whether pregnancy and motherhood *cause* negative school outcomes over and above other pre-pregnancy characteristics that predispose girls to early pregnancy and negative school outcomes (Geronimus, 2003; Hofferth, Reid, and Mott, 2001; Pilgrim et al., 2010). Disentangling these effects quantitatively is challenging and, as a result, the research on the causal impact of pregnancy and motherhood on schooling is limited in producing definite policy recommendations. However, studies in this area *do* constitute important building blocks for further investigations, and the following chapters will show how studies from South Africa warrant the explorations of the factors and pathways that affect adolescent mothers' schooling presented in this thesis.

This doctoral thesis recognises that – whilst early motherhood poses significant obstacles to continued school progress – adolescent mothers are a diverse group in which some girls discontinue schooling whereas others do not show poor outcomes (Hamburg, 1986). In

South Africa – where the present study is situated – adolescent birth rates have increased in recent years (Maqhina, 2019) and pregnancy and motherhood remain prevailing reasons for school-aged girls to discontinue their education prematurely (Branson, Hofmeyr, and Lam, 2014; Gustafsson, 2011). Therefore, South Africa provides a setting with immediate need for research that can inform interventions that support this vulnerable group.

Overall, the present thesis set out to 1) Assess the rates of adolescent mothers' educational advances at the onset of their pregnancy and thereafter **(Paper 1, Paper 2, Paper 3, Paper 4)**; 2) Estimate the rates and associations between school withdrawal during pregnancy and hypothesised correlates, and examine the timings and school discontinuation patterns over the course of pregnancy **(Paper 1);** 3) Investigate the associations between adolescent mothers' postpartum return to school and hypothesised pre- and post-pregnancy correlates, and examine the mediating mechanisms through which socioeconomic hardship affects postpartum school return **(Paper 2);** 4) Assess when adolescent mothers return to school after birth (**Paper 3);** and 5) Identify subgroups of adolescent mothers based on their similarities in family- and household-, school-, and community-level variables and test if each if each subgroup is related to mothers' school enrolment **(Paper 4)**. For a detailed list of all research questions and sub-questions, please see page 76.

This DPhil thesis consists of nine chapters, including four stand-alone papers (Chapters IV, V, VI, and VII) as required by the DPhil-by-publication track at the Department of Social Policy and Intervention at the University of Oxford:

**Chapter II** – **Background and theoretical framework** contextualises the thesis by describing different stances on researching adolescent motherhood as well as the South African cultural, school, and policy context. This chapter also summarises the previous quantitative literature on adolescent mothers in South Africa in detail and introduces the study's theoretical and conceptual framework, employing an ecological perspective.

**Chapter III** – **Methodology** describes the research design and methodological approach guiding the four empirical papers. The chapter provides a detailed description of the research setting, sampling strategies, and ethical considerations. It also discusses the practical, logistic, and emotional challenges encountered during in-field data collection.

**Chapter IV** – **(DPhil Paper 1)** presents an analysis on the factors associated with adolescent mothers' school withdrawal during pregnancy. Results showed that, whilst most mothers continued schooling until the end of their pregnancy, about a quarter of girls discontinued going to school at some point during the pregnancy. The factors associated with withdrawing from school are discussed in light of possible school-based interventions to support pregnant adolescents, which could be further explored in future studies.

**Chapter V – (DPhil Paper 2)** investigates the factors associated with adolescent mothers' school return after birth. The majority (69%) of adolescent mothers returned to school after the pregnancy. The analyses revealed associated factors with school return and suggest two potential pathways: (i) a pre-birth pathway where continued schooling throughout pregnancy drives higher return-rates; and (ii) a post-birth pathway where the use of formal childcare drives greater return-rates.

**Chapter VI – (DPhil Paper 3)** assesses the rates of adolescent mothers' school return and examined how many months after birth school-aged girls resumed schooling, therefore adding descriptive data to DPhil Paper 2. The results indicate that adolescent mothers return to school much earlier than recommended by South Africa's national policy for pregnant learners. Namely, almost 70% of returned mothers, continued their education within the first two months after birth.

**Chapter VII – (DPhil Paper 4)** shows results from a latent class analysis that investigates if adolescent mothers fall into distinct subgroups based on their similarities in family- and household-, school-, and community-level variables and, in turn, assess how subgroup membership relates to school enrolment. This chapter presents evidence on three subgroups of mothers, each showing different probabilities of school enrolment, highlighting the groups of mothers who may need particular support to continue their education after birth.

**Chapter VIII – Discussion** of the thesis findings provides a summary of the key findings arising from the three empirical chapters of this DPhil project, highlights the strengths and limitations of the study, elaborates on its implications for policy and practice, outlines proposed future research, and discusses the dissemination strategies for the study findings.

**Chapter IX – Conclusion** provides final summary and thoughts on this thesis.

Further information and detail on research protocols, ethics approvals, data collection tools, and supplementary analyses that complement the empirical chapters are provided in the Appendices.

# II. Background and theoretical framework

## 1. Introduction and research questions

Adolescent pregnancies remain a global problem occurring in high-, middle-, and low-income countries (World Population Prospects, 2019). Around the world, adolescent pregnancies are more likely to occur in marginalized communities and are strongly predicted by exposure to adversities including poverty, orphanhood, abuse, forced sex, educational disadvantage, and low future aspirations (Kang 2008, Mmari 2013, Rosenberg, 2015). Early pregnancies among adolescents can have major health consequences for adolescent mothers and their babies. In fact, pregnancy and childbirth complications are the leading cause of death among girls aged 15–19 years globally, with low- and middle-income countries accounting for 99% of global maternal deaths of women aged 15–49 years (Neal et al., 2015).

Within sub-Saharan Africa, adolescent pregnancy and motherhood also occurs in the context of high HIV rates (UNAIDS, 2018). Adolescent birth rates within HIV-endemic communities range from 30 to 208 per 1,000 births, which is a higher than non-HIV endemic countries (UNDP, 2015). Young women are disproportionally at risk of HIV (Karim and Baxter, 2019) and longitudinal studies have shown that adolescent mothers' HIV risk is three-times the risk of their non-parenting counterparts (Christofides et al., 2014). Other studies indicate that adolescents who had ever been pregnant were more likely to report unprotected sex in the last three months when compared to nulliparous adolescents and are more likely to report physical partner violence (47.2% vs. 16.8%) and transactional sex (21.9% vs. 16.9%) – all of which are known relational and structural risk

factors for HIV infection (Li et al., 2014; Stoner et al., 2016; Wamoyi et al., 2016).

At the same time, children born to adolescent mothers in low and middle-income countries are the most vulnerable to infant mortality and poor child health outcomes. They are more likely to be born underweight (Finlay, Özaltin, and Canning, 2011), preterm, and have increased risk of mortality (Chen et al., 2007; Chen et al., 2008; Neal, Channon, Chintsaya, 2018), lower cognitive development, nutritional status and school progression (Fall et al., 2015). Studies of adolescent mothers also show reduced interaction, language and literacy engagement with infants, and lower healthcare access (Passino, 1993). One underlying reason for these findings could be that adolescents are still undergoing considerable neurobiological and emotional development (Dhayanandhan, 2015), and have acquired less education, resulting in low readiness to promote the developmental progress of their children (Barlow, 2012).

More or better education – the topic of this thesis – is not only frequently put forward as a solution to reduce adolescent pregnancy, but also a well-established social determinant of health. School dropout has been consistently associated with poorer psychological, physical, social and economic health (Lamb and Markussen, 2011). In HIV endemic settings across sub-Saharan Africa, higher levels of education have been associated with a reduced prevalence (de Walque, 2007; Hargreaves and Howe, 2010; Michelo et al., 2006) and incidence (De Neve et al. 2015; Baerninghausen et al., 2007) of HIV, with the largest decreases occurring in younger, more educated women. Young women who attend more school days and stay in school have a lower risk of incident HIV and HSV-2 infection, leading some authors to suggest that interventions to increase frequency of school

attendance and prevent dropout should be promoted to reduce risk of infection (Stoner et al., 2017). Parental education, particularly maternal education, is also strongly linked to lasting improvements in child health, and life expectancy and child mortality (Mensch et al, 2019; Huebener, 2019), and might mediate the negative relationship between the mothers' age and children's IQ later in life (Khatun et al., 2017).

The engagement with learning and graduating from high school is one of the major milestones for adolescents, including adolescent mothers, with important bearing on subsequent opportunities and their future life course (Blum et al., 2014). The adolescent years also provides a 'window of opportunity' which should be leveraged to pave the way towards optimal outcomes for young people (Erikson, 1968; Gore et al., 2011; Leung and Shek, 2020). Recent US-based studies support the importance of continued education in adolescent mothers, showing that higher levels of completed education in the years after birth is associated with better self-reported health at age 50 (Maslowsky et al., 2021). Since education is amenable to intervention, supporting higher educational attainment among the group of adolescent mothers could therefore potentially improve their long-term health and well-being.

While past research has highlighted that poor educational outcomes often *precede* adolescent pregnancy (Kassa et al., 2018) and that adolescent mothers might be more likely than fellow school-going girls to drop out of school (Ardington, Menendez, and Mutevedzi, 2015; Grant and Hallman, 2008; Madhavan and Thomas, 2005; Marteleto, Lam, and Ranchhod, 2006; Stoner et al., 2019; Timaeus and Moultrie, 2015), virtually no studies in

South Africa have examined or described the factors which may facilitate/hinder continued school enrolment during the pregnancy period and afterwards. This marks a major gap that this thesis will address.

This chapter will further contextualise the proposed research on adolescent mothers by providing background information on the South African context, including the school system and the learners that proceed through it, the cultural context of adolescent motherhood, and school policies aimed at pregnant learners and learners with children. The second part of this chapter presents a summary of relevant theories on adolescents' schooling behaviours and outlines the theoretical framework for this study.



**Figure 2.** Informal housing in South Africa. Large area of informal housing (left) and an individual shack among formal housing (see arrow in the right picture). Photos from the author.

## 2. The South African study context

Globally, poverty and socio-economic marginalisation are the main determinants of early and unintended pregnancy (Gunawardena et al., 2019; Imamura et al., 2007; Pradham, Wynther, and Fisher, 2015). South Africa is classified as a middle-income country (World

Bank, 2010) but almost one in two Black South Africans fall below the national poverty line[2]. Despite improvements over time, about 13% are at risk of hunger (StatsSA, 2017a), one third of households live without access to drinking water and adequate sanitation facilities, see Table 1), and more than 25% of families live in informal housing (Berry, 2013; see Figure 2). These high rates of poverty place many girls in South Africa at a risk of pregnancy (Mchunu et al., 2012).

The Eastern Cape and Limpopo have been the poorest provinces since 2001 and continue to show the highest poverty headcount in 2016 (see Figure 3). Unemployment rates are also particularly high in these provinces; about 50% of households in the Eastern Cape are without a single employed adult (Hall, 2013).

**Table 1.** The proportion of households that had access to the listed services between 1996 and 2016. Source: Census 1996, 2001 & 2011 and Community Survey 2007 & 2016, StatsSA.

| Year | Electricity | Piped water | Flush toilet |
|---|---|---|---|
| 1996 | 58,2 | 60,8 | - |
| 2001 | 69,7 | 62,3 | 49,1 |
| 2007 | 80,1 | 69,4 | 55,0 |
| 2011 | 84,7 | 73,4 | 57,0 |
| 2016 | 90,3 | 83,5 | 60,6 |

[2] As of 2019, an individual living in South Africa with less than 810 South African Rand (ZAR) (roughly 47 USD) per month was considered poor. Furthermore, individuals having about 561 ZAR (approximately 32 USD) a month was living below the poverty line according to South African national standards.

Furthermore, South Africa is home to the world's largest population of people living with HIV/AIDS (UNAIDS, 2017). As a result, households are at high risk of experiencing income shocks: 30% of households report having been exposed to at least one negative event within the past two years – often linked to illness or death of a household member (Burger, Posel and Fintel, 2017). In order to alleviate poverty, the government rolled out several social assistance initiatives which includes a number of unconditional welfare grants that are paid out to poor families, including the child support grant (445 ZAR/month; ~£22, see also Table 2), foster care grant (1,049 ZAR/month; ~£52), disability grant (1,860 ZAR/month; ~£91.20), and pension grant (1,970 ZAR/month; ~£ 96.63).

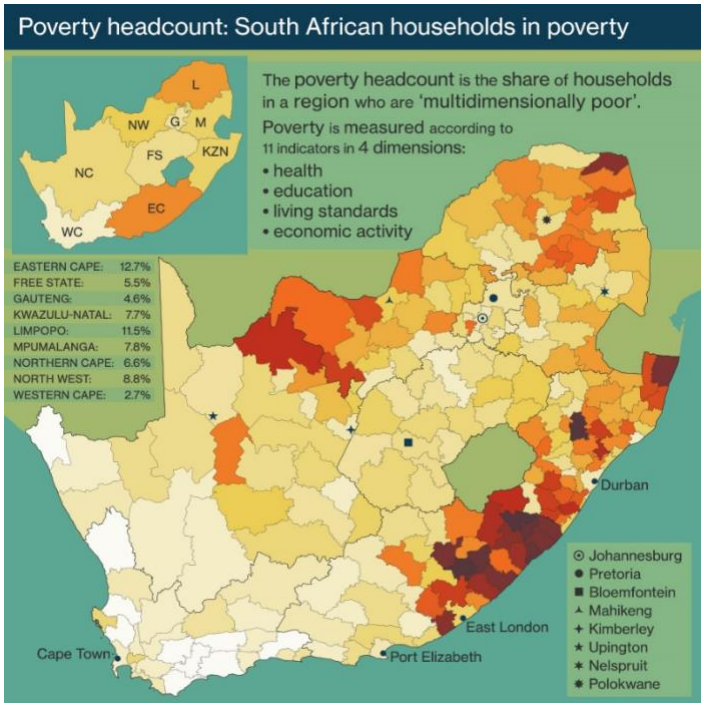



**Figure 3.** Poverty headcount across South African provinces in 2016. *Source: Community Survey, 2016, StatsSA.*

Despite the social security system, poverty levels have not fallen substantially since 2004 (StatSA, 2017a). The reasons for this may lie in the prevailing lack of jobs across South

Africa, which means that grants are frequently the only source of income within households. As a result, small grant amounts are often shared between many household members and may, in some cases, fail to secure subsistence levels.

**Table 2.** Child support grant information. Amounts of receipt and eligibility over time. *Source: Adapted from Eyal and Burns (2014).*

| Year | Amount | Age limit |
|---|---|---|
| 1998 | R100 | 7 |
| 1999 | R100 | 7 |
| 2000 | R100 | 7 |
| 2001 | R110 | 7 |
| 2002 | R130 | 7 |
| 2003 | R160 | 9 |
| 2004 | R170 | 11 |
| 2005 | R180 | 14 |
| 2006 | R190 | 14 |
| 2007 | R200 | 14 |
| 2008 | R210 | 14 |
| 2009 | R240 | 15 |
| 2010 | R250 | 16 |
| 2011 | R260 | 17 |
| 2012 | R280 | 18 |
| 2013 | R290 | 18 |
| 2014 | R320 | 18 |
| 2015 | R330 | 18 |
| 2016 | R350 | 18 |
| 2017 | R380 | 18 |
| 2018 | R400 | 18 |
| 2019 | R405 | 18 |
| 2020 | R445 | 18 |
| 2021 | R460 | 18 |

## 3. Motherhood and adolescent motherhood in South Africa

### 3.1 Birth rates and adolescent birth rates

Overall, the *fertility rate* (i.e., the number of children born per woman) in South Africa has been declining over the previous decade from about 2.7 children in 2008 to 2.4 children in 2018. In 2018, the Eastern Cape and Limpopo – the two poorest provinces (see above) – showed the highest fertility rates with almost three children born per woman (see Figure 4).

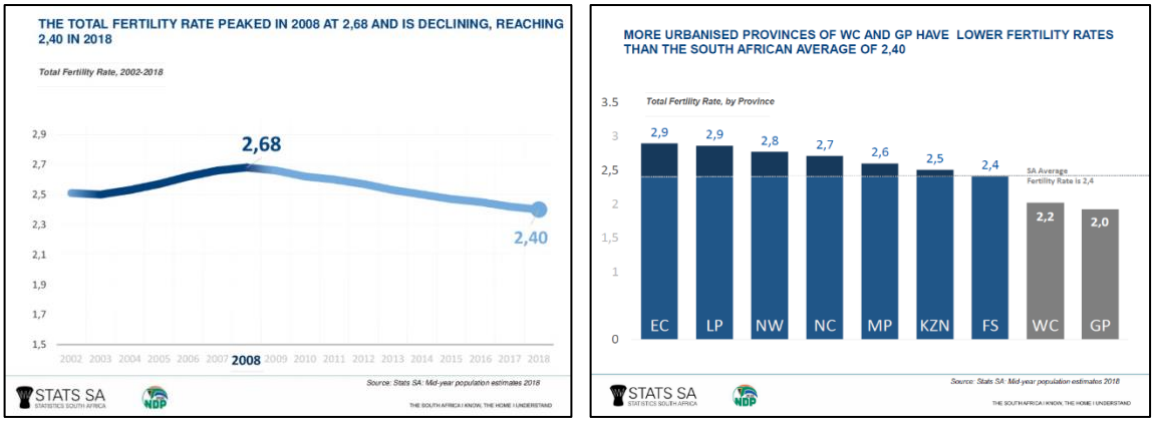



**Figure 4.** Fertility rates among all women in South Africa (left) and across provinces (right).

In addition, the *adolescent birth rate* is used as a summary indicator of childbearing in girls and young women under 19 years. The rate measures the annual number of births to girls per 1,000 adolescents in that age group. Estimates and projections of numbers of adolescent pregnancy and birth rates in South Africa, and the Eastern Cape specifically, are available from different sources, including the Census 1996, Census 2001, Census 2011; the 2007 and 2016 Community Survey, and the 2016 South African Demographic Health Survey. These sources feed into the United Nations *World Population Prospects* documentation used by the World Bank and the World Health Organization (below) to compare and contrast adolescent birth rates across the globe[3].

[3] For South Africa, the World Population Prospects documentation states: Total fertility rate and age pattern of fertility based on: (a) official estimates of age-specific fertility rates through 2018; (b) registered births classified by age of mother and the underlying female population by age through 2016; (c) adjusted for underregistration; (d) birth-histories data from the 1998, 2003, 2016 DHS; (e) births in the household in the preceding 12 (or 24) months classified by age of mother from the 1987-1989 DHS and 1996, 2001, 2011 censuses and 2007 CS; (f) adjusted fertility using Brass P/F ratio method (or variants) with data on children ever born and births in the preceding 12 (or 24/36) months, both classified by age of mother, from the 1996, 2001, 2011 censuses and 2007 CS; (g) indirect estimates obtained from the application of the own-children method of fertility estimation to the 1996 Census. https://population.un.org/wpp/DataSources/710

In recent years, South Africa shows an adolescent birth rate of about 71/1,000 for girls and women aged 15 to 19. As Figure 5 shows, South Africa's adolescent birth rate is lower than it is in most other African countries where the rates can be up to three times as high (e.g., in the Central African Republic). However, South Africa's adolescent birth rate is still very high in comparison with Western countries that are commonly regarded as having extremely elevated birth rates. To illustrate, adolescent birth rates in the U.S. are at 22/1,000 and 14/1,000 in the United Kingdom.

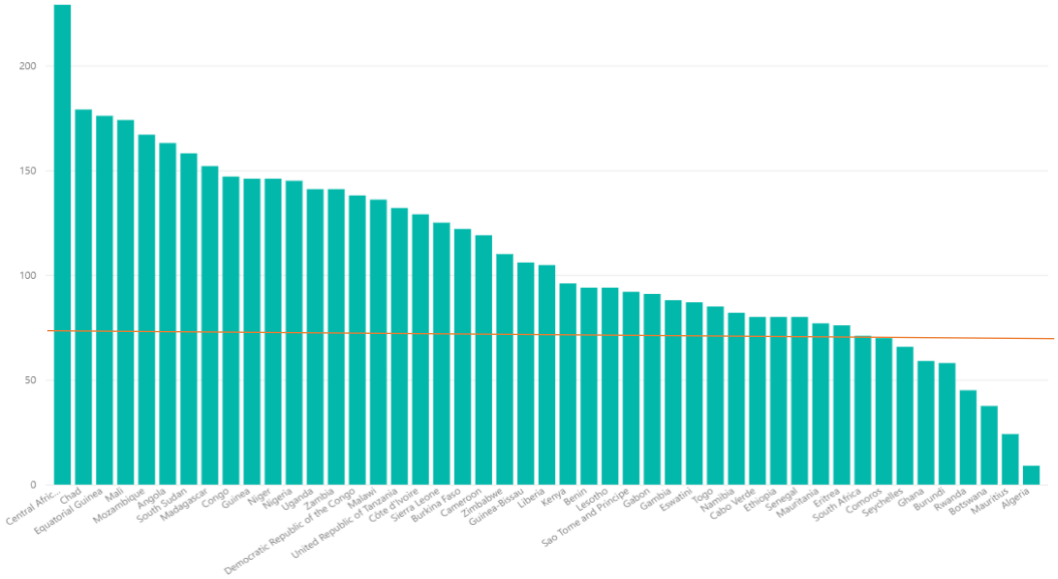



**Figure 5.** Adolescent birth rates across the African continent. *Source: https://apps.who.int/gho/data/view.xgswcah.31-viz*

In South Africa, adolescent birth rates have been steadily declining since the 1980s when they were at 111/1,000 women (see Table 3; Figure 6). The decline lasted until the 2000s when the five year average showed increased rates from 65.8/1,000 (2000-2005) over 67/1,000 (2010-2015) to 72/1,000 (2010-2015). Even though the newest projections suggest an overall *decline* to 67/1,000 over the five year period between 2015-2020, these figures do not yet include the newest data (from 2018/19) published by the Department of

Health reports which indicates an additional 6,770 birth in 2018/19 compared to the previous year (see Table 4).

**Table 3.** Adolescent fertility rate (births per 1,000 women) in South Africa between 1950 and 2020. *Source: https://population.un.org/wpp/Download/Standard/Fertility/*

| Time Period | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 |
|---|---|---|---|---|---|---|---|
| 1950-1955 | 69.3 | 253.3 | 279.1 | 231.5 | 181.4 | 126.2 | 69.1 |
| 1955-1960 | 75.4 | 252.0 | 277.6 | 230.3 | 180.4 | 125.6 | 68.8 |
| 1960-1965 | 81.9 | 248.3 | 273.6 | 226.9 | 177.8 | 123.7 | 67.8 |
| 1965-1970 | 88.6 | 237.9 | 262.1 | 217.4 | 170.4 | 118.6 | 64.9 |
| 1970-1975 | 97.1 | 230.5 | 249.9 | 207.9 | 157.8 | 103.6 | 53.3 |
| 1975-1980 | 103.9 | 215.4 | 229.8 | 192.0 | 141.1 | 86.7 | 41.1 |
| 1980-1985 | 111.0 | 213.7 | 224.5 | 188.1 | 133.8 | 76.2 | 32.4 |
| 1985-1990 | 105.2 | 197.2 | 204.2 | 171.4 | 118.0 | 61.6 | 22.4 |
| 1990-1995 | 90.3 | 161.0 | 164.2 | 138.3 | 91.9 | 43.3 | 12.4 |
| 1995-2000 | 77.1 | 137.2 | 139.1 | 108.9 | 72.6 | 30.2 | 10.1 |
| 2000-2005 | 65.8 | 129.6 | 132.3 | 98.5 | 62.8 | 25.3 | 8.2 |
| 2005-2010 | 67.3 | 132.9 | 136.3 | 96.7 | 61.8 | 22.8 | 7.2 |
| 2010-2015 | 72.0 | 126.5 | 131.4 | 93.7 | 58.4 | 21.9 | 6.1 |
| 2015-2020 | 67.9 | 120.3 | 126.5 | 88.7 | 54.6 | 19.7 | 5.0 |

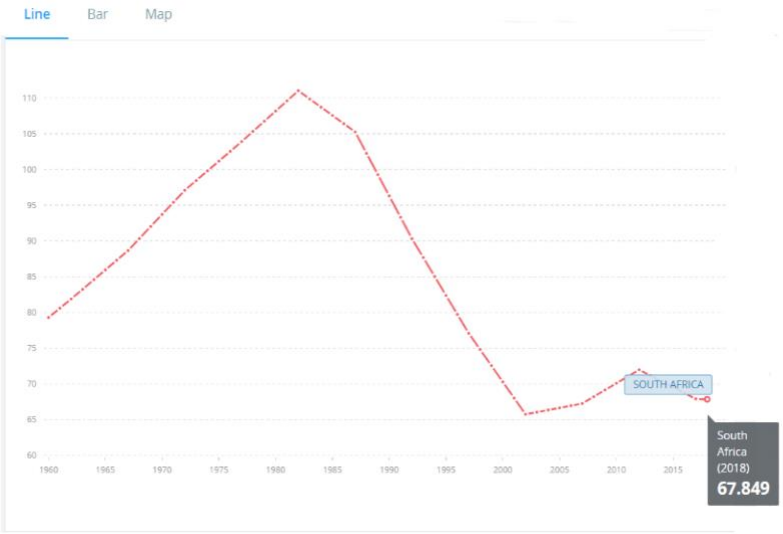



**Figure 6.** Adolescent fertility rate (births per 1,000 girls and women ages 15-19) in South Africa between 1960 – 2018. *Source: https://data.worldbank.org/indicator/SP.ADO.TFRT?locations=ZA*

**Table 4.** Comparison of delivery in facilities between 2017/18 and 2018/19. *Source: Shared at the Adolescent & Youth Health Policy Course, Cape Town, 2019.*

| | 2017/18 10-14 years | | 2018/19 10-14 years | | 2017/18 15-19 years | | 2018/19 15-19 years | | 2017/18 10-19 years | | 2018/19 10-19 years | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Population | Delivery in facility | Population | Delivery in facility | Population | Delivery in facility | Population | Delivery in facility | Population | Termination of pregnancy | Population | Termination of pregnancy |
| | 2,635,275 | 2,726 | 2,702,757 | 3,529 | 2,418,030 | 114,329 | 2,495,684 | 121,099 | 5,053,305 | 12,896 | 5,142,712 | 14,441 |

### 3.2 Adolescent motherhood in South Africa

Adolescence is a unique period of development, marking the transition from childhood to adulthood between the ages 10 – 19 (Steinberg and Morris, 2001; World Health Organization, 1998). Being pregnant and giving birth is a significant experience for any individual, let alone for an adolescent who is still in school. Early studies on this topic have shown that even if adolescent childbearing is not embraced in South Africa, it is often accepted (Caldwell and Caldwell, 1993). This may be especially the case for older adolescents, who are more likely than younger adolescents to give birth, because a pregnancy can facilitate attaining respect as an adult in some communities (Williamson et al., 2009; see Figure 7). That is, South Africa's culture, which emphasises the value of children and the fertility of girls, may lead parents to severely scold daughters for getting pregnant in the first instance, but the newborn is often eventually welcomed into the household (Preston-Whyte et al., 1992; Kaufman et al., 2001; Sodi and Sodi, 2012).

Beyond the family environment, pregnant adolescents are often exposed to judgement, anger, and hostility in their communities. They are often stigmatised as immoral or bad girls who deserve to be scolded, shamed, and blamed for "ruining their lives" (Kaufman et al., 2001; Macleod, 2003). These negative attitudes and judgements towards pregnant girls seem to penetrate most spheres of the social world. For example, some teachers seem to fear that pregnant schoolgirls will inspire pregnancies in other girls, potentially causing uncontrolled 'sexual anarchy' (Kaufman et al., 2001). Also, among social workers and nurses the belief that young women consciously decide to have a child so that they receive child welfare and avoid educational advances and formal employment certainly exists (e.g., Hodes, 2017) and reflects the, perhaps more commonly held, belief that girls use the child

support grant[4] to buy luxury items and fund extravagant lifestyles (Hodes, Toska, and Gittings, 2016). Interviews with young mothers themselves have repeatedly shown that their pregnancy was unintended (Mkhwanazi, 2010), unwanted (Mchunu et al., 2012), and often accompanied by deep regret (Hodes, Toska, and Gittings, 2016; Ngabaza, 2011). A lot of girls express that they experienced shock, sadness, and embarrassment when they found out they were pregnant, with many trying to hide their pregnancy from their families for as long as possible (Mkhwanazi, 2010; Ngabaza, 2011; Sodi and Sodi, 2012). It is also important to bear in mind that pregnancy intentions and wantedness likely differ between younger (i.e., under 16 years) and older adolescents. Studies from South Africa showed that girls who have been sexually active below the age of 15 were twice as likely to report forced sex (Pettifor et al., 2009) and coerced first sexual intercourse is, in turn, associated with early pregnancy (Speizer et al., 2009).

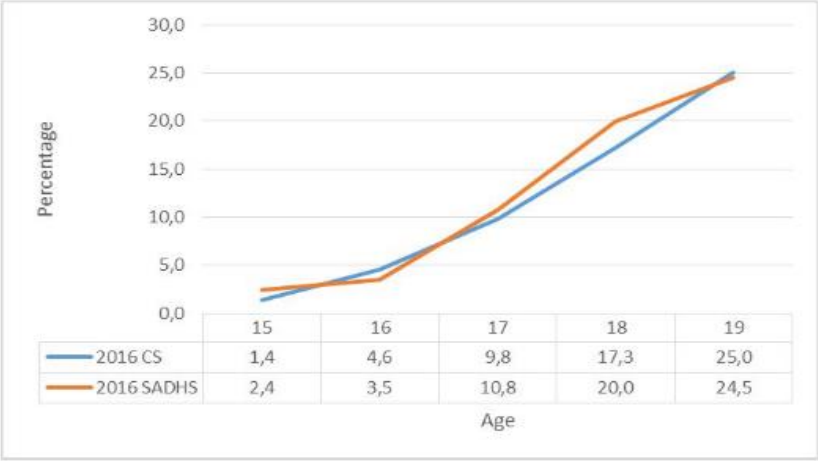



**Figure 7.** Percentage of adolescents in South Africa who gave birth by age, covering data from the Community Survey 2016 and the South Africa Demographic and Health Survey 2016.

[4] Adolescent girls who are the primary caregiver of their child are entitled to receive the child support grant even if they are themselves still recipients of the same grant (Mokoena, 2016). The value of this grant is currently ZAR 410 per month (which is equivalent to £22,40).

The Choice on TOP Act (No. 92 of 1996) legalises abortion in South Africa but, even though many girls may consider terminating the pregnancy, adolescents often lack adequate information about termination services or are convinced against a termination by family members (Mkhwanazi, 2010). Young mothers regularly say that they do not sufficiently discuss relationships and sex within their families and mainly receive information about these topics from their peers (Kaufman et al., 2001; Mkhwanazi, 2010; Ngabaza, 2011). Adolescents also remark that they did not have enough knowledge about contraceptive use and reproductive physiology before their pregnancy, sometimes blaming their parents for withholding vital information on how to avoid pregnancy (Kaufman et al., 2001) and professional staff and nurses for reacting aggressively and advising them to practice abstinence when asked about methods to prevent pregnancy (Mkhwanazi, 2010).

It appears that an unintended pregnancy frequently sets off a cascade of difficult interactions between the young woman, the father of the child, and their respective families. For instance, the mother's family often demands a payment (i.e., damages or *inhlawulo*)[5] from the child's father or his family whilst the law also mandates fathers to provide maintenance payments (Swartz and Bhana, 2009; Khunou, 2006). Often, these situations prove challenging to navigate because the alleged father denies paternity and is only willing to agree to financial support if the child displays physical features resembling those of his family (Kaufman et al., 2001). In many cases the father does not support his child financially, either because he is unwilling or unable to provide the necessary funds (Beernink, 2012; Swartz et al., 2018). Some adolescent men, however, may feel similar to

[5]The word 'inhlawulo' originates from Zulu culture and refers to damages paid to the family of a woman who became pregnant out of wedlock by the father of the future child (Annecke, 1990).

adult fathers who believe they are treated unfairly by the system that reinforces maintenance payments legally without attributing them any rights to visit their 'illegitimate' children (Annecke, 1990; Khunou, 2006). These and other ongoing disputes, as well as the adolescents' young age, often cause the young parents to end their relationship (Mashala et al., 2012; Sodi and Sodi, 2012) so that many girls raise their children alone, but within the networks of their own family.

## 4. Schooling and South African learners

In 2016, nearly one-fifth of children, adolescents, and youth around the world were out of school (UNESCO, 2019). This includes 200 million adolescents between the ages of 12 to 17, whereby older adolescents (15-17 years) are more than twice as likely to be out of school as younger adolescents (12-15 years). Global figures also show that fewer girls than boys are enrolled in school at all age levels (see Figure 8). Even though there has been steady progress towards achieving gender parity over the past 25 years, harmful social norms and practices continue to prevent the gap closing between the level of education that girls and boys achieve in many places. For instance, about 27% of respondents to the World Values Survey agreed with the statement that "a university education is more important for a boy than a girl", ranging from 2% support in Sweden to 59% in Haiti. Entrenched patriarchal norms like this reinforce structural inequalities, including weak political and legal commitments to gender equality and protecting girls' rights to education.

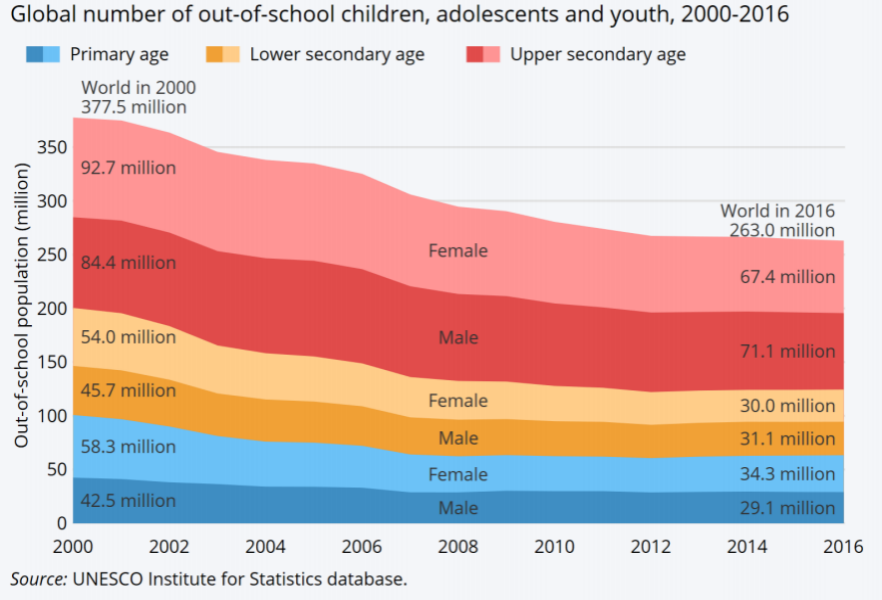



**Figure 8.** Global figures of out of school children 2000-2016. *Source: The Global Education Monitoring Report, 2019.*

Today, of the 58 million people living in South Africa, 46% are younger than 25 years (StatsSA, 2018) – a large age group comprising the country's potential learners. Many Black South African learners continue to be affected by the post-apartheid transformation challenges within the education sector and receive an education that still perpetuates inequality. During the apartheid government, education was racially segregated. Marginalised populations of Black Africans, and people of mixed-race and Indian heritage were part of the discriminatory and oppressive Bantu education system which predominantly set out to produce manual labourers and obedient subjects, not provide a comprehensive education. When South Africa attained democracy in 1996, the Constitution endorsed a shift from segregation to integration across all sectors, including the education system which experienced a re-grouping of schools into different quintiles (see Table 5). In fact, the post-apartheid government hoped that by advocating for racial

integration in schools, learners would become agents of change through which transformation would cascade through the rest of the population (Siyongwana and Chanza, 2020).

**Table 5.** Categorisation of schools in post-apartheid South Africa. *Source: Siyongwana and Chanza (2020).*

| Group | Description |
|---|---|
| Quintile 1 | Rural remote school: difficult to reach the schools, limited resources, threshold of learners from poor families and heavy reliance on government funding. |
| Quintile 2 | Rural and farm schools: difficult to reach the schools, limited resources, threshold of learners from poor families but better than Quintile 1 and heavy reliance on government funding. |
| Quintile 3 | Township and semi-rural schools: can be accessed without difficulty, limited resources, threshold of learners from low and medium income families, reliance on government funding and can charge low school fees. |
| Quintile 4 | Former designated Coloured and Asian schools: easy access, adequate resources, threshold of learners from medium income families, they depend on government funding and can charge moderate school fees. |
| Quintile 5 | Former designated White schools: easy access, fully resourced, threshold of learners of medium and high-income earners, financial support from the government and can charge high school fees from learners. |

The South African Department of Basic Education expects students to attain their matriculation certification (also called ‘Matric’) – the qualification received upon graduating from high school and the minimum university entrance requirement – in Grade 12 when the student is about 17- or 18-years-old. In reality, the schooling system is characterised by pupils who move through it far more slowly, especially those enrolled in poor schools categorised in quintiles 1 – 3. Even though schools in these lower quintiles

receive the bulk of government funding, they are largely under-equipped. By contrast, schools in the higher quintiles (4-5) receive only a small amount of government funding but they are allowed to charge school fees (see Figure 9). Schools in the higher quintiles, which are well-equipped, are predominantly situated in urban locations which are often former white designated areas. Students from urban areas are typically of higher socioeconomic status and their families can afford to pay for well-resourced schools in the upper quintiles.

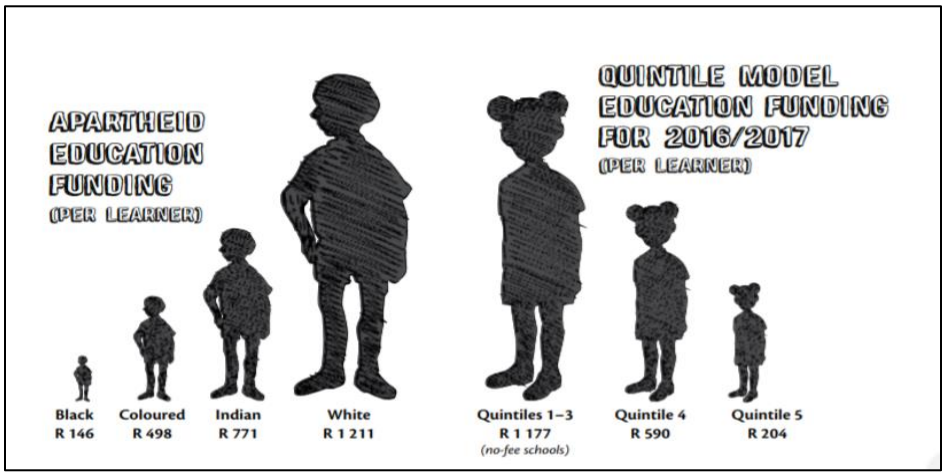



**Figure 9.** Overview of the State funding allocation in the South African quintile system.

Most Black learners grow up facing difficult socioeconomic circumstances, which render them vulnerable to entering the school system late, attending school inconsistently with long periods of absence, or having to repeat grades (e.g., Strassburg, Meny-Gibert, and Russel, 2010). At the same time, South Africa's post-apartheid government and constitution enshrine the right to basic and further education – which is perhaps why South African learners often display high educational aspirations, encompassing advances beyond the nine years of compulsory schooling. Even though obtaining Matric can

certainly not be understood as a guarantee to securing a job in South Africa (e.g., Richter et al., 2005), there appears to be a culture in which academic qualifications are regarded highly, and educational advances are seen as an essential pre-requisite to climbing the socioeconomic ladder (Kaufman, de Wet, and Stradler, 2001; Madhavan and Thomas, 2005; Ranchhod et al., 2011). National data showed that 99% of secondary school learners indicated that they intend to achieve Matric (National Income Dynamics Study, 2008) and the prospect of not completing school is a major source of worry amongst young people (Nduna and Jewkes, 2012).

South Africa has almost universal primary school enrolment, with enrolment rates remaining high into the teenage years (UNESCO – Institute for Statistics, 2017). However, a recent study by Van Broekhuizen, Van der Berg, and Hofmeyr (2016) found that the Matric passing rate for the 2008 cohort depended heavily on the school's quintile, with rates ranging from 45.8% for quintile 1 schools, 51.0% for quintile 2 schools, 57.3% for quintile 3 schools, 72.6% for quintile 4 schools and 93% for quintile 5 schools. One explanation for these findings is that many schools situated in resource-limited areas (i.e., quintile 1-3 schools) offer a low-quality education which fails to equip children with the most basic skills, such as reading comprehension (Spaull, 2015). As a result of deficient reading skills, an increasing number of learners fall behind as they move upwards through the school system. Specifically, national estimates in 2008 have shown that successful progression rates range from 65% to 80% until Grade 9, but only about 40% of Grade 9 learners and 35% of Grade 11 learners progressed to the next two grades unhindered (Branson, Hofmeyr, and Lam, 2014). Although learners often indicate high motivation and hold optimistic educational expectations, the General Household Survey 2011 showed that

only 44% of Black and Coloured youths in their mid-20s had attained Matric, leaving approximately 60% of South Africa's youth without sufficient formal educational qualifications (Gustafsson, 2011; Spaull, 2015). The low quality of education in quintile 1-3 schools causes much attraction of non-White parents to former designated White schools (see Table 5) which are better resourced and provide a better quality education (Siyongwana and Chanza, 2020).

Grade repetitions lead to a significant number of Black South African school-goers being over-aged learners (i.e., they are above the *age-grade norm*) who are substantially older than their peers. Historically, some individuals have persevered in secondary education up to the age of 30 (Burger, van der Berg, and von Fintel, 2015; Meny-Gibert and Russel, 2010; UNESCO, 2017a). In an attempt to decrease the number of over-aged learners in the school system, the Department of Basic Education formalised restrictions in the late 1990s which defined the appropriate age for admission to a certain grade as "the grade number plus 6" and implemented repetition policies under which learners were only allowed to repeat one year in each of the four school phases i.e., the Foundation Phase (Grades 1 to 3), Intermediate Phase (Grades 4 to 6), Senior Phase (Grades 7 to 9) or the Further Education and Training Phase (Grades 10 to 12) (Department of Education, 1998). If a learner is three years older than the age-grade norm, the Provincial Head of Department decides whether he or she should be admitted to a particular grade. Burger, van der Berg, and von Fintel (2015) have shown that these new policies were associated with a reduction in school enrolment of at least 400,000 and possibly more than 900,000 learners. Although it is unclear if these policies were uniformly enforced across schools, it is likely that they

significantly affected young people's lives and re-shaped South Africa's landscape of employment and unemployment.

What about adolescent girls? Whilst international numbers convey that adolescent girls across Sub-Saharan Africa remain at an educational disadvantage, in that fewer girls than boys complete high school and tertiary education (UNESCO 2019, see Figure 10), this may not necessarily be the case in South Africa. Broekhuizen and Spaull (2017) coined the term 'The Martha Effect' (building from the 'Matthew effect' described in Merton (1968) which reflects the idea that an initial advantage results in accumulated advantage over time) to reflect South African girls' observed advantage in higher education.

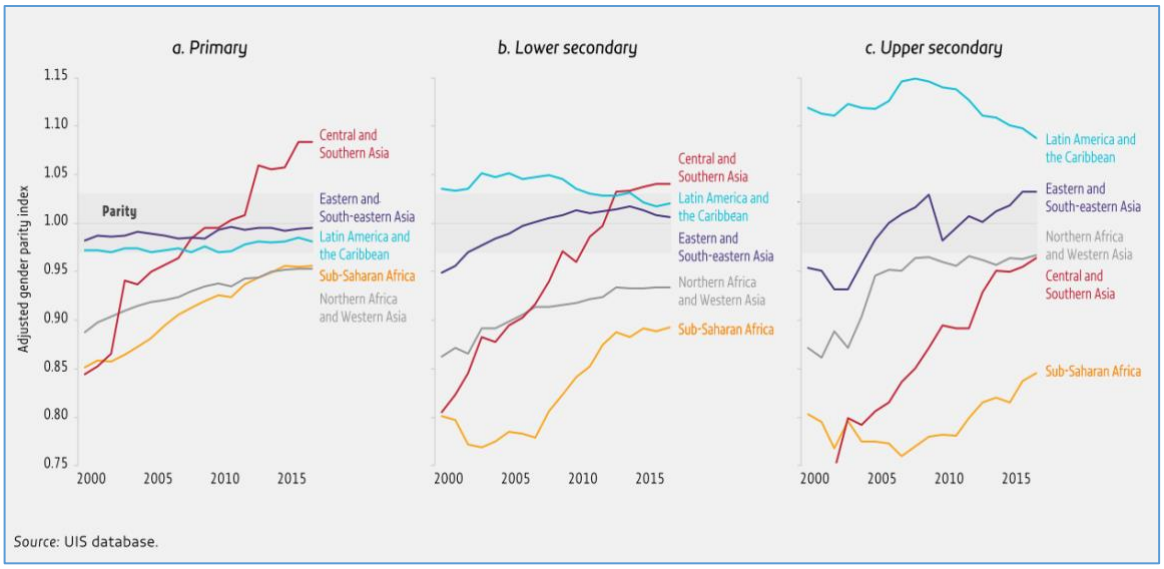



**Figure 10.** Global figures on the Gender Parity Index. *Source: The Global Education Monitoring Report, 2019.*

The study was based on data from a population-wide cohort ($n$ = 112,402) which was followed over a six year period. The results showed that female learners performed better than boys at every grade assessment, and fewer girls repeated a grade or dropped out of

school. Hence, more girls reached and passed their final high school exam, with 27% more females qualifying for university. In addition, some studies argue that girls' advantage is already apparent at day one of primary school when a significant gender gap (pro-girls) for reading scores is observed (Mullis et al. 2007; Mohohlwane, 2016).

It is possible that an environment where, on average, female learners outperform their male counterparts and educational aspirations are high, has some positive impact for girls' schooling trajectories once a pregnancy occurs. For example, previous studies on adolescent mothers suggest that pregnancies in South Africa do not necessarily lead to a termination of schooling, but rather a delay in school completion (see Willian, 2013) with some mothers continuing to pursue high school completion into their early to mid-twenties (Ranchhod et al., 2011). Marteleto and colleagues (2008) – who found that 50% of Black girls were enrolled in school in the year after their pregnancy – concluded that a birth causes only an interruption in schooling for many adolescents. The authors suggest that Black South African girls may be particularly likely to return to school because they predominantly attend quintile 1-3 schools in which high rates of grade repetition prevail and "grade advancements [are] to some extent a lottery" (Marteleto et al., 2008, p. 11 citing Lam et al., 2007). However, other studies have shown that only about 29% of girls return to school after a pregnancy-related dropout (Grant and Hallman, 2008) and it is still unclear how many returned mothers successfully complete school (see Chapter II, Section 6 below). This warrants one of the thesis' objectives focusing on *who* is likely to continue schooling after birth and which factors are associated with the return to school and school enrolment throughout motherhood.

## 5. Policy background

International human rights laws cement the rights to free, compulsory primary education and to ensure that secondary education is available and accessible to all without discrimination. The right to secondary education includes "the completion of basic education and consolidation of the foundations for life-long learning and human development" (UN, 1999; Article 13, 2b). However, in 2018, only 26 countries of the African Union have adopted laws, policies, or practices that protect adolescent girls' right to stay in school during pregnancy and motherhood (see Table 6). Typically, regulations in this area fall under 'continuation' or 're-entry' policies. The former allow the pregnant girl to remain in school, and do not prescribe a mandatory absence after giving birth. The latter refer to conditional re-entry policies that require pregnant girls and young mothers to drop out of school but provide routes to return which are conditional on certain criteria. As shown in Table 6, South Africa belongs to the 26 countries which have taken steps to protect pregnant girls and adolescent mothers' right to education. South Africa's journey towards the current policies and remaining caveats to their full implementation and usability will be outlined in the following paragraphs.

**Table 6.** Countries across the African Union and their continuation and re-entry policies. *Source: Human Rights Watch report 'Leave No Girl Behind in Africa: Discrimination in education against pregnant girls and adolescent mothers'.*

| Countries with expulsion policies or decrees | Countries with conditional "re-entry" policies | Countries with policies or strategies that provide "continuation" | Countries with laws that protect pregnant girls' right to stay in school or resume education, but lack a policy | Countries with laws or practices that criminalize girls and young women who become pregnant outside marriage | Countries with no laws or policies related to retention of pregnant girls or adolescent mothers in schools |
|---|---|---|---|---|---|
| Equatorial Guinea | Botswana | Cape Verde | Benin | Algeria | Angola |
| Sierra Leone | Burundi | Gabon | Democratic Republic of Congo | Egypt | Burkina Faso |
| Tanzania | Cameroon | Ivory Coast | Lesotho | Libya | Central African Republic |
| Togo | Gambia | Rwanda | Mauritania | Mauritania | Chad |
| | Kenya | | Nigeria | Morocco/Western Sahara | Comoros |
| | Liberia | | South Sudan | Sudan | Djibouti |
| | Madagascar | | | Tunisia | Eritrea |
| | Malawi | | | | Ethiopia |
| | Mali | | | | Ghana |
| | Mozambique | | | | Guinea |
| | Namibia | | | | Guinea-Bissau |
| | Senegal | | | | Mauritius |
| | South Africa | | | | Niger |
| | Swaziland | | | | Republic of Congo |
| | Zambia | | | | São Tomé and Príncipe |
| | Zimbabwe | | | | Seychelles |
| | | | | | Somalia |
| | | | | | Uganda |

The transformative nature of South Africa's 1996 constitution is thought to extend to its education system because it aimed to reform the profoundly unequal and dysfunctional structures of the school system that existed during the apartheid era. Attempting to unlock *all* children's potential, Section 29(1) of the Constitution states every citizen's right to basic education and the right to further education (see Box 1, p.59).

It was only in 2007 that the National Department of Education implemented guidelines on managing pregnant girls in schools (Department of Education, 2007). Although this policy aims to put a halt on limited school access for pregnant girls and young mothers, these regulations seem to have had little effect on the number of adolescent girls who successfully continue schooling during pregnancy and after birth. One possible reason for this may be that the policies are not consistently enforced across schools; another is the lack of a formal monitoring system that would expose schools not adhering to policies (Chigona and Chetty, 2008; Panday et al., 2009).

Even though these guidelines emphasise that pregnant learners should receive ample support from the school to continue their education, the policy gives leeway to discriminatory conduct in several ways. For example, the policy points to the lack of medical assistance in schools (to deal with emergencies or delivery of the baby) which, in reality, provides teachers with a justification to prompt girls to take leave at any point in time during the pregnancy. The policy also emphasises that pregnant learners should take a leave of absence of up to two years to "exercise full responsibility for parenting". Lastly, the learner is obliged to produce a medical report that proves her physical fitness and provides evidence that the child is adequately taken care of before permission can be granted to return to school.

While another serious attempt to draft a national policy commenced in 2013, no official changes have been made yet (Department of Education, 2018). As a consequence, school governing bodies have been mainly left to determine their own policies on pregnant learners and learner pregnancy is managed very differently across and even within South

Africa's nine provinces (e.g., Ngabaza and Shefer, 2013). Even if school policies are in line with the 2007 national policy, pregnant learners are frequently subjected to unlawful practices at schools, such as suspension or expulsion as soon as teachers recognise the pregnancy (see the case Welkom High School & Harmony High School against the Department of Basic Education: www.saflii.org/za/cases/ZACC/2013/25media.pdf). Some authors suggested that principals and teachers may believe it is in the school's interest to encourage learners to stay at home, out of fear that any accidents that befall the pregnant adolescent during school-hours could harm the school (e.g., Ngabaza and Shefer, 2013). In fact, subtle and overt discrimination from teachers and peers against young mothers has been shown to influence academic absence among young mothers (Bhana et al., 2010; Chigona and Chetty, 2008). The current endeavour by the Department of Basic Education to develop a national policy on the prevention and management of learner pregnancy in schools (https://www.gov.za/sites/default/files/gcis_document/201806/41722gon615.pdf) is an attempt to address some of these issues that resulted from the 2007 policy. For instance, the policy outlines that schools should ensure a non-judgmental and supportive environment where pregnant learners can acquire information relevant to their pregnancy as well as abortion options. The policy also aims to reduce learner's time of absence before and after birth and emphasises that schools ought to support the learner in re-entering the age-appropriate grade after birth. In order to adequately support the young mothers and provide them with services that are not offered through the school, the draft also establishes the goal of developing strategic partnerships with relevant local non-governmental organisations. While the updated policy draft shows clearly good intentions, it continues to include several aspects that have previously proven problematic or difficult to implement. Several potential loopholes remain, as well as multiple statements that could lead to the

inconsistent application of the policy. Furthermore, the idea that schools will "act as inclusive centres of learning, care, and support" which provide a comprehensive range of services, including referrals for pregnant learners whose needs cannot be accommodated within the school, places high demands on teachers who often operate in resource-limited

**Box 1: The South African Policy Context for Pregnant Learners**

***South African School's Act (SASA), 1996.***
The act aimed to ensure that all learners have access to quality education without discrimination, and makes schooling compulsory for children aged 7 to 15 and/or to finish Grade 9, whichever comes first. It provides for two types of schools, independent and public schools. The school-funding norms outlined in SASA 1996, prioritise redress and target poverty concerning the allocation of funds for the public-schooling system.

***National Education Policy Act (NEPA), 1996.***
The act brought into law the policies, legislative, and monitoring responsibilities of the Minister of Education, as well as the formal relationship between national and provincial authorities. NEPA 1996 provided for the formulation of national policy in general, and Technical and Vocational Education and Training policies for curriculum, assessment, language, and quality assurance.

***Measures for the Prevention and Management of Learners Pregnancy, 2007.***
The first national policy for pregnant learners. It sought to educate and assist learners in understanding and exercising their rights and responsibilities concerning healthy lifestyles, as well as guiding and supporting vulnerable learners. The policy largely focussed on teaching learners abstinence and emphasising the negative life-consequences of pregnancy for girls. Even though the document outlines the duty schools have to encourage learners to continue with their education, the policy also stresses that a learner may be requested to take up to two years of leave.

***Draft - National Policy on the Prevention and Management of Learners Pregnancy in Schools, 2018.***
The policy draft seeks to ensure access to information on pregnancy-prevention, termination of pregnancy, care, counselling, and support and includes frameworks for impact mitigation as well as guidelines for systemic management and implementation. In particular, it commits the basic education system and other stakeholders in providing the Comprehensive Sexuality Education (CSE) crucial to optimal sexual and reproductive health. CSE aims to ensure that young people gain the knowledge and skills to make conscious, healthy, and respectful choices about relationships and sexuality. It explicitly addresses issues of gender and power, and provides scientifically accurate, practical information in a non-judgmental way.

settings. Lastly, the policy lacks a detailed theory of change that will underlie the targeted changes in schools' and teachers' attitudes towards pregnant learners in order to create the supportive environment that the policy aspires to create.

## 6. Overview of the quantitative research on adolescent mothers' schooling in South Africa

Quantitative studies on adolescent mothers in South Africa primarily focus on assessing whether school outcomes differ between adolescent mothers and adolescents who did not have children during adolescence. One group of studies compares school outcomes of adolescent mothers with non-mothers at an age where it is unlikely that young women acquire any further education. For example, Ardington, Mendez, and Mutevedzi (2015) found that adolescent mothers ($n$ = 684), compared to non-mothers ($n$ = 734), from KwaZulu Natal had fewer years of completed education and were more likely to have dropped out of school before graduating by age 20. The study also showed the largest differences between non-mothers and women who had had their first child before the age of 17; namely this group of young mothers was almost one year behind and 26 percentage points more likely to have dropped out of high school by age 20. Similar results emerged from a study by Ranchhod, Lam, Leibbrandt, and Marteleto (2011) who used longitudinal data from the Cape Area Panel Study. Based on a subsample of 1,934 girls and young women from Cape Town, the results showed that adolescent mothers were less likely to have graduated from high school and had fewer grades completed than non-mothers by the age of 18 and 20, respectively. However, this study also indicates that this disadvantage seems to have disappeared by age 22 when there were no significant differences regarding schooling between the two groups anymore. These type of studies, which assess school

outcomes into participants' early 20s, are extremely valuable in the South African context where overaged learners are common and it is largely socially accepted to pursue high school completion beyond the adolescent years.

A few studies tried to overcome issues related to selection biases resulting from comparing adolescent mothers and non-mothers by using pairs of sisters where one sibling gave birth during the adolescent years whereas the other did not. These models attempt to account for unobserved heterogeneity which is otherwise impossible to control for and often referenced as a major criticism of studies comparing adolescent mothers and non-mothers. For example, Ardington et al. (2015) showed that younger adolescent mothers (< 17 years) had received about one year less education and were 35 percentage points more likely to have permanently dropped out of school by the age of 20 compared to their sisters who had delayed childbearing. A second study by Kakal (2015) – who used data from the first three waves of the National Income Dynamics Study – compared school outcomes of adolescent mothers with their sisters who gave birth above the age of 19. The results align with Ardington et al., (2015) showing that adolescent childbearing halved the probability of having completed high school by age 23. In addition to the results that have used non-sister samples of young mothers and non-mothers, these results strengthen the evidence for an educational disadvantage for adolescent mothers which is not the result of pre-pregnancy characteristics that selected some girls into the pregnancy (as these would equally affect both sisters). Even though evidence based on sister-samples may be considered superior to other studies because it accounts for some unobserved heterogeneity within the sample, there are still other factors that could contribute towards the differences in school outcomes between mothers and non-mothers. For example, other within-family differences (e.g.,

parents treating sisters differently), unobservable differences in personality (i.e., conscientiousness), other measurable variables (e.g., differences in prior school performance), or a combination of these factors affect both adolescent motherhood and school outcomes. Despite the strength of sister-samples, analyses that are unable to control for these potentially important covariates are likely to overestimate the effect of pregnancy on school outcomes established through sister-fixed effect studies.

Four further studies investigated if girls who experienced an early pregnancy were more likely to subsequently drop out of school compared to other girls in the same cohort. For instance, the study by Madhavan and Thomas (2005) – using cross-sectional data from the 1996 South African population census – showed that early childbearing reduced the odds of being enrolled in school by almost half (excluding participants who gave birth in the previous year as well as those who had already completed school). In addition, Stoner and colleagues (2019) tested 2,365 young women from the Mpumalanga province in South Africa, showing that girls who had been pregnant before or during the 3-year study period were twice as likely to drop out of school over the course of the study compared to non-pregnant girls. Similarly, Timæus and Moultrie (2015) showed that women who gave birth to a child between the study waves showed 4.8 times the odds of not passing their appropriate grades over the next two years after birth. Lastly, Marteleto, Lam, and Ranchhod (2008) showed that adolescent mothers from Coloured and Black communities, were 22 percentage points and 12 percentage points, respectively, more likely to drop out compared to girls who did not get pregnant during the three year study period.

One of the most important points of debate within the literature – which affects the relevance of the previously mentioned studies – are concerns surrounding the impact of pre-pregnancy characteristics on the pregnancy itself but also on the school outcomes after birth. Geronimus (2004) was among the first to point out that the effects of early childbearing on educational and economic outcomes are "slightly negative, negligible, or positive" in well-designed studies which adequately account for selection bias. According to her, the real question that research on adolescent mothers should be asking is "Would social or public health problems be alleviated *if the same women who become teen mothers postponed childbearing to older ages*?" (p.155).

Geronimus' (2004) concerns regarding the selection bias in studies which allege that the girls' age at the time of the pregnancy is responsible for poor future outcomes are addressed to varying degrees in the previously cited studies. Namely, the mentioned studies controlled for multiple household and parenting characteristics, such as household poverty, household size, parental education (Ardington et al., 2015; Ranchhod et al., 2011; Stoner et al., 2019; Timaeus and Moultrie, 2015; Marteleto et al., 2008). Some even accounted for schooling before the pregnancy which has been found to select girls' into early motherhood (e.g., Stoner et al., 2019; Rosenberg et al., 2015).

Some studies have nicely illustrated how the inclusion of relevant household and socio-economic covariates reduce the coefficient estimates on high school graduation and school dropout by about 90% (Ranchhod et al., 2011). Yet, all identified studies from South Africa – irrespective of which covariates were controlled for and also including sister-samples – indicated impaired school outcomes for adolescent mothers, particularly in the short-term.

It is fair to say that studies that *only* focus on the short-term impact on schooling, like school dropout, may overstate the negative impact of an early pregnancy because they do not acknowledge that adolescent mothers could return to school after a pregnancy-related dropout. Only a few studies – two already mentioned above – on South African adolescent mothers also examined which factors contribute to a school return among adolescent mothers. For instance, the study by Grant and Hallman (2008) found that adolescent girls' return to school becomes less likely with each year that passes and girls whose past education was characterised by grade repetition or temporary withdrawal from school showed about half the odds of school return compared to girls whose school history was not characterised by any problems. Further, Ardington and colleagues also support that pre-birth educational attainment increases the probability of returning to school in addition to the pre- and post-birth assets available in the household, which appear to be protective of schooling for teen mothers. Lastly, Timaeus and Moultrie (2015) also found that mothers from wealthier households were much more likely to have re-enrolled in school than poorer mothers. In addition, adolescent mothers whose own mothers had completed at least Grade 7 were highly likely to re-enrol in school, and girls living in urban areas were much less likely to have returned to school than those living in rural areas.

In summary, the South African literature indicates that early motherhood has a strong *immediate* impact on schooling which is characterised by high rates of dropout as a result of the pregnancy, even after controlling for pre-pregnancy characteristics. However, studies have also shown that many mothers return to school after a pregnancy-related dropout. Girls' continued schooling after birth may enable some girls to catch up with their schooling so that their educational differences with non-mothers are reduced over time –

this would be largely undetected by studies which have not followed girls for long enough. As shown by Ranchhod and colleagues (2011), mothers and non-mothers did not show any difference in high school graduation and years of completed schooling at age 22, whereas there were differences at age 20 and below. However, results from the sister-study by Kakal (2015) provide alternative evidence showing that large differences in school completion still exist at age 23. These findings align with previous studies highlighting the struggles of adolescent girls to perform well in school once they have returned. Morrell, Shefer and Bhana (2012) noted that when young mothers continue schooling after birth, their performance was often impaired, and many moved from doing well academically to becoming average students or even 'underachievers' when attempting to balance motherhood and schooling. Overall, these discrepant results exemplify the ongoing debate in this area about the 'true' impact of motherhood and the difficulty of approaching causal mechanisms across samples, provinces, and different analyses.

Currently, it remains unclear when adolescent mothers first disengage from school and to what extent prior schooling affects school discontinuation during and after pregnancy. Whilst a small number of studies examined adolescent mothers' return to school, the modifiable factors that enables adolescent mothers to return to school are also largely unknown.

## 7. Theoretical and conceptual framework

This section introduces the theoretical and conceptual frameworks informing this DPhil investigation. First, a broad summary of key models and concepts surrounding school

dropout is presented. Second, the specific conceptual framework applied to school dropout and enrolment amongst South African adolescent mothers is described in order to contextualise the current research.

## 7.1 Theoretical background of school dropout

The UNESCO Institute for Statistics defines school dropout as the "proportion of pupils from a cohort enrolled in a given grade at a given school year who are no longer enrolled in the following school year" (UNESCO, 2009). In South Africa, the Department of Education defines dropout as leaving school before completing a given grade in any given school year (Wegner and Fisher, 2009).

Internationally, many theoretical models have tried to explain why school dropouts occur. Potential predictors of graduation include a range of within-school factors (e.g., educational engagement, a history of school failure, psychological investment, interest and enthusiasm for school), out-of-school factors (e.g., delinquent behaviour, drug and alcohol abuse, teenage parenting and childbearing), and features of families, schools, and communities (composition, structure, and practices) (see Rumberger and Lim, 2008). Rumberger (2011) describes a model – capturing insights from major theories and the empirical literature – which can be understood as an application of bioecological models of human development (Bronfenbrenner and Morris, 2006; Shonkoff et al., 2012; Steinberg and Morris, 2001) that capture the diverse nature and multilevel, interacting spheres of influences that affect school dropout (Figure 11). The model classifies the antecedents of dropout in two interacting categories, individual and institutional, where institutional factors shape the

associations between individual risks and dropout. Examples for individual antecedents include students' background characteristics (demographics, health, and prior academic performance and experiences), attitudes (goals, values, and self-perceptions), and behaviours (engagement, coursework, deviance, peers, and employment). Institutional antecedents include the structure and processes operating within families, schools, and communities.

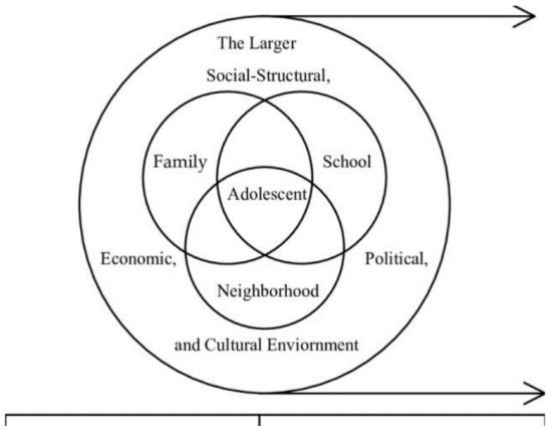



**Figure 11.** The influence of context on adolescent development over time. *Source: Jessor (1993).*

Many existing theories, including Rumberger's model, reflect that dropping out of school may not be a single event, but an evolving process which unfolds over a longer period of time. In this view, a school dropout is the endpoint of a long trajectory of disengagement with the educational system, starting when children enter school or even before. Notably, other researchers have pointed out that the impact of proximal life events and circumstances that trigger dropouts must not be neglected, and that understanding school dropout requires consideration of both long-term vulnerabilities and proximal disruptive events and contingencies (Willett and Singer, 1991). In fact, many students do not show a

clear history of academic or behavioural problems in the years before a dropout (Bowers and Sprott, 2012; Janosz et al., 2000) and, even among students who would be considered at risk when they enter high school, there is heterogeneity in terms of timing and outcomes, with some leaving school later than others and others unexpectedly graduating (Bowers, Sprott, and Taff, 2013; Vitaro et al., 2001).

Addressing the significance of proximal life events, the 'Stress Process, Life course' framework of dropout, developed by Dupéré, Leventhal and colleagues (2015), integrates long-term and intermediate determinants (i.e., turning points or stressors) to explain school dropout (Figure 12). In a nutshell, the framework combines the core components of *life course models* and *stress process models.* Life course models emphasise long-term developmental pathways and seek to understand the multiple factors that shape people's lives from birth to death, placing individual and family development in cultural and historical contexts. Broadly, life course models describe that outcomes, such as school dropout, can only be fully understood in light of broader trajectories that consider long-term antecedents and childhood experiences. In this view, the life course models prescribe that any behaviour, including schooling, is the continuation of a stable trajectory across life stages. However, in addition to highlighting the continuity throughout a person's life, life course models also stress the importance of points of rupture and discontinuity in individual trajectories. That is, major life events can also function as 'turning points' which have the power to disrupt the continuity of a life pathway and redirect people's lives (Kirkpatrick Johnson, Crosnoe, and Elder, 2011). A 'turning point' encompasses both positive and negative transitions and experiences (Rutter, 1996). For instance, in the context of school dropout, a hospitalisation or arrest could likely function as negative turning points whereas

moving house or changing schools could allow for a fresh start and contribute to the upward shifts in problematic educational trajectories (Yair, 2009).

Compared to life course models, stress process models take a more focused approach to examining how specific combinations of individual and social vulnerabilities, stressors, and sources of support come together to create a given outcome. At the core of stress process models lies the key concept of 'stressors' which refers to problematic external circumstances and experiences apt to challenge people's adaptive capabilities and likely cause adjustment problems (Pearlin and Bierman, 2013). A stressor can take the form of discrete life events (e.g., the death of a parent) or of more enduring difficulties (e.g., recurring abuse; Shonkoff et al., 2012) and multiple stressors can co-occur or interact over time. Different socioeconomic groups can more likely to experience certain stressors, with people in disadvantaged groups often being particularly vulnerable to certain kinds of stressors, such as job loss. The models acknowledge that a person's reaction to stressors depend on other components, such as pre-existing, psychological, or social vulnerabilities (Belsky and Pluess, 2009; Hankin, 2012; Hankin and Abela, 2005) and individual and social resources can moderate the impact of stressors, buffering the negative impact of environmental stressors which could generate significant strains. Whilst stress process models have predominantly been used to study mental health problems, Dupéré and colleagues have argued that the scope of the model may extend to outcomes in other domains and many factors underscore its relevance for educational attainment.

The 'Stress Process, Life course' model (Figure 12) integrates life course and stress models in relation to school dropout. Overall, the model is distinct from other dropout theories

which have paid less attention to precipitating factors, even when they recognized their potential role. Applied to the context of the present thesis, the 'Stress Process, Life course' model describe adolescent parenting as a proximal event which occurs against the backdrop of other preexisting biological (e.g., genetic or epigenetic risks), psychological (e.g., cognitive ability, personality, temperament), or social (e.g., child abuse) vulnerabilities which may already predispose adolescent girls to drop out of school. Whilst there are some accounts which suggest that adolescent motherhood can act as a positive 'turning point' that motivates girls to do well in school (Apfel and Seitz, 1991), it is typically described consistent with the stress process notion of a stressor. Even though the details are not outlined in Figure 12, the likelihood to experience an adolescent pregnancy, like most other stressors, is unequally distributed and some girls will be particularly vulnerable to early motherhood (see Chung, Kim, and Lee, 2018; Gunawardena, Fantaye, and Yaya, 2019; Imamura et al., 2007; Kassa et al., 2018; Mmari and Blum, 2009; Pradhan, Wynter, and Fisher, 2015).

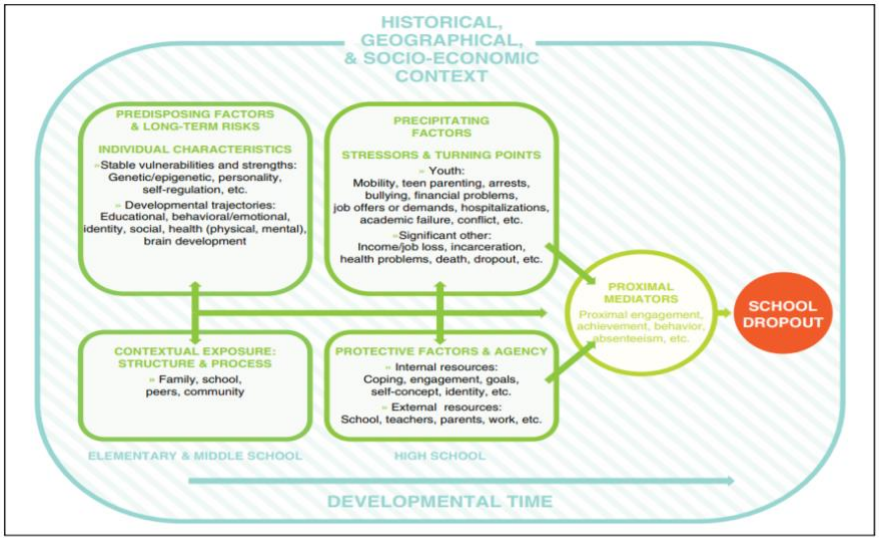



**Figure 12.** A 'Stress Process, Life course' model of high school dropout. *Source: Dupéré, Leventhal, et al. (2015).*

In this context, the framework captures how a pregnancy may trigger a school dropout among adolescent girls with a longer-term history of educational problems whose trajectory already led towards a dropout. At the same time, it is also possible that some adolescents, whose trajectory would not predict a school dropout, discontinue school because early motherhood functioned as a disruptive turning point. This may be particularly likely when it occurs in combination with other stressors and in the absence of strong support structures. According to the model, social and academic integration, and institutional practices and resources that support student perseverance could play a protective role. Other internal and external 'agency-promoting' factors, which enable the young mother to cope and adapt to the new life situation, can also act as protective factors.

Although the present study is unable to fully apply the 'Stress Process, Life course' model and cannot test the impact of pregnancy as a stressor due to lacking longitudinal data, the model is useful for the interpretations of the study findings. Particularly, the question remains whether or not adolescent mothers who show poor school outcomes have had a history of poor schooling (and would have shown poor outcomes regardless of the pregnancy). Even though the present study did not set out to test this model in its entirety, the study results will be able to shed light on the most plausible school pathways for South African adolescent mothers and build the foundation for future studies aiming to further explore the 'Stress Process, Life course' model.

### 7.2 Conceptual framework for this thesis

The models described above – in combination with the literature review – were used to construct a conceptual framework for this thesis which is aiming to understand adolescent girls' schooling over the course of their pregnancy and afterwards (see Figure 13). In accordance with the Stress Process Life course model, all girls in the present sample were exposed to the stressor (or potential turning point) of adolescent pregnancy and adolescent motherhood. The framework includes a time dimension which reflects that girls' school dropout can be triggered at different points in time throughout pregnancy and motherhood because each stage likely brings unique challenges that affect schooling. At the same time, schooling at each stage has the potential to affect subsequent schooling.

At each stage, school enrolment and school dropout and hypothesised associated factors are measured. Associated factors, or *correlates,* are factors which are associated with the outcome and can be identified using cross-sectional data (Offord and Kraemer, 2000). Correlates differ from *risk factors* or *protective factors,* which must not only show a correlation with an outcome but have also been shown to precede it to assume causality and classify them as true predictors (Offord and Kraemer, 2000). The present study includes two types of correlates: 1. 'Push and pull' correlates which are hypothesised to be negatively associated with the school enrolment of pregnant girls and adolescent mothers and 2. Protective correlates which are hypothesised to be positively associated with the school enrolment of pregnant girls and adolescent mothers (see Table 7).

Specifically, based on the research by Rumberger and Lim (2008), previous conceptual frameworks have coined the expression 'push and pull factors' in the context of school

dropout (Singh and Mukherjee, 2018). According to the framework, push factors largely refer to school-related factors which make a school dropout more likely, such as the distance to school, being banned from school, problems understanding the content of the lessons etc. By contrast, pull factors refer to external factors outside of the school context, including marriage, having to earn money, need or desire to start working etc. Conversely, protective correlates are variables which were hypothesised to show low associations with school dropout.

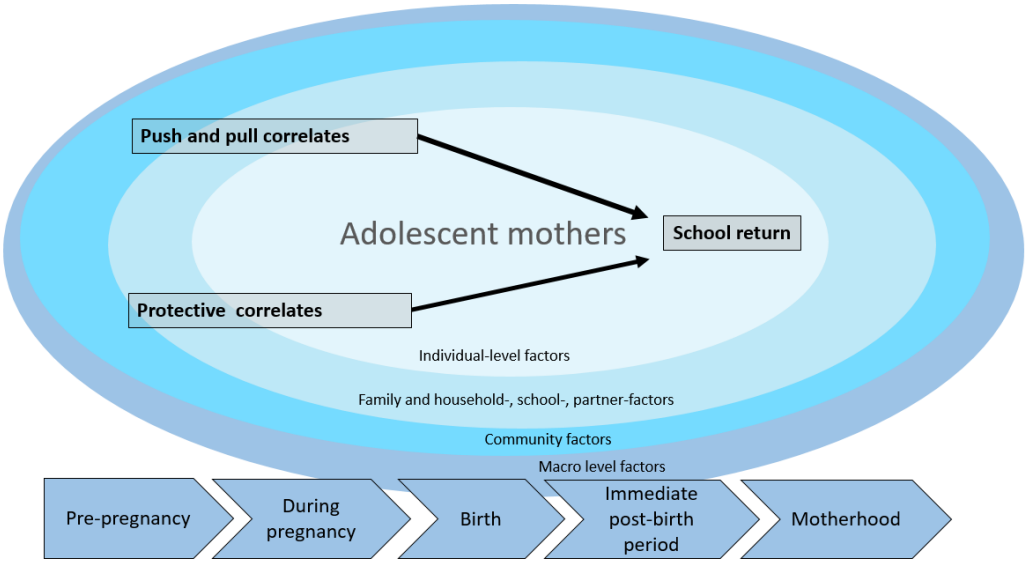



**Figure 13.** Conceptual framework for this thesis.

As suggested above, push and pull correlates and protective correlates exist on several socioecological levels, including individual-level factors and contextual factors associated with four major influences that affect adolescent mothers – families and partner, schools, and communities (Rumberger, 2011). Aligned with Rumberger and Lim (2011), the present thesis used the following guidance to categorise the variables chosen for analyses:

- **Individual-level** factors describe individual background variables, such as demographics, relationship status, health factors, and past school performance.
- **Family and household-level** factors describe structure, resources, and practices within the family unit or members of the same household.
- **School-level** factors describe composition, structure resources, and practices related to school.
- **Community-level** factors describe composition, resources, and violence exposures within the community.

The present framework predominantly includes variables that are directly connected to early pregnancy. For instance, individual-level variables reflect a girls' pregnancy intentions and her plans to end the pregnancy, not measures of self-esteem or self-efficacy which may also be related to school dropout.

The presented theoretical framework highlights the range of potential factors which could affect schooling within the group of adolescent mothers. Identifying key factors that are associated with mothers' schooling will be useful for designing programmes that aim to foster educational resilience among them. Although the link between suggested factors and school outcomes has not been exhaustively (or causally) tested in empirical work, the framework – in combination with the results from this thesis – can conceptually inform future programmes and their theory of change.

**Table 7.** The variables used for analyses within the empirical chapters of this thesis.

| | **School enrolment during pregnancy (*DPhil Paper 1*)** | | **School return after birth (*DPhil Paper 2*)** | | **Schooling and motherhood (*DPhil Paper 4*)** | |
|---|---|---|---|---|---|---|
| | Push & pull correlates | Protective correlates | Push & pull correlates | Protective correlates | Push & pull correlates | Protective correlates |
| **Individual-level factors** | • Pregnancy intentions and plans to terminate the pregnancy<br>• Medical problems during pregnancy<br>• Grade delay at the onset of the pregnancy | | • Respondent is the primary caregiver of her child<br>• Exclusive breastfeeding<br>• Medical problems during birth<br>• Grade delay at the onset of the pregnancy | • Government child support grant receipt<br>• Continued schooling during pregnancy<br>• Continued relationship with the child's father<br>• Maintenance payments receipt | | |
| **Family and household-level factors** | • No caregiver provision of information about the pregnancy | • Co-residency with a caregiver<br>• Partner supportive reaction to the pregnancy<br>• Number of necessities available in the household | | • Household size<br>• Co-residency with a caregiver<br>• Family support with childcare<br>• Number of necessities available in the household | • Parental physical and emotional abuse<br>• Food insecurity<br>• Informal housing | • Co-residency with a caregiver<br>• Positive parenting<br>•Parental/ Caregiver communication<br>• Parental monitoring |
| **School-level factors** | • No school provision of information about the pregnancy | | | | • Above average distance from school | |
| **Community-level factors** | | | | • Daycare use | • Exposure to community violence | |

## 8. Research aims and questions

This thesis aims to advance the evidence on the rates of school enrolment, school discontinuation, and school return among adolescent mothers in South Africa. It seeks to further our understanding of the scope of the problem as well as the risk and protective factors for school discontinuation during pregnancy and the postpartum return to school. To achieve this goal, this thesis will address the following main research questions and sub-questions:

1) What are the rates and correlates of school withdrawal during pregnancy? **(DPhil Paper 1)**
    i. What are the rates of school enrolment at the onset of adolescent girls' pregnancy? What are the rates of school withdrawal during pregnancy for mothers who were enrolled in school at the onset of their pregnancy?
    ii. What is the association between school withdrawal during pregnancy and hypothesised individual-, family-and household-level, and school-level factors?
    iii. What are the timings of adolescent mothers' withdrawal from school during pregnancy and what are the patterns of school discontinuation during pregnancy?

2) What are the rates and correlates of adolescent mothers' return to school after birth? **(DPhil Paper 2)**
    i. What are the rates of school return after birth among adolescent mothers?

ii. What is the association between the return to school after birth and hypothesised individual-level, family-and household-level, and community-level factors? Specifically, what is the role of continued schooling *during* pregnancy on postpartum-return to school?

iii. What are the mechanisms through which socioeconomic hardship affects postpartum school return?

3) When do adolescent mothers return to school after birth? **(DPhil Paper 3)**

i. For adolescent girls who returned to school after birth, what is the timing of school return? That is, how many months after birth do adolescent girls' return?

ii. Are the identified timings of school return aligned with South Africa's national policy on adolescent mothers' school return?

iii. Do the identified findings align with other recent findings from South Africa?

4) Which family and household-, school-, and community-level factors are associated with school enrolment among adolescent mothers? **(DPhil Paper 4)**

i. Which subgroups of adolescent mothers can be identified within the study sample? Which distinct risk-profiles characterise each of these subgroups in terms of measured family- and household-, school-, and community-level variables?

ii. Are school outcomes, such as enrolment, related to subgroup membership?

The next chapter will present how this research seeks to investigate these research questions through quantitative interviews conducted with adolescent mothers in the Eastern Cape province in South Africa.

# III. Methodology

Based on the identified gaps in evidence that guided the presented research questions, the candidate chose to conduct this research using a quantitative methodology. In this chapter, the candidate will first explain why a quantitative methodology is suited to the study and its research questions and then detail the methodology for the cross-sectional study, including research setting, sampling strategy, data collection, and ethical considerations.

## 1. Why choose a quantitative methodology?

For this study, the candidate chose to employ a quantitative research design for several reasons. In the South African context, ample *qualitative* evidence on adolescent mothers and their experience with schooling exists. A small number of quantitative studies aimed to assess the impact of pregnancy on schooling but the generalisability of the results may be limited due to the low number of pregnant adolescents in the samples that were used and the methodological challenges inherent in comparing adolescent mothers with adult mothers. Even fewer studies have been able to quantitatively investigate relevant pre- and post-pregnancy factors and their associations with schooling because many relied on large national or census data which did not include questions on childbearing. As a result, there is almost no empirical evidence to guide contemporary research on adolescent mothers and enable the development of evidence-based programmes, provisions, or combinations of social interventions that support adolescent mothers' schooling in South Africa.

On a very basic level, the study aimed to gauge how many adolescent mothers discontinue school from the beginning of their pregnancy and thereafter. To this end, the project aimed

to assess when adolescent mothers' educational disadvantages emerge and compare rates of school enrolment over time. This aim requires a quantitative assessment using a large sample so that the results are generalisable. In addition, the study set out to investigate relationships between school enrolment and its covariates, testing hypotheses which have been informed by the breadth of qualitative research on adolescent mothers' schooling in South Africa.

Both of these reasons justify the use of quantitative methods, which are appropriate when the researcher seeks to explore very specific and rather narrow questions based on a few variables, aiming to establish relationships between them (Stockemer, 2019). This stands in contrast to qualitative research questions, where the intent is to explore the complex set of factors surrounding the central phenomenon and present participants' varied subjective meanings towards it (Creswell and Clark, 2017; Padgett, 2012).

## 2. Philosophical underpinnings of the methodology

According to Dobson (2002), the researchers' theoretical lens plays an important role in the choice of methods because the underlying belief system of the researcher (their ontological assumptions) largely defines their choice of method. In this context, my previous training and background in experimental psychology and cognitive neuroscience – both quantitative disciplines – has likely shaped my understanding of how knowledge is constructed and influenced my decision to address the topic of adolescent mothers' schooling with research questions that could be answered using quantitative methodology. Some authors (e.g., Gorard, 2003) may consider this as a case of "the cart pulling the horse"

– where the researcher chooses the methodology before deciding on a topic or research question – which is only problematic when the researcher tries to disguise their decision as a philosophical rather than methodological choice. This is not the intention here.

The methodological approach taken for this thesis largely reflects positivist principles. Generally speaking, the decision to answer the research questions with methods close to those of natural sciences implies a commitment to the position that these questions can be answered with empirical science (Goodwin, 2005). In another words, an underlying tenet of quantitative research is a philosophical approach that our world is relatively stable and uniform, such that we can measure and understand it as well as make broad generalisations about it. This is a realist world view capturing that 'the truth is out there' and research uncovers an existing reality through objective methods. In this context, the researcher is mostly detached from the research and uses methods that maximise objectivity, which opposes qualitative methodologies that are typically considered 'subjectivist' because they posit that there is no objective reality (Mertler, 2016; Lythcott and Duschl, 1990).

Within realism, positivism is often described as the most extreme view on what constitutes knowledge and certainty. According to positivism, the purpose of science is to focus on what is observable and measurable, as knowledge of anything beyond that is impossible (Rutherford and Ahlgren, 1991; Trochim, 2000). In this view, the world works according to fixed laws of cause and effect and scientific thinking is used to test theories about these laws through reliable measurement instruments which enable us to objectively study the physical world (Healy and Perry, 2000). Despite increasing criticism towards positivism and its narrow view of what constitutes knowledge, it is appropriate to use positivist

methods when they match the research questions that are posed (Ryan, 2006), which was the case in the present study.

## 3. Overview of DPhil data

### 3.1 The Hey Baby study

The present thesis aimed to address the previously mentioned shortcomings within this area of research by utilising a quantitative survey which was completed by 1,046 adolescent mothers living in the Eastern Cape province of South Africa. Specifically, the four empirical papers of this thesis are based on data from the HEY BABY study, a cross-sectional study, conducted between 2017-2019, which included a series of questions conceptualised by the candidate which captured girls' school enrolment before and after the pregnancy. This methodology chapter will provide a detailed description of the overarching research study, including sampling, recruitment, data collection procedures, ethical considerations, and practical research challenges encountered during data collection. Statistical analysis methods and descriptions of measures used are not featured in this chapter but described in detail in the respective papers (Chapter IV to Chapter VII) to avoid repetition.

### 3.2 The MAMAs study

Chapter VI is based on a pooled dataset using both HEY BABY data and data drawn from the study Mentoring Adolescent Mothers at School (MAMAS) study, led by Prof Allison Groves at Drexel University. MAMAS is a 3-arm pilot intervention, designed to test if group mentoring can increase the number of adolescent mothers who re-enrol and remain

in school. The study was conducted between 2017-2018 in Umlazi township in KwaZulu-Natal. Chapter VI includes data from 111 adolescent mothers (aged 14 - 19 years) who were part of the comparison group (i.e., they did not receive the MAMAS intervention). These participants were recruited from the community and completed the interviews about six months postpartum. That is, all participants completed an interviewer-assisted survey on a tablet using audio-assisted computer interviewing. Voluntary informed consent was obtained from adolescents and their caregivers in cases where adolescent mothers were underage.

## 4. Hey Baby Research setting

This study was conducted in urban, peri-urban, and rural locations in one of South Africa's poorest provinces (World Bank, 2018; Lehohla, 2015), the Eastern Cape (see Figure 14, left). The specific study sites were the Buffalo City Municipality and Amathole Health District (see Figure 14, right).

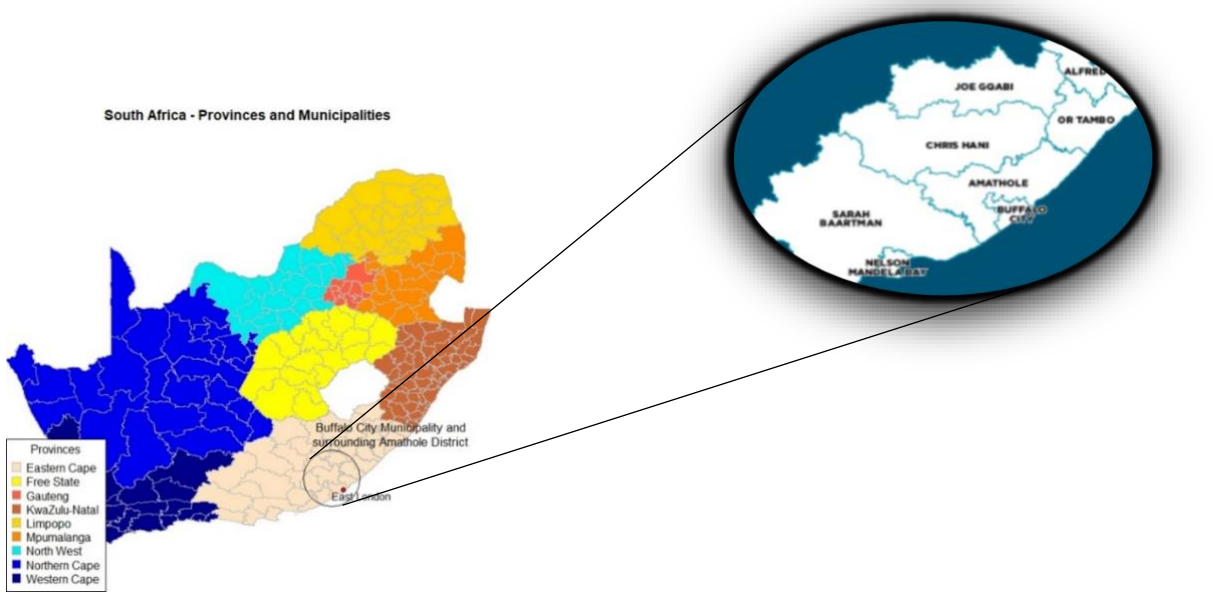



**Figure 14.** South African provinces, municipalities in the Eastern Cape, and geographical location of the field site.

Across South Africa, there were 10,294,286 adolescents aged 10 to 19 in 2016 which make up 18,5% of the total population. Of these adolescents, 9,3% constituted 10–14 year-olds and 9,1% comprised 15–19 year-olds. Within the adolescent population, 5,134,202 (49,9%) were girls (StatsSA, 2018). Compared to other provinces, the Eastern Cape had the highest percentage of 10- to 19-year-olds (22,7%) and holds the largest proportion of adolescents as a proportion of the total population (see Figure 15).

Table 8 shows that adolescent pregnancy rates have recently increased in multiple South African provinces, including the Eastern Cape. Specifically, 360 births were recorded among 10-14 year olds in 2017/18, and this number rose to 425 in 2018/19. The data also shows an increase in recorded birth among 15-19 year old girls, indicating a higher number of births in 2018/19 (16,742) compared to 2017/18 (15,115).

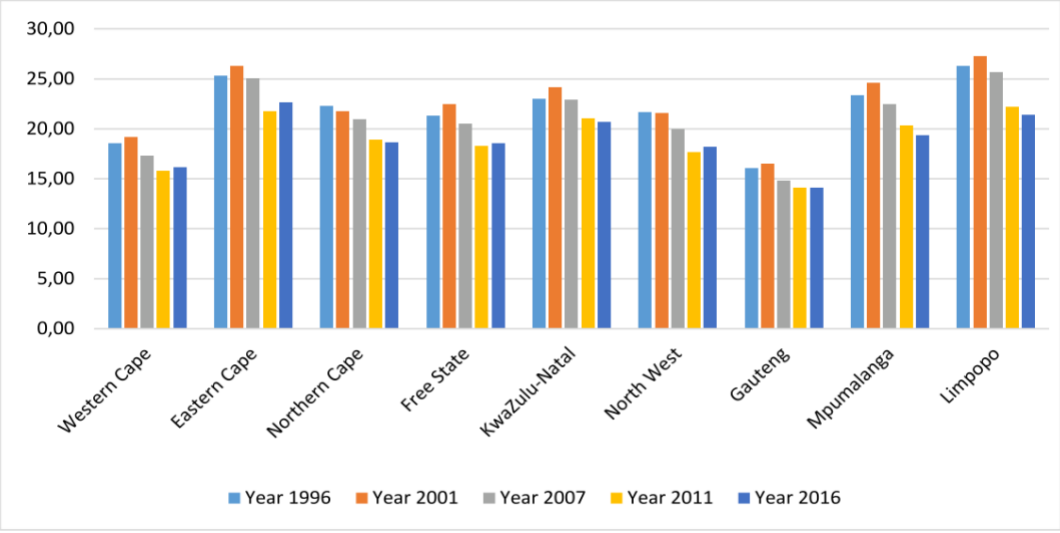



**Figure 15.** Trends in the adolescent population (10-19 years) as a proportion of the total population, by province. *Source: Statistics South Africa, 2018.*

**Table 8.** Number of girls' 10-19 who delivered in facilities between 2017/18 and 2018/19. *Source: Presentation at the Adolescent & Youth Health Policy Course, Cape Town, 2019.*

| Province | 2017/18 10-14 years | | 2018/19 10-14 years | | 2017/18 15-19 years | | 2018/19 15-19 years | | 2017/18 10-19 years | | 2018/19 10-19 years | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Population | Delivery in facility | Population | Delivery in facility | Population | Delivery in facility | Population | Delivery in facility | Population | Termination of pregnancy | Population | Termination of pregnancy |
| **Eastern Cape** | 384,994 | 360 | 395,857 | 425 | 320,106 | 15,114 | 2,439,955 | 16,742 | 705,100 | 1,421 | 721,285 | 1,493 |
| **Free State** | 129,110 | 126 | 131,882 | 161 | 128,562 | 4,832 | 325,428 | 5,618 | 257,672 | 931 | 258,745 | 1,011 |
| **Gauteng** | 541,787 | 343 | 552,534 | 419 | 498,565 | 17,315 | 126,863 | 14,501 | 1,040,352 | 2,507 | 1,069,956 | 2,241 |
| **KwaZulu Natal** | 597,895 | 609 | 617,433 | 989 | 517,135 | 31,893 | 517,422 | 34,482 | 1,115,030 | 2,711 | 1,142,004 | 3,229 |
| **Limpopo** | 287,893 | 378 | 296,178 | 377 | 281,086 | 15,860 | 524,571 | 16,210 | 568,979 | 1,650 | 570,592 | 2,384 |
| **Mpumalanga** | 211,367 | 363 | 214,619 | 590 | 208,346 | 9,652 | 274,414 | 11,229 | 419,713 | 613 | 420,779 | 826 |
| **Northern Cape** | 55,593 | 115 | 55,851 | 99 | 54,276 | 3,447 | 206,160 | 3,942 | 109,869 | 220 | 109,628 | 169 |
| **North West** | 179,284 | 123 | 185,836 | 157 | 159,877 | 6,107 | 53,777 | 7,700 | 339,161 | 505 | 347,588 | 741 |
| **Western Cape** | 247,352 | 309 | 252,567 | 312 | 250,077 | 10,109 | 161,752 | 10,675 | 497,429 | 2,338 | 502,135 | 2,347 |
| **RSA** | 2,635,275 | 2,726 | 2,702,757 | 3,529 | 2,418,030 | 114,329 | 2,495,684 | 121,099 | 5,053,305 | 12,896 | 5,142,712 | 14,441 |

## 5. Hey Baby sampling strategy and recruitment modes

HEY BABY's sampling strategy aimed to address the potential bias resulting from including participants who originally belonged to another cohort study undertaken by the same research team. Namely, HEY BABY sprung from the three-year longitudinal study Mzantsi Wakho (which translates to 'Your South Africa'), which was conducted between 2014 and 2018. Mzantsi Wakho sought to understand the health needs of HIV positive adolescents growing up under highly adverse conditions, focussing on factors affecting adherence to antiretroviral treatment for HIV, uptake of sexual and reproductive health services, and health. HEY BABY was conceptualised alongside the Mzantsi Wakho study as it became apparent that an increasing number of participants in the maturing sample became parents. In its infancy, HEY BABY recruited adolescents who had become parents during the Mzantsi Wakho study directly into this new project ($n$ = 300).

All Mzantsi Wakho participants had originally been recruited based on their initiation of antiretroviral treatment (ART) across all district health facilities providing HIV services ($n$ = 73) (i.e., hospitals, community health centres, and primary care clinics). In all health facilities, paper and electronic patient files of every adolescent who had ever started ART were identified. In 2017/18, this group was re-traced for follow-up interviews and adolescent girls who had reported ever being pregnant were contacted and invited to participate in the HEY BABY study. Since all of these initial participants belonged to a group of ART-initiated HIV-positive adolescents, the recruitment of further adolescent mothers via a single other mode of recruitment (e.g., schools) would have most likely created a biased sample. Therefore, a conscious effort was made to collect a representative sample of adolescent mothers by drawing on the maximum possible number of recruitment modes within the Buffalo City Municipality area (see Figure 16). Whilst this was primarily done to generate a representative sample of adolescent mothers living in the Eastern Cape, this approach also aimed to ensure that hard-to-reach mothers (i.e., mothers who may not be reached via schools or clinic recruitment) were recruited. Recruitment within each separate mode followed a detailed protocol (see Appendices 3.1 and 3.2) which prescribed a similar procedure. Depending on the mode, the research assistant introduced the study to a staff member in charge (e.g., a nurse or teacher) or a member of the community (e.g., a




**Figure 16.** Recruitment modes deployed in the HEY BABY study.

community guide) who was presented with letters of authorisation from administrative authorities (i.e., the Department of Health, Basic Education, and Social Development, see Appendices 1.3 – 1.5). The research aims of the HEY BABY study were summarised and, when possible, contextualised by also providing information on the Mzantsi Wakho study (e.g., when the team introduced the study to a facility which had previously been a collaborator). Lastly, the study's inclusion criteria were outlined, and the standard procedures following the initial visit were described. Table 9 summarises the number of potential participants located via each of the recruitment strategies and provides an overview of refusal and completion rates.

### 5.1 Recruitment via health-facilities/hospitals

Clinics and hospitals that were visited for recruitment purposes had to be a) A facility that the team had already engaged with as part of previous Mzantsi Wakho work ($n$ = 52) and/or b) A facility that falls within the physical geographical boundaries of the Buffalo City Municipality area ($n$ = 27). The latter 27 facilities included some clinics and hospitals that fell under the Amahlati and Amathole subdistrict administratively but are located within Buffalo City Municipality geographically.

Recruitment in clinics occurred in three ways: 1. Names and contact details of potential participants were extracted from existing records kept in facilities, including labour ward registers, antenatal care registers, lists of MomConnect[6] users, physical patient files, and

[6] MomConnect is an initiative from the National Department of Health (http://www.health.gov.za/index.php/mom-connect) that aims to support maternal and child health through the use of cellphone-based technologies integrated into maternal and child health services. The service allows pregnant women to register for the application themselves, or be registered by either a community health

immunisation records, as well as information provided by the clinic staff themselves. 2. Where possible, potential participants were recruited on the spot and eligible participants were interviewed in the facility after giving consent. This approach was generally not used in smaller facilities due to lower yield. 3. Hospital or clinic staff were asked for permission to hang small posters in the facility in order to recruit participants. For the remainder of the protocol, please see Appendix 3.1.

### 5.2 Recruitment via schools

The research team intended to recruit participants from a random selection of high schools located in Buffalo City Municipality. A list of all schools in the municipality was compiled with the help of the Eastern Cape Department of Basic Education school master-list[7] and information from online school registers (schoolsweb.co.za). All primary schools were excluded from participation. In addition, recruitment was influenced by the South African quintile system which reflects the level of government funding allocated to the school. Quintile 1, 2, and 3 schools, which are no-fee schools that typically serve lower-income communities, were included, while quintile 4 and 5 schools were excluded. This left a total of 149 eligible schools for randomisation. Schools were evenly chosen across all 50 Buffalo City Municipality wards based on random number allocation. At the end of the recruitment period, the HEY BABY team had approached 61 schools across all wards. Life Orientation

worker or at a facility by a healthcare professional. After registering, the women receive regular free messages to keep them updated about the stages of their pregnancy, get reminded about routine medical follow-ups that help them to understand and use healthcare services.

[7] The Department of Basic Education publishes master-lists for all schools operating in each province online under http://www.education.gov.za/Programmes/EMIS/EMISdownloads.aspx

teachers[8] or Learner Support Agents[9] in each school were requested to assist the team by compiling a list of details (name, age, address, and phone number) of female learners between the ages of 10 – 19 who were parents. In addition, we also requested a list of female learners who had dropped out of school in the previous year. For the remainder of the protocol, please see Appendix 3.2.

### 5.3 Community-based recruitment

Recruitment in the community occurred in two different ways. First, participants were recruited via appointed community guides who knew the respective communities well. Typically, the research assistants approached the community committee or a chairperson who then assigned a member of their community to function as a guide. The community guide then approached potential participants to introduce the study, check their interest in participating in the research, and tell interested families to expect that a research assistant will visit their house soon. In addition, the community guide would provide the research assistants with a list of names and contact information of these potential participants. Community guides were compensated for their time (ZAR 100 per day which is equivalent to £5,60) and frequently given a bonus for each recruited participant (ZAR 20 which is

[8] 'Life Orientation' is a compulsory subject in South African schools that was introduced shortly after South Africa became a democratic country. This subject aims to educate learners about South African history and equip them with basic life skills. According to the National Curriculum Statement, "Life Orientation guides and prepares learners for life and its possibilities and equips them for meaningful and successful living in a rapidly changing and transforming society. It guides learners to make informed decisions about their health, environment, subject choices, further studies and careers." https://www.education.gov.za/Portals/0/CD/National%20Curriculum%20Statements%20and%20Vocational/CAPS%20SP%20%20LIFE%20ORIENTATION%20%20WEB.pdf?ver=2015-01-27-160145-607

[9] The Learner Support Agent program was introduced in schools which aims to foster a close collaboration between themselves and the principals/teachers to provide support to individual pupils, or small or large groups. Specifically, the Learner Support Agents provide support to students who need assistance as a result of experiencing social, health, behavioural and poverty-related barriers.

equivalent to £1,20). Second, participants who were located with help of community guides often referred the research assistants to additional young mothers living within their communities. These potential participants would then be recruited door-to-door.

### 5.4 Recruitment via non-governmental organisations (NGOs) and non-profit organisations (NPOs)

The research team approached NGOs and NPOs in East London which worked with adolescents or adolescent mothers for recruitment purposes. These organisations included:

- **I love life** (Ginsberg/Dimbaza) – works with youth to raise HIV-awareness and runs several programmes to encourage youth to use contraception.
- **Isibindi** (East London) – an initiative from the National Association of Child Care Workers which encompasses a community-based programme that strengthens families by supporting positive caregiving and helping to protect children from abuse, neglect and violence. Isibindi also assists the most disadvantaged families to access key services.
- **Keiskamma Trust** (Peddie/Hamburg) – works in approximately 53 rural villages where it addresses challenges of poverty and disease via its health programmes, education projects, and art activities.
- **Kheth'Impilo** (East London) – works with government health care centres, community-based organisations, and other organisations to increase provisions of HIV prevention, treatment, retention in care, adherence to medication, and social welfare access for vulnerable people.

- **Living Hope** (Gonubie) - targets different groups within the community, including adolescents, adults, and the elderly. The organisation helps people to attend clinic and hospital appointments and encourages participants to seek HIV treatment.
- **Masibambisane** (Mdantsane) - a community-based NGO that provides home-based care services for sick people and support for their vulnerable family members.

## 6. Hey Baby Participants

### 6.1 Eligibility criteria

Participants were recruited into the study if they met the following inclusion criteria: 1. Female sex, 2. Aged between 10 – 24 years at the time of interviewing, 3. Have a child which was conceived under the age of 19, 4. Resided within Buffalo City Municipality or had been recruited via institutions and facilities within this area (i.e., clinics and schools) and 5. Consented to participate. Participants were excluded from participation based on the following criteria: 1. Male sex, 2. Adolescent girls without children or adolescents with children who lived outside the recruitment area and 3. Mothers who were over the age of 24 years at the time of the interview.

### 6.2 Recruitment

As previously outlined, the research team had mapped a full spectrum of potential access points (i.e., schools, health facilities, NGOs/NPOs etc.) to request details of adolescent mothers. Using the contact details that were acquired through each of these recruitment methods, adolescent mothers were called or traced within the community, depending on

which information was available. The study was introduced to prospective participants through either an office-based research assistant or a community research assistant who would confirm that all eligibility criteria were met. If the participant agreed to participate, the study information package was reviewed prior to obtaining the adolescent's consent or, for participants under 18 years, seeking their assent as well as parental/caregiver consent. Participants then chose the time and place of the interview which was typically their own homes.

## 7. Ethical considerations

Starting in 2015, the Oxford-based research team led by Dr Elona Toska and Prof Lucie Cluver put together a study protocol that focused primarily on ethical considerations. Since then, this protocol functioned as a working document which was updated when further ethical challenges arose. The most recent version of this protocol and the ethics sought from the University of Oxford and the University of Cape Town are included in Appendices 1.1 and 1.2 and some of the most salient points are summarised in this section.

**Table 9.** Summary of HEY BABY sampling.

| Recruitment mode | Number of potential participants | % of potential participants reached (n) | % of potential participants eligible (n) | % of eligible participants who consented (n) | % completed HEY BABY Baseline (n) |
|---|---|---|---|---|---|
| Mzantsi Wakho Participant | 249 | 86.7% (216/249)<br><br>33 = not reached /LTFU | 91% (199/216)<br><br>4=Child passed away<br>6=Nulliparous<br>2=Unconfirmed nulliparous<br><br>3=Adolescent mother passed away<br><br>2=Incorrectly coded male | 98% (193/199)<br><br>6=Refusals | 88% (169/193)<br><br>24= No complete baseline data |
| Maternity obstetric units and ART facilities | 1665 | 69% (1155/1665)<br><br>510 = Not reached | 42.7% (479/1155)<br><br>318=Not eligible<br>359=No follow-up | 94.2% (460/478)<br><br>18 =Refusals | 97% (427/460)<br><br>33 No complete data |
| Door-to-door (matched demographic profile) | 225 | 95.5% (215/225)<br><br>10=Not reached | 91.2% (196/215)<br><br>16=Not eligible<br>3=No follow-up | 100% (196/196)<br>0 =Refusal | 95.9% (188/196)<br><br>8 No complete data |
| Secondary school | 318 | 83.9% (267/318)<br>51=Not reached | 44.19% (118/267)<br><br>99=Not eligible<br>50=No follow-up | 98.3% (116/118)<br><br>2=Refusal | 99.1% (115/116)<br><br>1=No complete baseline data |
| Community, NGO and social service referrals | 126 | 94.4%% (119/126)<br><br>7=Not reached | 79.8% (95/119)<br><br>21=Not eligible<br>3=No follow-up | 100% (95/95)<br>0 =Refusal | 97.4% (92/95)<br><br>3=No complete baseline data |
| Peer referral | 66 | 100% (66/66) | 81.8% (54/66)<br><br>12=Not eligible | 100% (54/54)<br>0 =Refusal | 98.1% (53/54)<br><br>1=No complete baseline data |
| Other | 98 | 100% (83/98)<br><br>15 = Not reached | 24.1% (20/83)<br><br>63=Not eligible | 95% (19/20)<br><br>1 =Refusal | 100% (15/19)<br><br>4=No complete baseline data |

### 7.1 Ethical and regulatory compliance

Research members consulted with the University of Oxford ethics committee and colleagues at the University of Cape Town Health Sciences Research Ethics Committee for guidance on ethical protocols. The team also consulted South African legislation and sought ethical support from the Department of Health, Basic Education, and Social Development. In summary, the ethics processes and procedures for this research project were reviewed and approved by the following ethics committees and institutions:

1. I-DREC of the Social Sciences and Humanities Division, University of Oxford (R48876/RE001; R48876/RE002) – Appendix 1.1.
2. Faculty of Health Sciences, University of Cape Town (HREC REF: 226/2017) – Appendix 1.2.
3. Eastern Cape Department of Health – Appendix 1.3.
4. Eastern Cape Department of Basic Education – Appendix 1.4.
5. Eastern Cape Department of Social Development – Appendix 1.5.

### 7.2 Process of informed consent and assent

The HEY BABY data was collected with electronic tablets which were also used for informed consent and assent processes. Since participants in this study were between 10 – 24 years, adolescents above the age of 18 were able to give consent themselves while underage girls required consent from their caregiver in addition to their own assent. At the beginning of the study, information sheets and consent forms were presented to participants and their caregivers digitally. All attempts were made to ensure that consent was both voluntary and informed. The forms were read to participants in their preferred language (English or the local language Xhosa) to prevent poor literacy from limiting participants' understanding of the study's purpose, methods, and requirements. At this point,

participants were also told that their contact details would be kept confidential and that the answers they provide as part of the study would only be linked to a unique identifier (a serial number) and not their name. Participants were then given the opportunity to ask questions or raise any other concerns they had about the study and their participation, and told that they could deny participation or discontinue the study at any point without negative consequences. Participants were only able to give consent for participation after they fully understood the research and its procedures. Adolescent participants who were illiterate gave verbal consent and indicated this consent with a cross on the signature line.

*Consent for adolescents to participate.* Adolescents aged 18 and above were treated as adults concerning issues of informed consent. In order to ensure that children and adolescents did not feel obliged to participate in the research, an emphasis was placed on their ability to refuse to participate at any point during the study. Adolescents who refused to participate or withdrew their consent during the interview were still reimbursed for their time. Adolescents who declined to participate before or after the interviewer had explained the project were not interviewed, even if the legal guardian or nominated adult consented or encouraged participation.

*Legal guardian consent for adolescent participation.* For participants who were under the age of 18 years, caregivers had to provide consent for the adolescents' participation in the study. A caregiver could include:

- Parents;
- Grandparents, aunt/uncle, and other relatives;
- A foster parent;

- A child (16 years and older) who is heading a household;
- A Child and Youth Care Worker supporting a child without family care in the community.

*Exceptions to legal guardian consent for adolescent participation.* The research team was prepared to handle circumstances in which the adolescent may wish to participate, but the legal guardian is unavailable (through death, living elsewhere and not being contactable, or being too sick to consent). In these situations, the adolescent would have had the option to nominate another adult whom they trust, such an aunt or a social worker, in the place of the guardian. However, there were no cases where an exception to legal guardian consent was required during the recruitment of this study.

Past research carried out by the same research team identified a group of orphaned children who wanted to participate in the study but were prevented from participating by an abusive foster-carer who feared that the abuse would be exposed. In these situations, research assistants asked the adolescent to identify another trusted adult who would be able to consent to their participation.

Therefore, the approved protocols and guidelines for this study also allowed for unassisted consent for adolescents in the following circumstances: 1) The research contains no more than minimal risk to the adolescent, 2) The nature of the research is acceptable to the research ethics committee and the community at large, 3) The inclusion of adolescents in the study is justified, and 4) Unassisted consent is justified. This consent framework has been used previously for studies in which legal guardians or caregivers would be unlikely

to consent to adolescent participation or in which children do not want their caregiver to know they are participating. The research team understood not to take advantage of this concession in order to sidestep caregiver consent. This protocol for seeking consent was in place to allow for the handling of a very specific subset of children and adolescents. However, there were no cases in the sample where an exception to legal guardian consent was required.

*Ethical compliance for clinic-based research and National Health Laboratory Service data-extraction.* Consent to extract clinical information from participants' patient files was also included in the consent agreement for participating. In addition, the clinic-based research team obtained approval from the clinic operational manager before beginning data extraction at the facility. Digital records were only accessed under the supervision of the facility's data capturer in order to ensure the appropriate and safe use of clinical records, according to facility protocol. Additional consent to extract data from the databases held by the National Health Laboratory Service – which is the largest diagnostic pathology service in South Africa – was sought as well.

### 7.3 Privacy and confidentiality

Participants were allocated a unique identifier (a serial number) as soon as they were enrolled in the study in order to ensure that any information given in the interview was not linked to their name. Participants were also informed that all contact information they provided during the study would only be accessible to the research team and this information would be kept confidential after study completion. Most data collected in the

study were acquired via electronic tablets and, typically, the research assistant read the questions out loud and recorded the participant's response. Exceptions to this were particularly sensitive sections in the questionnaire (e.g., on abuse), which were presented using Audio Computer-Assisted Self-Interview and answered by participants themselves to ensure their comfort with answering these questions and increase the accuracy of the data on sensitive topics (Langhaug, Sherr, and Cowan, 2010; Turner et al., 1998).

### 7.4 Risk and benefits to participants

All participants were reimbursed with a participant pack which included a number of different necessities and a certificate of participation. One potential benefit for participants was the opportunity to share their experiences and concerns with a trusted adult who listened and empathised with them. Anecdotally, the research team knows that participation in this study is often the first time adolescents are encouraged to express their thoughts and feelings openly, and that they appreciate that their responses may be used to inform social and health policies.

However, it was also not uncommon that talking about certain topics during the interview (e.g., abuse) caused participants to become sad or distressed. On the one hand, the research team was trained to respond appropriately and professionally to these situations and, if needed, they would initiate a referral to other health and social services. Any questions that indicated immediate danger (e.g., suicide risk, food insecurity) or disclosure of historical neglect or sexual abuse would also alert the research assistant to initiate a referral to other appropriate services. On the other hand, a recent multi-country study (covering Romania, South Africa, and the Philippines) on adolescents' experiences of answering questions

about violence exposure showed that both, negative and positive emotions, can be experienced concurrently and fleetingly during the interview. Even if participants experienced negative emotions over the course of the interview, they reported feeling "okay, relieved, and loved" by the end of it (Neelakantan, 2020). Other research with children in Indonesia aligns with these findings, indicating that children show enthusiasm to speak about sensitive topics when confidentiality is ensured and they are "asked nicely" (Rumble et al., 2018).

Lastly, the age-difference between adult interviewers and participants in the sample, who were as young as twelve years old, could be a source of power inequality. These potentially unequal power relations were carefully considered when fieldworkers were employed and trained for the study, aiming to reduce their impact on adolescents through building genuine trust and rapport.

### 7.5 Referral guidelines

Previous research undertaken in South Africa by the same research group has shown that participants live complex lives which are affected by multiple challenges, including exposure to violence and crime. By conducting this research, the research team had a legal obligation to help participants who were in imminent danger. Additionally, there was a moral obligation to assist participants in particularly difficult circumstances (e.g., a family who does not have access to much-needed social grants from the government). As a result, responses to specific questions in the questionnaire triggered corresponding referral codes (see Box 2, p.102), which would prompt the research assistant to check if the participant

wished to be referred to a relevant government agency or service organisation (e.g., a local counselling partner). In these cases, the community liaison officer (who is a local team member tasked to ensure that the case is handled appropriately to the local context) helped the participant to access these services, and the project covered or contributed towards travel costs, if necessary.

However, the research project did not have the financial resources or personnel to help every participant who may have needed help. For instance, the interview may have triggered the code for a food referral (see Box 2, p.102) which would only have been provided in cases that were judged as particularly severe by the research assistant. That is, participants who indicated having had insufficient food at the end of the month may not have received a food parcel if they lived in households with working adults or the research assistant foresaw that the family's social grants would have been paid out shortly.

### 7.6 Reimbursement for participation

All participants were reimbursed for their participation with participant packs containing useful items, such as toothbrushes, socks, washcloths, and soap. During the interview, participants were provided with snacks and fruit. The interviews usually took place in the participants' house or garden to avoid unnecessary transport or childcare costs. If the participant or research assistant decided that the privacy in the home was compromised, however, the participant had the option to conduct the interview in a local café or restaurant, in which case complementary food was also covered. Following participation, all participants received a certificate of participation (see Appendix 4.1), regardless of

interview completion. Monetary rewards were not provided to participants for two primary reasons: 1) To prevent adolescents from agreeing to participate in the study in order to gain compensation, which would undermine the voluntary nature of consent, and 2) In some cases, financial incentives can lead to conflicts within the community or household.

## 8. Hey Baby Research team

All interviews and assessments were conducted by a team of about 35 research assistants who interviewed adolescents in their homes or, if needed, in safe places in the community. The fieldwork team was locally recruited from the Eastern Cape and spoke both English and the local language, Xhosa. At the beginning of the HEY BABY study, the team underwent a thorough introduction to the rationale behind the research, fieldwork plans,

and goals, and the research assistants completed a comprehensive training programme that focussed on recruitment, potential ethical issues, and data collection techniques.

**Box 2: Summary of Referral Codes**

**Tuberculosis (TB).** This code appeared if the participant indicated experiencing symptoms such as coughing up blood or a continued feeling of sickness after a recent TB test. This code appeared mainly to ensure research assistants' safety (e.g., prompt them to make sure there is good ventilation in the room). If the participant appeared to have a severe case of TB, she was referred to a clinic.

**Colour blindness.** This code appeared if the participant could not see the number in a picture presented to her. The code indicates that the participant may have difficulties distinguishing the red and green buttons in the section which used Audio Computer-Assisted Self-Interviews and might need more support to complete that part of the interview.

**Defaulter.** This code appeared if the participant indicated defaulting on their ART. Participants who admitted their ART defaulting to the research assistants openly during the interview were marked as "open defaulters".

**Suicide risk.** This code appeared if the participant indicated having tried to kill themselves in the past month.

**Neurocognitive impairments.** This code appeared if the participant had scored less than 10.5 in the neurocognitive test.

**Forced sex.** The participant has been forced to have sex once or more in the previous year.

**Emergency contraception.** Following on from the code on forced sex (above), the participant was asked if they wanted help to access emergency contraception and answered yes.

**Forced sexual activity.** The participant has had their private parts looked at or touched or had been forced to look at or touch someone else's private parts when they did not want to at least once in the previous year.

**Intimate partner violence.** The participant had sex with a partner when they did not want to (they were afraid of the consequences) at least once in the previous year.

**Physical abuse.** The participant has been hit hard with an object or hit hard enough to leave marks on a weekly basis.

**Emotional abuse.** The participant has experienced any of the ten emotional abuse items on a weekly basis.

**Lack of food.** The participant has gone more than three days without enough food in the house.

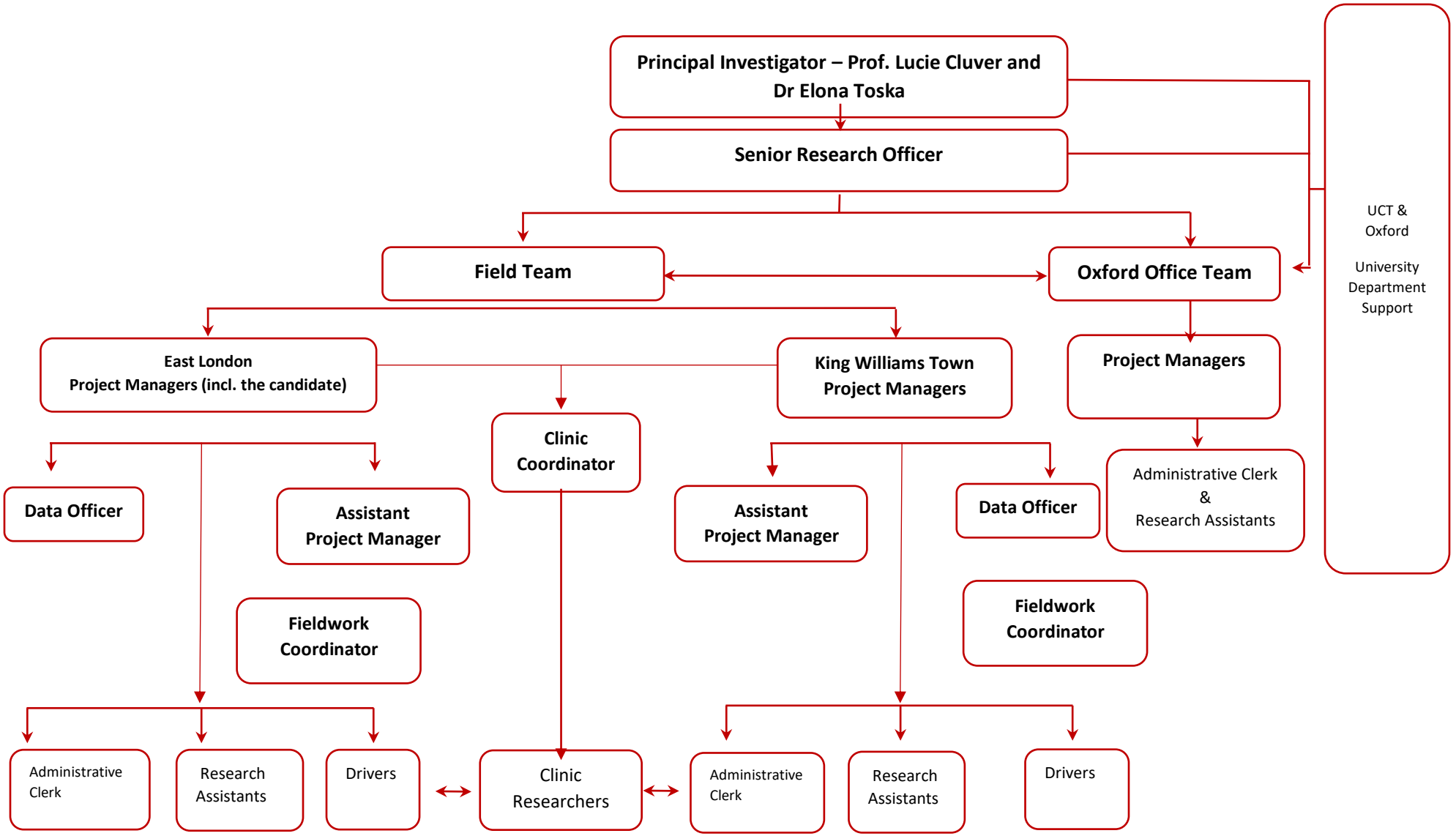



**Figure 17.** Organogram of the field-based research team.

## 9. Hey Baby fieldwork procedures, questionnaires, and measures

This section focuses on the fieldwork for this cross-sectional study which took place between March 2017 and March 2019. It starts with a summary of consultations to set up the study, followed by steps taken in designing the data collection tool, and actual fieldwork processes which resulted in the 1,046 completed interviews. Finally, data collection and management processes are summarised.

### 9.1 Consultations and formative research

The study benefitted from consultations and formative research with youth and experts undertaken by the same research team since 2013. These consultations included youth-camps with a Teen Advisory Group which helped to guide previous qualitative and quantitative research on the Orphan Resilience study, Young Carers studies (www.youngcarers.co.za), and the Mzantsi Wakho study (www.mzantsiwakho.org.za). The research team has collaborated with this group, which includes children and adolescents living in AIDS-affected families as well as HIV-positive adolescents aged 12 to 19, since 2008 (approved by Oxford University's IDREC in 2008 and 2012 and UCT REC applications in 2009). During HEY BABY, a similar group consisting of adolescent parents was set up and consultations were arranged throughout data collection.

Also, the team consulted with practitioners and academics in the field of researching adolescents in South Africa and globally. The study design of HEY BABY was based on both literature review and extensive consultation with government and NGOs.

Consultations have taken place with: UNICEF, UNAIDS, South Africa National Action Committee for Children Infected and Affected by AIDS, National Departments of Health, Social Development and Basic Education, Health Systems Trust, Kheth'Impilo, Desmond Tutu HIV foundation, Kidz Positive, and the Treatment Action Campaign, as well as clinics and youth groups.

### 9.2 Questionnaire development and piloting

The candidate contributed to the questionnaire design by researching quantitative measures and scales assessing pre- and post-birth schooling behaviours in adolescent mothers. The development of all data collection tools (listed in Appendix 2.1) and the study's procedures were informed by literature reviews, consultations with authors of published studies, and practitioners. If needed, authors of specific scales were contacted as appropriate and asked for permission to use the scales for research purposes.

The final draft questionnaire was translated and back-translated into Xhosa to ensure cultural equivalence of the items by two research assistants. Feedback on the questionnaires was sought from senior research assistants, a small pool of adolescent mothers, and the Teen Advisory Group. In addition to pre-testing the items in terms of comprehension, respondent interest, fatigue and acceptability, the questionnaire piloting also collected process data through an open-source software (Open Data Kit: www.opendatakit.org) that allowed the research team to assess which sections took longer and were harder to comprehend. At the end of piloting, information on

comprehension of questions, respondent burden, and ease of using the tablets contributed towards improvements made to the questionnaires.

### 9.3 Data collection

The data collection for this project started in March 2017 and continued until March 2019. Overall, this baseline cross-sectional study consists of 1,046 interviews conducted with adolescent mothers in the study area. Although not reported in detail in this thesis, the research team also collected data from the adolescent mothers and their children beyond self-report questionnaires. These included:

- **Mullen Scales of Early Leaning (Mullen, 1995):** Trained research assistants administered the Mullen Scales of Early Learning which are appropriate for infants and children between the age of 3 and 68 months of age. The assessment encompasses tasks that measure the gross motor, visual reception, fine motor, expressive language, and receptive language. Depending on the child's age, the duration of the assessment lies typically between 15 and 60 minutes.

- **Road to Health booklet:** The Road to Health booklet is an initiative from the South African Department of Health which allows caregiver and clinicians to easily track vital information about a child's medical history (e.g., immunisations) and development (e.g., growth). The booklet is given to the parents of each newborn child and should be taken to key medical appointments so that the professional can record the relevant medical information (see Appendix 2.1, p.391).

- **National Health Laboratory Services (NHLS):** The research team also collaborates with the NHLS of South Africa. Through this formal collaboration, the research team will match – using an algorithm developed and tested by the NHLS team – adolescent parent and child laboratory outcomes (HIV diagnostic test results, HIV monitoring tests, tuberculosis tests, etc.) with self-reported interview and patient-file extracted data. Informed consent to match these medical records was obtained from adolescent parents and their caregivers.

This section focuses only on the primary data collection source – adolescent interviews. The data for this study was collected through tablets which have worked well in previous studies undertaken by the same team. The final questionnaires consisted of approximately 340 items each, and most interviews took between 60 and 90 minutes to complete. In addition to the scales and measures, the questionnaires included adolescent-friendly graphic content and vignettes to make participants feel relaxed and not judged.

Typically, the research assistant read the questions out loud and typed the participant's response into the tablet. However, this part of the study also used an Audio-Computer Assisted Self-Interviewing system which is designed for populations with limited literacy, but also provides advantages in research that includes sensitive topics, such as abuse or high-risk behaviours. Particularly, technology-based self-interview methods have been shown to be effective in increasing participants' willingness to disclose highly-stigmatised activities or

experiences, likely improving the efficiency and accuracy of data collection. Another key advantage of using tablets is that the participant's burden is reduced through built-in skip-patterns and which allow for a targeted display of question which are only relevant to specific subgroup of participants (e.g., HIV-affected adolescents).

### 9.4 Data management and storage

Using android tablet devices, the study benefitted from computerised data collection, including password-protected access which ensured that completed questionnaires were not accessible to non-team members, even if the tablets were lost or stolen. All data were automatically uploaded to a secure server through an open-source software platform—Open Data Kit—which is protected by a password only known by the project management team. The quality of the data was predominantly ensured through rigorous training of the local research staff. Spot-checking of data was done manually in parallel with data collection before final submission to the server in combination with pre-set codes in the electronic questionnaire that did not allow for illogical responses in data entry on the tablets. The data was regularly backed up on external hard drives to ensure that no information was lost in case of a server problem.

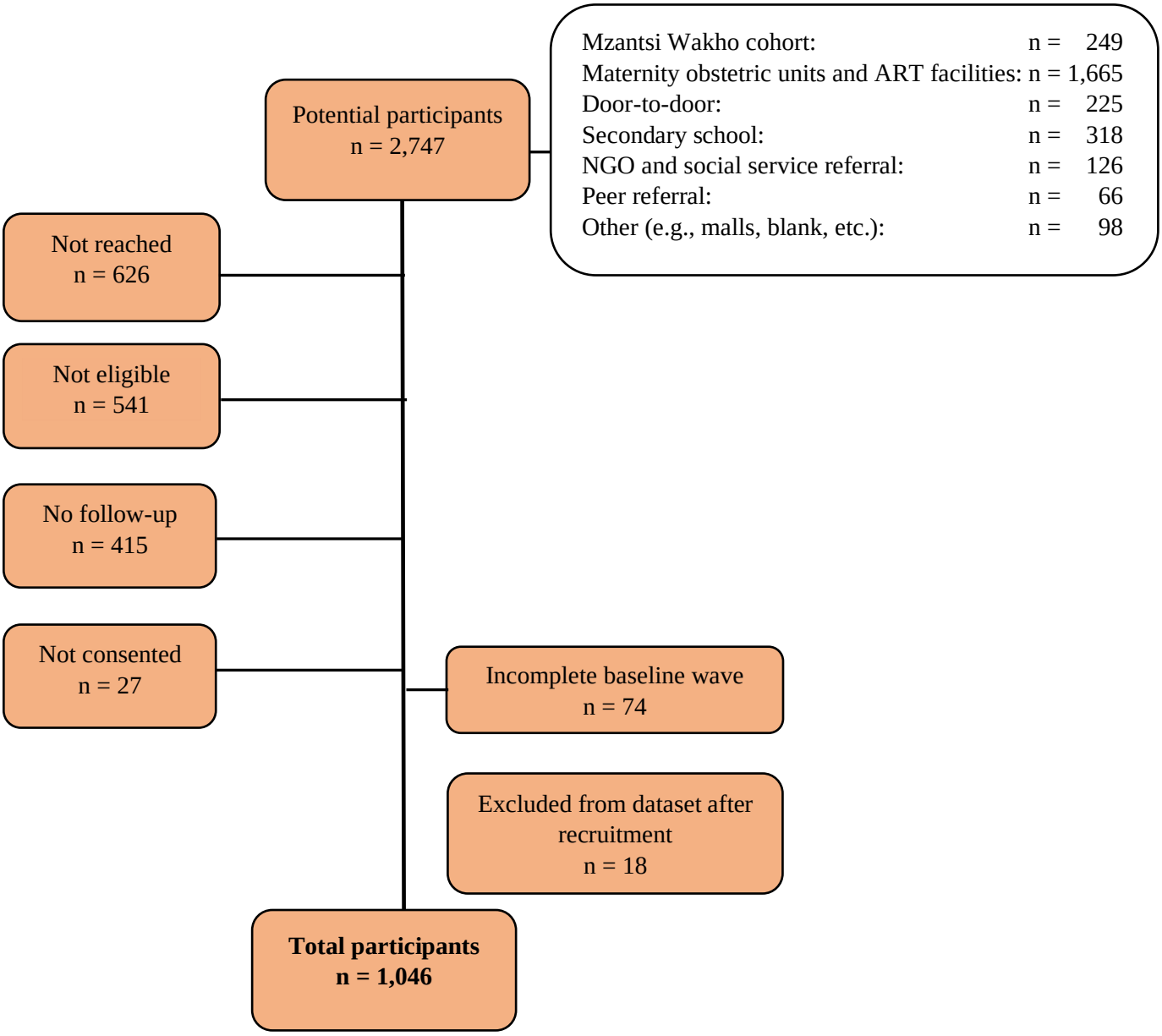
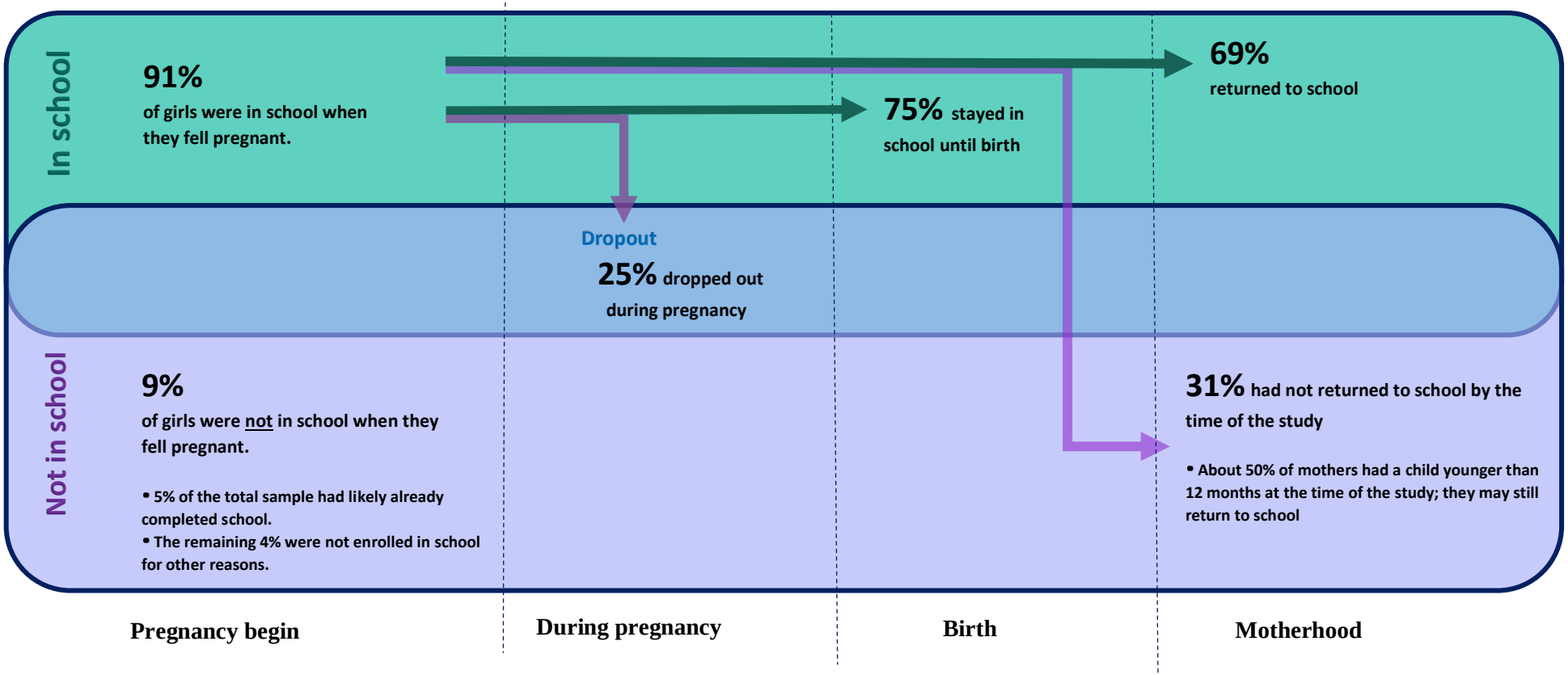



**Figure 18.** Participant flow throughout from recruitment to participation.




*Notes*: Out of the total 1,046 participants, 12 participants did not complete a version of the questionnaire that included any questions on schooling. These participants are excluded from all analyses and this table; similarly, the analyses exclude 16 participants in the dataset who were above the age of 20 during their pregnancy.

**Figure 19.** Participants' school enrolment throughout pregnancy and motherhood.

## 10. Fieldwork challenges

Over the course of data-collection, the field team compiled weekly fieldwork-observation notes which summarised the main issues that the research team encountered during recruitment and data-collection. For this chapter, extracts from these fieldwork notes have been used where appropriate to complement the description of the fieldwork challenges experienced by the candidate.

### 10.1 Civil unrest and threats in the community

South Africa has one of the highest crime rates in the world. The Eastern Cape – where the research project was situated – is the province with the highest homicide rates in the country: 60.0 people are killed per 100,000 a year, compared to 0.92 per 100,000 in the United Kingdom (Statistics South Africa, 2017a). In our sample, more than 15% of adolescents reported having been mugged and 6% of adolescents listed experiences of physical harm within the family in the previous month. The candidate attended a fieldwork safety training course offered through the University of Oxford prior to her first field visit. Whilst the course was a helpful reminder that living and working in South African requires caution in most situations, the candidate learned many additional lessons about the specific dangers and necessary precautions during her time in the Eastern Cape.

For instance, several precautions were taken to ensure the safety of research staff. The data collection was only carried out during daylight, and working hours were adapted per season so that staff could avoid the dark during travel to and from work. Research assistants would leave the office in teams and lone-working within communities was avoided, particularly in areas which had a reputation for being dangerous. Typically, a male driver would accompany the mostly female research assistants into communities, which made the staff feel safer than women-only teams. The

research team were provided with phones and received a weekly top-up of mobile data (predominantly to contact participants and arrange interviews) which allowed the team to reach out for support in case of an emergency.

Despite precautions, local and international research staff remained at risk of violence victimisation. In one case, an angry mob chased two project managers, who had to hide in a police station until the mob was dissolved. In this instance, a misunderstanding about the compensation for participation in the study (i.e., that complementary food is only provided when interviews are undertaken in cafés due to lack of privacy in the home) led to a heated discussion which drew the attention of neighbours who then further stirred the argument. Even though research assistants were trained to introduce the conditions of the study clearly and manage participants' expectations, on a few similar occasions, families who felt unfairly treated escalated the situation and threated or chased the research team – this risk was amplified when drunk family members were involved.

*"CRRAs [Clinic recruitment research assistants] were met by unwelcoming and confrontational home owner when looking for participant. He and other cars followed the team for some time. Suspected as being taxi company owner or drug dealer. In any case, address has been black listed to not be visited in future"*. (Extract from fieldwork-observation notes, East London, 2018)

In another case, female research assistants reported being harassed and followed by men in a community. In these situations, the assistants would typically share strategies to ensure their immediate safety with the office-based staff whilst another field team would be sent for their support. Also, there was a series of armed robberies in East London and the surrounding areas during the period of the study – some of which occurred in close proximity to the office site (see

Figure 20). During times like this, the precautionary measures in the office spaces were enhanced (e.g., doors would be triple locked and communications with the field team increased).



East London business struck by spate of armed robberies

Electronic shops are the popular targets for EL gangs.

by Siviwe Breakfast — 25-07-2018 11:38 in News

A spate of armed robberies has struck East London businesses, with 11 incidents reported in the last two weeks, the *Daily Dispatch* reports.

Tuesday saw the PEP store on Albie Street fall victim to four armed men who stormed the shop in the early hours demanding, making off with an undisclosed amount of money.

ONE GANG BELIEVED TO BE TARGETING EAST LONDON BUSINESSES

According to Red Alert's Brett Harvey, this was the 11th such robbery in the last 14 days and the incidents could be connected to the same gang.

**Figure 20.** Newspaper articles about the series of armed robberies in East London, South Africa during July 2018. https://www.thesouthafrican.com/news/east-london-business-struck-by-spate-of-armed-robberies/

Several non-violent incidents were also reported to the project managers, including phones that were stolen on the commute to or from work. These cases were reported to the police and the phones replaced by the project.

In addition to crime-related violence, the project also encountered some politically-motivated violence. To protect research staff during the data collection, project managers and the field teams communicated closely in order to access reliable and timely information on planned protests. Local staff would also monitor Facebook groups and other social media for early reports of any violent activity or road blocks. When warnings were received, all data collection was immediately paused until community contacts and local research staff assessed that it was safe to resume fieldwork. There were two incidents where the research team feared being trapped in a community due to

violent riots and blockage of the communities exist points with burning tires. Whilst the office-based staff were always the first point of contact, typically colleagues who were residing in the affected community were best place to advice on exit routes.

### 10.2 Road Safety

South Africa has one of the world's highest rates of road deaths and accidents. In 2010-11 (most recent data), 13,800 road fatalities were registered, a rate of 25 per 100,000 residents (World Health Organization, 2015). Road accidents frequently happen as a result of drunk driving (which is extremely normalised), driving without a licence, or a combination of both.

The research team experienced one major car accident, caused by a team member and a lorry driver who drove full speed into the project car as the colleague left an on-road parking slot. The accident resulted in no injuries and the member of staff was offered psychological support which would have been covered through the research project. Even though no person was harmed, the car, which was completely damaged on the passenger side, had to undergo severe repairs, resulting in reduced fieldwork productivity until it was fixed.

### 10.3 Unexpected obstacles and barriers to recruitment

The research team experienced several barriers to the planned recruitment strategies. For instance, the team had designed flyers to recruit participants in malls during busy times, such as the first Saturday of the month when government social security grants are handed out. However, this strategy was discontinued when the research team learned that potential participants threw the flyers away because they closely resembled circulating handouts advertising illegal abortions. In

addition, there were a small number of incidents where adolescent participants pretended to be mothers by 'borrowing' children from their neighbours. According to the research team, the information that participants would receive reimbursement (e.g., a participant pack with necessities alongside some items for the child, such as a backpack and a doll) had spread in the community and some girls decided to be deceitful to get the items. Similarly, several participants completed individual questionnaires from the interview battery twice so that they received additional reimbursements. These incidents caused unnecessary work and confusion for the enumerators. Moreover, it may also be a sign that the items provided for reimbursement for participation were too 'rewarding' and affected participants' voluntary participation in the study. Lastly, the recruitment via schools proceeded particularly slowly, not least because many of the randomly chosen schools were located on the periphery of the municipality, which were hard to access via rural roads. Also, most teachers and principals were willing to participate in the research but they often forgot or misplaced the paperwork to record adolescent girls with children in their school or recent cases of dropout among girls. Before a protocol was set up to save resources, the research team had to visit one school up to eight times because the lists were misplaced, the teachers was absent, or too busy.

*"There was an incident at Toise High School where the staff explained that they refuse to participate in any research. The team speculates that this has nothing to do with our team per se but rather reflects the school's fear of wrongdoings in being discovered and taken to the police".*
(Extract from fieldwork-observation notes, East London, 2018)

### 10.4 Infrastructure, logistical and technical problems

In South Africa, interruptions in electricity supply are not infrequent. During scheduled times of 'load shedding', electricity would be cut off for hours per day and up to eight hours on the

weekend. This load shedding caused some interruptions during work hours when completed questionnaires could not be send to the online server, which required backing up the data manually. Typically, load shedding occurred on an official schedule but there were times when the electricity went off spontaneously which required flexibility and re-planning of the working day. Electricity also constituted a safety issue for research assistants when working in informal settlements relying on illegal sources of electricity. In many cases, it was obvious that cables and wires which tapped power lines from nearby houses were provisionally laid out alongside roads. There were occasions when research assistants raised concerns about visiting participants in informal areas after heavy rainfalls because they feared that wires crossing through puddles would electrocute them. Lastly, the project cars required frequent repairs as the poorly developed roads and extensive use took a toll on them. There were almost constant issues with burst tires, broken indicators, or entirely dysfunctional seatbelts. Despite frequent checks, the project vehicles never felt entirely safe as there were also unexpected surprises, such as a water leak which almost caused the engine to blow up whilst the candidate was driving it.

### 10.5 Mental Health

The fieldwork involved several stressors. Exposure to emotional distress and trauma was an inherent part of fieldwork. As previously mentioned, the fieldwork team followed a protocol which specified the provision of support to participants who were at immediate risk of harm, including those disclosing sexual abuse, severe neglect, or suicidality. During data-collection, several participants were offered referrals to counselling services. Even if a participant was successfully referred, their traumatic circumstances and stories put an emotional burden on the enumerator and the wider research team. Equally difficult was the exposure to experiences of historic abuse (e.g.,

one participant started crying during the interview because she spotted her abuser walking past outside), ongoing situations characterised by severe financial struggles (e.g., the team, including the candidate, would visit families suffering from severe food insecurity to deliver a one-off food parcel), or girls' misinformation about their children's needs and nutrition (e.g., young mothers lacking knowledge on nutrition which clearly affected the growth and health of their children). Participants' difficult circumstances also affected the office-based staff who were equally exposed to material that reflected girls' experiences of maltreatment and abuse in the family or other violence throughout the participant registers, data-checking, or the referral process, even though they did not undertake face-to-face interviews themselves.

A proportion of female participants who had been part of the longitudinal Mzantsi Wakho cohort – and were re-visited during the HEY BABY data-collection – had passed away since the last visit. The HIV-related deaths had special meaning for the research team, given their work experience with research on ART adherence, which was often an issue in these cases. On occasion, the research team (including the candidate) would listen to the stories of family members of the deceased, including their difficulty dealing with an unexpected death of a young person or their financial struggle to cover unanticipated funeral arrangements.

In addition, a number of staff members experienced challenging situations in their private lives which affected their work. This is unsurprising and reflects the strenuous context and the broader structural disadvantages that affect many people in the Eastern Cape. One colleague was evicted from her house after the death of a family member and had to share a single room with her underage daughter and her newborn granddaughter. Another colleague, Vuvu, died from oesophageal cancer

over the course of data collection – a painful reminder of the lack of healthcare access and treatment, particularly among Black South Africans.

*"They [other adolescent mothers] should never drop out of school just because they are young mothers or fathers, finish school and love your child unconditionally".*

(Adolescent mother, pregnant aged 15)

# IV Paper #1: Learner pregnancy in South Africa: The Factors affecting adolescent girls' school withdrawal during pregnancy

This is the first empirical paper of the DPhil thesis which is based on cross-sectional primary data from the HEY BABY research study. This paper aims to investigate school withdrawal during pregnancy among South African adolescent girls. Aligned with the conceptual framework presented in Chapter II (Figure 13 and Table 7), the paper captures associations between school withdrawal and hypothesised covariates from several socioecological levels that influence adolescent mothers: families, school, partners, and communities. For each level, pregnancy-specific variables (e.g., pregnancy intentions and medical problems during pregnancy) were chosen which are hypothesised to decrease ('push and pull' correlates) or increase (protective correlates) girls' likelihood to withdraw from school during pregnancy. This paper has been submitted to the **International Journal of Educational Development.**

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**Statement of Authorship**

I confirm that I completed the majority of the work in this study, including conceptualisation of the methodological approach and execution of all analyses. I co-designed the study measures and drafted the first version of this article. Lucie Cluver and Franziska Meinck contributed to the refinement of the analyses, interpretation of results, and the finalisation of the manuscript.

# Abstract

***Background.*** Pregnancy often precedes school dropout in South African adolescent girls. Early school discontinuation during pregnancy may diminish the chances for postpartum school return which, in turn, impairs longer-term economic and health outcomes. This study aimed to examine the factors that enable or hinder schooling during pregnancy to identify potential foci of support. ***Method.*** Quantitative interviews with 1,046 adolescent mothers from the Eastern Cape province in South Africa were completed. We used logistic regression to test the impact of hypothesised factors on school withdrawal during pregnancy. Additionally, a Cox's proportional hazards model and adjusted survival curves were used to visualise and compare when mothers discontinue school. ***Results.*** Approximately a quarter of adolescent girls withdrew from school during their pregnancy. School withdrawal was associated with being able to afford fewer necessities (OR 0.92; 95% CI [0.86, 0.98]), grade delay at the onset of the pregnancy (OR 3.26, 95% CI [2.25, 4.72]), an unplanned and unwanted pregnancy (OR 3.93, 95% CI [1.17, 13.23]), and greater lack of information about the pregnancy from their caregiver (OR 1.59, 95% CI [1.15, 2.21]). Time-to-event curves indicated that many girls discontinue school as early as the first trimester. ***Conclusion.*** Given the high enrolment rates at the onset of the pregnancy, school-based services may provide an opportunity to identify which girls require substantial support to remain in education throughout pregnancy, using a history of poor school performance as a marker for dropout. Counteracting premature school withdrawal may further require a combination of interventions that alleviate pregnant girls' financial stressors whilst increasing access to information about their pregnancies. Future research should investigate which adolescent-centred interventions best prevent premature school leaving and explore how services can involve caregivers to further support pregnant' girls schooling.

***Keywords:*** adolescent girls and young women, adolescent pregnancy, adolescent mothers, schooling, school dropout, South Africa

## 1. Introduction

Pregnancy and motherhood are common reasons for school dropout among adolescent girls in South Africa (Branson, Hofmeyr, and Lam, 2014; Gustafsson and Worku, 2007) where about a fifth of young women have had their first pregnancy before the age of 20 (Jonas, Crutzen, Van Den Borne, et al., 2016; Mchunu et al., 2012). Concerns about permanent school withdrawal due to pregnancy (Bhana et al., 2010; Morrell, Bhana, and Shefer, 2012; Pretorius, 2019) are warranted because incomplete education has been identified as an important predictor for various negative health (Balmer et al., 1997; Davies et al., 2018; Freudenberg and Ruglis, 2007) and socioeconomic outcomes (Branson, 2018; Branson, Lannoy, and Kahn, 2019; Lansford et al., 2017; Psacharopoulos and Patrinos, 2018) in the international literature. For young women in South Africa, school dropout has not only been associated with subsequent pregnancy (Stoner et al., 2019), increased sexual risk behaviours (Hargreaves et al., 2008; Stroeken et al., 2012) and almost three times higher risk for HIV infection (Stoner et al., 2017) but higher educational levels seem also protective of rapid repeat pregnancies among adolescent mothers (Govender, Naidoo, and Taylor, 2019).

South Africa's national policy ('Measures for the Prevention and Management of Learner Pregnancy'; South African Department of Education, 2007) stipulates that students can remain in school throughout their pregnancy unless there are health concerns (Panday et al., 2009). Yet, evidence on the enabling and hindering factors associated with remaining in school throughout

pregnancy in South Africa is limited (Grant and Hallman, 2008). Most studies investigate the effect of pregnancy on school dropout (Ardington, Menendez, and Mutevedzi, 2015; Grant and Hallman, 2008; Madhavan and Thomas, 2005; Marteleto, Lam, and Ranchhod, 2006; Stoner et al., 2019; Timaeus and Moultrie, 2015), finding that pregnancy increases the odds of school dropout both during pregnancy and in the postpartum period. While this is valuable knowledge, it is also important to understand the breadth of factors that affect pregnant adolescents' continued schooling throughout pregnancy, particularly because previous studies suggest that discontinuing school early during pregnancy could affect postpartum schooling (Grant and Hallman, 2008; Oxford et al., 2006). Whilst pregnant girls do not yet face the childcare responsibilities which frequently interfere with schooling, the pregnancy period is likely to bear other challenges which can affect girls' schooling in addition to their school's application of South Africa's national learner policy. Differentiating the factors relevant to discontinuing school during pregnancy from those affecting postpartum schooling may not only allow for a more nuanced understanding of the particular correlates of school withdrawal, but also offer insights into when educational disadvantages emerge for pregnant adolescents (UNESCO, 2019).

Previous studies from South Africa suggest several factors that could contribute to school discontinuation during pregnancy. For instance, temporary school withdrawal and a history of grade repetition prior to pregnancy are associated with higher odds of a pregnancy-related dropout (Grant and Hallman, 2008). Also, most adolescent pregnancies are unplanned (Christofides et al., 2014; Mchunu et al., 2012; Mkhwanazi, 2010; Willian, 2013). Girls frequently report being upset (Mkhwanazi, 2010; Ngabaza, 2011; Sodi and Sodi, 2012) or considering a termination of the pregnancy (Mkhwanazi, 2010) in the initial pregnancy stages and the resulting stress may be

incompatible with continued schooling. In addition, pregnant women in low- and middle-income countries show a higher risk of developing certain medical conditions (WHO, 2004), but adolescent mothers are less likely to address these through maternal health services (Hackett et al., 2019; Magadi, Agwanda, and Obare, 2007). Untreated medical problems could affect the ability to continue schooling, especially since South Africa's national policy prescribes that medically unfit learners can be asked to take leave at any point during their pregnancy (South African Department of Education, 2007). Lastly, mothers' social networks may affect whether or not a withdrawal occurs. Specifically, the adolescent mother's caregiver and the father of her child constitute important sources of support (Assini-Meytin, Mitchell, and Lewin, 2018) but their impact on school withdrawal during pregnancy have not yet been explored. Also, teachers can act as a source of guidance and academic motivation, especially for children with difficulties in their personal and academic lives (Lynch and Cicchetti, 1992; Osterman, 2002; Protheroe, 2007). Particularly under consideration of the integrated school health policy in South Africa (South African Department of Health, 2012), which sets out that schools should provide or facilitate access to health and social services (South African Department of Basic Education, 2018), schools' provision of pregnancy-related information may facilitate girls' continued schooling.

**Conceptual framework: Schooling and adolescent motherhood**

Our study of pregnant learners was guided by a conceptual framework building on Rumberger (2011) who applied bioecological models of human development to school dropout (Bronfenbrenner and Morris, 2006; Shonkoff et al., 2012; Steinberg and Morris, 2001). Hence, the design, data collection, and analysis were guided by a conceptual framework which posits that adolescent behaviours – including adolescent pregnancy and school behaviours – are not only

determined by individual-level factors. Instead, school enrolment during pregnancy is affected by multiple spheres of influence, including longer-term educational trajectories in addition to influences from multiple individual, household, school, and community factors (Blum et al., 2014; Blum and Gates, 2015).

This study situates pregnant adolescents in the centre of multiple factors which can affect their schooling during pregnancy. The most important components of a pregnant girls' mesosystem are her family, partner, school, and peers. Their influences can work protectively towards adolescent girls' school continuation during pregnancy when they provide the care and support that the girl needs. However, other factors may 'push and pull' (Singh and Mukherjee, 2018) a pregnant girl out of school, such as limited financial resources or health complications over the course of the pregnancy. Each of these influences can affect the lives of adolescent girls, and we developed the study to capture pregnancy- and school-related factors at each level.

**Research aims**

The current study has two aims: i) Identify associations between school withdrawal during pregnancy and hypothesised individual-level, family and household-level, and school-level factors and ii) Investigate the identified characteristics further by examining school discontinuation patterns over the course of pregnancy within different groups of adolescent mothers.

## 2. Method

### 2.1 Participants and procedures

Adolescent mothers (*N* = 1,046) aged 10 to 24 were recruited from urban and rural locations in two health districts in the Eastern Cape, South Africa between 2017 and 2019. Participants meeting the following inclusion criteria were recruited 1. Female sex; 2. Aged 10 – 24 years at the time of interviewing; 3. Gave birth during adolescence (i.e., below the age of 19); 4. Resided within either Buffalo City Municipality or the Amathole Health District. Informed consent was sought from adolescents who were above the age of 18 and assent was provided by underage participants in addition to consent from their caregiver. All consent forms and questionnaires were available in English and the local language, Xhosa.

Ethical clearance was provided by the Universities of Oxford (R48876/RE001; R48876/RE002) and Cape Town (HREC REF: 226/2017) and by the provincial government departments of Health, Basic Education, and Social Development. Participants were interviewed in private spaces in and around their own home but they were given the option to conduct the interview in a local restaurant if the privacy in the home was compromised.

Assisted by trained interviewers, adolescents completed two complementary questionnaires, each taking about 60 minutes. The items in the questionnaire predominantly concerned the participants' lives at the time of the interview (e.g., access to necessities, rural/urban residency, living with a caregiver, government grant receipt) but a small number of retrospective questions aimed to capture events that occurred during the girls' pregnancy (e.g., medical problems, received support during this time, and schooling). Confidentiality was maintained throughout the study except

where participants requested help or were at risk of significant harm. In this study, 25 referrals were made to health or counselling services with follow-up support. There were no monetary incentives, but all participants received a certificate, refreshments, and a participant pack containing useful items (e.g., washcloth and soap).

### 2.2 Measures

*School withdrawal* assessed if the participant continued schooling throughout pregnancy (0: no withdrawal; 1: withdrawal). *Time of withdrawal* assessed the months that participants continued to go to school during the pregnancy.

**Individual-level factors:** ***Demographic characteristics***. Most sociodemographic variables assessed girls' circumstances and events at the time of the interview. This includes *adolescent mothers' age*, *adolescent mother's age at the beginning of the pregnancy*, and *place of residency* (0: urban; 1: rural).

***Educational characteristics.*** *Grade delay at pregnancy onset* was assessed by comparing the self-reported grade participants were enrolled in when they got pregnant against the appropriate grade determined by the South African Schools Act of 1996 (Republic of South Africa 1996). Delay was calculated following the approach taken in previous studies on grade delay in South African adolescents (Herrero Romero et al., 2018) where the correct age norm per grade follows Grade 1 + 6 = age 7; Grade 9 + 6 = age 15; Grade 12 + 6 = age 18. Adolescents who were enrolled in the age-appropriate grade or above were classed as not delayed (0: not delayed; 1: delayed).

***Pregnancy intentions.*** Whether the pregnancy was unplanned and unwanted was assessed by two separate items, one asking the participant if they had planned the pregnancy (0: no; 1: yes), the other asking if she wanted the pregnancy (0: no; 1: yes). These two variables were recoded into one item to capture particularly vulnerable participants whose *pregnancy was unplanned and unwanted* (0: no; 1: yes). In addition, the *intention to terminate the pregnancy* was assessed by one item (0: no; 1: yes).

***Health characteristics.*** *Medical problems* were assessed as experience of any of the following symptoms during pregnancy: High blood pressure, seizures, bleeding, fever, or yellow palms (a symptom of cholestasis) (0: no; 1: yes).

**Family- and household-level factors: *Household characteristics.*** *Co-residency with a caregiver* (such as parents, grandparents, family-member, or another caregiver) (0: no; 1: yes). *Household access to necessities* was used as an indicator for poverty which was assessed by measuring access to the top eight socially-perceived necessities for children, such as clothes to keep warm in the winter or soap to wash (Barnes and Wright, 2012). Items were summed to create a poverty index (range 0-8) with lower numbers reflecting higher levels of poverty.

***Family and partner support during pregnancy.*** The *child's father's reaction to the pregnancy* was assessed through one item that enquired if the father of the child had reacted supportively to the pregnancy (0: not supportive; 1: supportive). *Lack of information during pregnancy* captured adolescents' reports of receiving pregnancy-related information and self-care advice from their caregiver (0: received information; 1: lack of information).

**School-level factors:** *Lack of information during pregnancy* captured adolescents' reports of receiving pregnancy-related information and self-care advice from their caregiver (0: received information; 1: lack of information).

### 2.3 Statistical analysis

Participants were eligible for inclusion in the analysis if they were enrolled in school at the time of discovering the pregnancy ($n$ = 110 excluded). Additional 13 participants were excluded because they completed early versions of the questionnaire that did not include questions on schooling, seven participants were excluded because they were older than 19 at the onset of their pregnancy, and one participant was excluded due to over 20% missing data. Analyses were based on 915 participants and there were no missing values on any of the included variables. The analyses focussed on adolescent mothers' schooling during their first pregnancy (even though 8.4% of mothers had subsequent pregnancies) in order to ensure that the analyses are conducted within a homogeneous group.

All analyses were completed in Stata 15.1. and R. First, included participants were compared with participants excluded from analyses because they were not enrolled in school at the onset of their pregnancy. Second, descriptive statistics for all outcomes, associated factors, and socioeconomic background variables were calculated for the whole sample and disaggregated by school discontinuation-status. Third, the associations between independent variables with any school discontinuation during pregnancy were tested with a hierarchical logistic regression approach. Model 1 included only relevant socioeconomic and demographic variables; Model 2 added

information on grade delay at the onset of the pregnancy; Model 3 added information on the girls' reaction towards the pregnancy; Model 4 added information on mothers' medical problems; Model 5 included information on sources of support and the provision of pregnancy-related information. Fourth, factors that had emerged as significant were used for subsequent time-to-event analyses for which 18 additional participants were excluded because information on the timings of school continuation were missing. That is, all significant indicators from model 5 were included in a Cox regression model, controlling for all variables included in model 5 as follows:

$$h(t, \mathbf{X}) = h_0(t)e^{\sum_{j=1}^{p} \beta_j X_j}.$$

This model aimed to understand the time-to-event hazards at time *t* of different groups of mothers given the set of explanatory variables **X.** The proportional hazards assumption was tested via graphical examination of the Kaplan-Meier curves for each variable. In addition, Schoenfield residuals were used to check that the proportional hazards assumption was met in the final model, which was the case ($\chi^2$ (12) = 11.34, $p$ = 0.50). In addition, all possible interaction terms were tested to confirm that they were not significant and could, thus, be excluded from the model. Lastly, the goodness of fit of the model was assessed using Cox-Snell residuals and the Nelson-Aalen cumulative hazard function which confirmed good model fit. Finally, the calculated hazard ratios were visualised using adjusted survival curves:

$$S(t|\mathbf{X}) = \left[S_0(t)\right]^{e^{\sum_{j=1}^{p} \beta_j X_j}}$$

## 3. Results

Analyses were based on 915 adolescent mothers in the sample. We also conducted an initial comparison of included participants and participants excluded from analyses because they were not enrolled in school at the onset of their pregnancy. This showed that excluded participants were slightly older at the time of interview and at the time of their pregnancy, could afford slightly fewer necessities, were less likely to live with a caregiver, had completed slightly fewer grades, and were more likely to have planned or wanted the pregnancy (Table 10).

Out of the 915 included participants, 236 withdrew from school during pregnancy while 679 continued schooling until the end of the pregnancy. Table 11 shows that the mean age of participants was 18.09 years (*SD* 1.75). Most respondents lived with a caregiver (93.1%) and only four participants were married (0.4%). Mothers' mean age at the pregnancy of their oldest child was 16.46 years (*SD* 1.51) and 8.4% of mothers had more than one child. Over half of the mothers were classed as grade delayed at the time of the pregnancy (55.9%). Most pregnancies were unplanned and unwanted (95.7%) but only 8.2% indicated that they had considered terminating the pregnancy. Of all mothers, 14.1% had experienced any medical problems during pregnancy and 10.5% indicated that the child's father had reacted supportively to the pregnancy. About 35% of participants had not received information about their pregnancy from their caregivers and 97.9% of participants had not received information on the pregnancy from their schools.

Multiple regression analyses of pre-pregnancy and pregnancy factors on school withdrawal (Table 12) showed that increased odds to withdraw from school during pregnancy were associated with

the ability to afford fewer necessities (OR 0.92; 95% CI [0.86, 0.98]), being grade delayed at the onset of the pregnancy (OR 3.26, 95% CI [2.25, 4.72]), an unplanned and unwanted pregnancy (OR 3.93, 95% CI [1.17, 13.23]), and greater lack of information from the caregiver during pregnancy (OR 1.59, 95% CI [1.15, 2.21]). By contrast, school discontinuation was not associated with the intention to terminate the pregnancy (OR 1.47, 95% CI [0.87, 2.51]), experiencing any medical problems (OR 1.44, 95% CI [0.94, 2.00]), the child's father's supportive reaction to the pregnancy (OR 0.88, 95% CI [0.53, 1.46]), nor receiving information on the pregnancy from the school (OR 1.56, 95% CI [0.43, 5.67]).

Table 13 provides results from a Cox proportional hazards regression model that tested for the differences in school withdrawal over the nine months of pregnancy within the groups that emerged as significant from the final logistic regression model (model 5), controlling for all variables in model 5. These analyses are complemented by Figures 21a-c which visualise adjusted survival curves for the Cox proportional hazards model. School withdrawal for mothers who were grade delayed at the onset of the pregnancy was almost three times as likely than for non-delayed mothers at any timepoint (hazard ratio [HR] = 2.72; 95% CI = 1.94, 3.81; Figure 21a (top left)) and over three times as likely for mothers with an unplanned and unwanted pregnancy than for mothers with a planned or wanted pregnancy (HR = 3.16; 95% CI = 1.00, 9.89; Figure 21b (bottom central)). Lastly, the hazard of school withdrawal was one and a half times higher for mothers who did not receive information on the pregnancy from their caregivers compared to those who did receive pregnancy-related information (HR = 1.45; 95% CI = 1.09, 1.91; Figure 21c (top right)).

**Table 10.** Characteristics for the sample of adolescent mothers from the Eastern Cape, South Africa ($n$ = 1,016), disaggregated by school enrolment at the beginning of the pregnancy.

| | **Included participants: Enrolled in school at the onset of the pregnancy ($n$ = 915)** | **Excluded participants: Not enrolled in school at the onset of the pregnancy ($n$ = 101)** | |
|---|---|---|---|
| Characteristic | *n* (%); *M (SD)* | *n* (%); *M (SD)* | *p* |
| **Demographic characteristics** | | | |
| Adolescent mothers' age | 18.09 (1.75) | 19.50 (0.16) | < .001 |
| Adolescent mothers' age at the begin of the pregnancy | 16.46 (1.51) | 17.98 (1.08) | < .001 |
| Rural residency | 271 (29.6%) | 26 (25.7%) | .489 |
| **Household characteristics** | | | |
| Co-residency with caregiver | 852 (93.1%) | 79 (78.2%) | < .001 |
| Necessities afforded in household | 5.29 (2.20) | 4.43 (2.28) | < .001 |
| **Educational characteristics** | | | |
| Highest grade completed | 9.71 (1.53) | 9.25 (2.47) | .009 |
| **Pregnancy intention** | | | |
| Unplanned and unwanted pregnancy | 876 (95.7%) | 90 (89.1%) | .012 |
| Intentions to terminate the pregnancy | 75 (8.2%) | 5 (4.9%) | .330 |
| **Health characteristics** | | | |
| Any medical problems during pregnancy | 129 (14.1%) | 16 (15.8%) | .653 |
| **Pregnancy support** | | | |
| Child's father supportive reaction to pregnancy | 96 (10.5%) | 10 (9.9%) | .99 |
| Lack of information from caregiver | 316 (34.5%) | 40 (39.6%) | .324 |
| Lack of information from school | 896 (97.9%) | 100 (99%) | .712 |

**Table 11.** Descriptive statistics for the sample of adolescent mothers, Eastern Cape, South Africa (*n* = 915). Sample characteristics are presented disaggregated by discontinuation during pregnancy.

| | **Total (*n* = 915)** | **Withdrawal group (*n* = 236)** | **Continuation group (*n* = 679)** | |
|---|---|---|---|---|
| Characteristic | *n* (%); *M (SD)* | *n* (%); *M (SD)* | *n* (%); *M (SD)* | *p* |
| **Demographic characteristics** | | | | |
| Adolescent mothers' age | 18.09 (1.75) | 18.51 (1.80) | 17.94 (1.71) | < .001 |
| Adolescent mothers' age at the begin of the pregnancy | 16.46 (1.51) | 16.71 (1.56) | 16.37 (1.48) | .003 |
| Rural residency | 271 (29.6%) | 69 (29.2%) | 202 (29.7%) | .934 |
| **Household characteristics** | | | | |
| Co-residency with caregiver | 852 (93.1%) | 211 (89.4%) | 641 (94.4%) | .011 |
| Necessities afforded in household | 5.29 (2.20) | 4.90 (2.41) | 5.43 (2.11) | < .001 |
| **Educational characteristics** | | | | |
| Grade delay at pregnancy onset | 512 (55.9%) | 180 (76.3%) | 332 (48.9%) | < .001 |
| Highest grade completed | 9.71 (1.53) | 8.86 (1.64) | 10.01 (1.38) | < .001 |
| **Pregnancy intention** | | | | |
| Unplanned and unwanted pregnancy | 876 (95.7%) | 233 (98.7%) | 643 (94.7%) | .008 |
| Intentions to terminate the pregnancy | 75 (8.2%) | 25 (10.6%) | 50 (7.4%) | .130 |
| **Health characteristics** | | | | |
| Any medical problems during pregnancy | 129 (14.1%) | 42 (17.8%) | 87 (12.8%) | .065 |
| **Pregnancy support** | | | | |
| Child's father supportive reaction to pregnancy | 96 (10.5%) | 24 (10.2%) | 72 (10.6%) | .962 |
| Lack of information from caregiver | 316 (34.5%) | 100 (42.4%) | 216 (31.8%) | .004 |
| Lack of information from school | 896 (97.9%) | 233 (98.7%) | 663 (97.6%) | .430 |

**Table 12.** Hierarchical logistic regression showing odds ratios for adolescent mothers' school withdrawal during pregnancy ($n$ = 915).

| Parameter | Model 1<br>OR [95% CI] | Model 2<br>OR [95% CI] | Model 3<br>OR [95% CI] | Model 4<br>OR [95% CI] | Model 5<br>OR [95% CI] |
|---|---|---|---|---|---|
| **Demographic characteristics** | | | | | |
| Age at pregnancy onset | 1.16 [1.10, 1.28]** | 1.01 [0.91, 1.13] | 1.02 [0.91, 1.14] | 1.03 [0.92, 1.14] | 1.00 [0.90, 1.12] |
| Residency (rural/urban) | 1.06 [0.76, 1.48] | 1.03 [0.73, 1.45] | 1.00 [0.71, 1.41] | 0.97 [0.69, 1.38] | 0.98 [0.69, 1.39] |
| **Household characteristics** | | | | | |
| Co-residency with caregiver | 0.53 [0.31, 0.91]* | 0.59 [0.34, 1.03] | 0.59 [0.34, 1.03] | 0.58 [0.33, 1.01] | 0.62 [0.35, 1.09] |
| Necessities afforded in household | 0.89 [0.84, 0.96]** | 0.91 [0.85, 0.97]** | 0.91 [0.85, 0.98]** | 0.91 [0.85, 0.97]** | 0.92 [0.86, 0.98]* |
| **School delay at the time of pregnancy** | | | | | |
| Grade delay at pregnancy onset | | 3.18 [2.21, 4.56]*** | 3.13 [2.18, 4.51]*** | 3.08 [2.14, 4.44]*** | 3.26 [2.25, 4.72]*** |
| **Pregnancy intention** | | | | | |
| Unplanned and unwanted pregnancy | | | 3.99 [1.19, 13.31]* | 3.92 [1.17, 13.09]* | 3.93 [1.17, 13.23]* |
| Intentions to terminate the pregnancy | | | 1.46 [0.86, 2.47] | 1.48 [0.87, 2.51] | 1.47 [0.87, 2.51] |
| **Medical problems** | | | | | |
| Any medical problems during pregnancy | | | | 1.41 [0.93, 2.16] | 1.44 [0.94, 2.00] |
| **Pregnancy support** | | | | | |
| Boyfriend supportive reaction | | | | | 0.88 [0.53, 1.46] |
| Lack of information from caregiver | | | | | 1.59 [1.15, 2.21]** |
| Lack of information from school | | | | | 1.56 [0.43, 5.67] |
| | $X^2$ = 24.42<br>Prob > chi$^2$ < .001<br>Pseudo $R^2$ = .02<br>Count $R^2$ = 0.74 | $X^2$ = 67.11<br>Prob > chi$^2$ < .001<br>Pseudo $R^2$ = .06<br>Count $R^2$ = 0.75 | $X^2$ = 76.45<br>Prob > chi$^2$ < .001<br>Pseudo $R^2$ = .07<br>Count $R^2$ = 0.74 | $X^2$ = 78.95<br>Prob > chi$^2$< .001<br>Pseudo $R^2$ = 0.08<br>Count $R^2$ = 0.75 | $X^2$ = 87.87<br>Prob > chi$^2$ < .001<br>Pseudo $R^2$ = 0.08<br>Count $R^2$ = 0.75 |

*Note.* *$p$ < .05. **$p$ < .01. ***$p$ < .001.

**Table 13.** Hazard ratios for the effect of pregnancy on incident school discontinuation among school-aged girls in the Eastern Cape, enrolled in the study between 2017-2019 (*n* = 896).

| Variable | HR | *SE* | *z* | *p* | 95% CI |
|---|---|---|---|---|---|
| Necessities afforded in household | .93 | 0.03 | -2.45 | .014 | [0.88, 0.99] |
| Grade delay at pregnancy onset | 2.72 | 0.47 | 5.81 | < .001 | [1.94, 3.81] |
| Unplanned and unwanted pregnancy | 3.16 | 1.84 | 1.97 | .049 | [1.00, 9.89] |
| Lack of information from caregiver | 1.45 | 0.20 | 2.62 | .009 | [1.09, 1.91] |

*Note.* CI = confidence intervals; HR = Hazard ratio

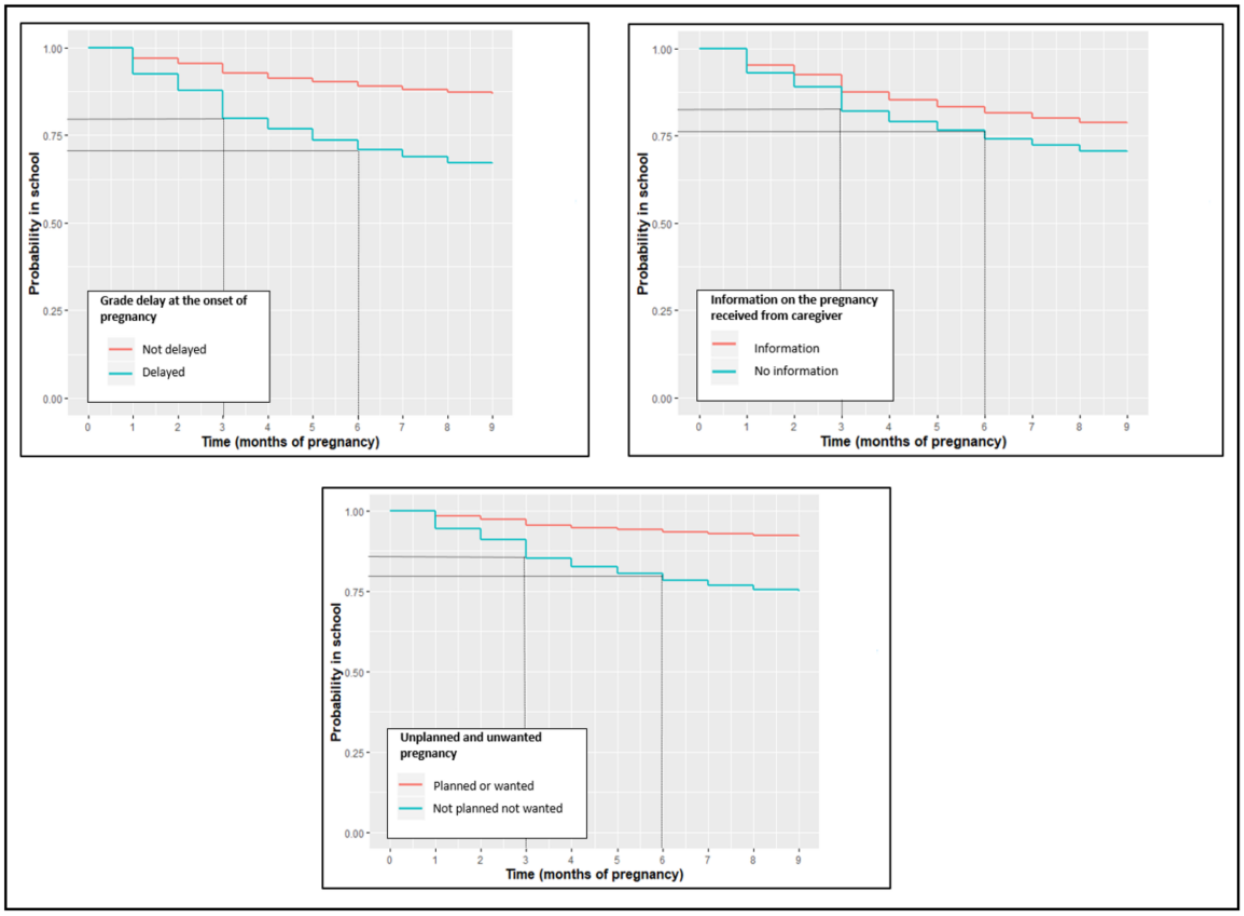



**Figure 21.** Adjusted survival curves for Cox proportional hazards models comparing groups of mothers a) Grade delayed versus not grade delayed at the time of pregnancy (top left) b) Planned or wanted to get pregnant versus not planned and not wanted to get pregnant (bottom central) c) Received pregnancy-related information from the caregiver versus no receipt of pregnancy-related information from caregiver (top right).

## 4. Discussion

Adolescent mothers constitute a diverse group (Hamburg, 1986; Miller-Johnson et al., 1999) and this study reinforces previous international research showing that not all young mothers are at risk for negative outcomes (Raskin et al., 2019). This study showed that almost 75% of girls who were enrolled in school at the onset of the pregnancy continued schooling until birth – a promising rate compared to studies conducted before the 2007 national policy on pregnant learners was

implemented in South Africa (Grant and Hallman, 2008; Marteleto, Lam, and Ranchhod, 2008). These results may substantiate an increasing acceptance in the Eastern Cape to allow pregnant learners to remain in school, possibly as a result of the learner-policy and subsequent calls for schools to show flexibility towards enrolling pregnant adolescents (Panday et al., 2009). Our results may also indicate that pregnant girls increasingly exert their right to education and insist on remaining in school (Ngabaza and Shefer, 2013; Zuilkowski et al., 2019) or point to high academic motivation, which contradicts prevailing stereotypes that adolescent mothers lack determination and interest in school (UNESCO, 2014). Setting aside the reasons for uninterrupted enrolment, the high number of school-going pregnant girls underscores the urgency for updated education and health policies which fully equip schools to manage pregnant learners but also ensure that pregnant girls remain free of discrimination from teachers and fellow students.

For the quarter of pregnant girls who are vulnerable to discontinuing school during pregnancy, access to specific support that counteracts the risks for a premature dropout may be crucial. Since our analyses also indicated that some girls withdraw from school as early as the first trimester, there is an additional need for timely interventions that reach adolescents early on during pregnancy. With 91% of mothers enrolled in school at the onset of their pregnancy, school-based services that identify pregnant adolescents at risk for dropout may offer feasible opportunities for these interventions. For instance, our findings corroborate previous evidence from South Africa showing that girls who struggled in school prior to their pregnancy displayed increased odds for a pregnancy-related dropout and lowered odds for postpartum school return (Grant and Hallman, 2008). School-based services – such as the work of Learning Support Agents in South Africa – may be best placed to access information about girls' educational history and identify poorly-

performing girls who would benefit from targeted support to facilitate school-retention. However, given that approximately 4% of adolescent girls had dropped out of school prematurely without graduating even at the onset of their pregnancy, community-based outreach remains essential to reach those who are potentially most vulnerable. It is also noteworthy that not all girls will have chosen to discontinue school themselves. The decision to send pregnant girls home could have been made by the schools which continue to dismiss girls over concerns about babies being delivered on school grounds (Zweigenthal, Strebel, Corrigall, and Hunter-Adams, 2020). Echoing Zweigenthal et al. (2020), we advocate for improved educational policies and health service support which reassure principals that they can manage to enrol girls late into their pregnancy.

It is still unclear which policies and programmes help childbearing adolescents in South Africa succeed academically, but our results offer several suggestions for potential points of intervention. First, school discontinuation was associated with an unplanned and unwanted pregnancy and higher household poverty, suggesting that support programmes that address these stressors could improve withdrawal rates. However, given that our findings showed only a weak association between household poverty and leaving school, it is likely that cash transfer programmes may be necessary but not sufficient to address school leaving. Further explorations on *how* unintended pregnancies affect schooling may be one way to identify additional interventions that mitigate risk pathways towards school withdrawal. Future studies should also clarify which other forms of support benefit adolescent mothers and assess the extent to which it necessary to combine these with cash transfers that address economic stressors.

Second, caregivers' provision of information appeared to buffer against school withdrawal. Providing information on the pregnancy could be seen as a form of social support (Assini-Meytin, Mitchell, and Lewin, 2018; Calasanti and Slevin, 2001) and concern for the adolescent's future advancements, which would be worsened by leaving school (Assini-Meytin, Mitchell, and Lewin, 2018; Bhana and Nkani, 2016). Alongside the development of services and programmes that facilitate conversations about the pregnancy between caregivers and adolescents, it may also be important to ensure that girls are able to access childbearing-information outside the family. However, future studies should further investigate the type of information most beneficial to adolescent girls and determine which other parenting practices support pregnant girls' schooling. Further studies should also explore the range of protective factors that counteract school discontinuation during pregnancy in the South African context and investigate the breadth of feasible interventions that could interrupt these risk pathways. For instance, one pilot-intervention in KwaZulu Natal showed small positive effects on school re-enrolment nine months after birth (Shazi et al., 2018). The intervention trained 'mentor mothers' (i.e., young women who had given birth whilst in school and subsequently completed high school) to support adolescent mothers after birth. In liaison with social and school-based services, it may be worth exploring how the format of mentor mothers could be adapted to benefit pregnant girls.

The present study has several limitations. First, the cross-sectional nature of the data precludes establishing a clear temporal sequence or causal relationship. To mitigate this, the questionnaire was designed to establish some temporality through items requiring recall of past events (Shahar and Shahar, 2013). However, some sociodemographic variables (i.e., place of residency, access to necessities, living with a caregiver, grant access) were assessed with reference to the time of the

interview. Whilst it is possible that these variables have changed over time, an examination of the data prior to conducting the analyses suggests that resulting biases are minimal. Specifically, for the majority of mothers in the sample (85%) less than three years had passed since their pregnancy and about 50% of mothers had given birth to their child within the previous 12 months, reducing the likelihood that substantial changes occurred in this short period of time. Despite the relatively short time span between the pregnancy and the time of the interview, it is still possible that girls' access to necessities and their living situation could have changed since the birth of the child[10]. However, 93% of mothers reported living with a caregiver at the time of the interview and, given the young age of the participants, it appears unlikely that these girls had not also lived with their caregiver during the pregnancy, especially since the presented analyses focussed on school-going girls. At the same time, young mothers frequently report that a birth worsened their poverty levels (e.g., Bhana and Nkani, 2016), which would strengthen (not weaken) the association between school withdrawal and the ability to afford fewer necessities that was identified in our analyses.

Second, variables on pregnancy experiences were assessed retrospectively and may be subject to recall bias, although for 50% of mothers less than a year had passed since birth, which could reduce this risk (Stull et al., 2009). Third, school enrolment should not be confused with attendance (Ardington, Menendez, and Mutevedzi, 2015), which could have been impaired even without official school withdrawal. South Africa places a high value on education and learners often display high educational aspirations which may have caused socially desirable responding, including over-reporting of continued schooling. Fourth, the study would have benefitted from

[10] Appendix 5.1 present a sensitivity analysis to investigate the resulting biases. Namely, it shows a re-analysis of the presented findings which excludes 537 adolescent mothers whose children were older than one year at the time of the study, therefore reducing the period of time that has passed between the pregnancy and the interview.

exploring additional variables that might affect school withdrawal, including the point in time when mothers found out about the pregnancy, peer dynamics in school, parental education, and girls' motivation, intent, and ability to complete school (e.g., Ngabaza and Shefer, 2013). Furthermore, utilising triangulation techniques may enable future studies to assess schools' implementation of South Africa's national learner policy and its impact on girls' enrolment. Fifth, our results concerning mothers' pregnancy intentions on schooling should be treated with caution because the low frequency of mothers who planned or wanted the pregnancy affected the statistical tests and caused large confidence intervals (Table 12). Sixth, this research excluded participants who had already dropped out of school at the onset of their pregnancy and may, therefore, not include particularly vulnerable participants. Lastly, the generalisability of our findings beyond the Eastern Cape requires additional research with samples from other South African provinces.

## 5. Conclusion

During the current COVID-19 crisis, an additional seven million unintended pregnancies are expected across the globe (UNFPA, 2020). In this time, adolescent girls are likely to be disproportionally affected by many risk factors for an early pregnancy, including school closures (Giannini, 2020), heightened poverty (UN, 2020b), restricted access to sexual and reproductive healthcare (Cousins, 2020), and an increase in child marriages (Grant, 2020; Jones et al., 2020). More than ever, there is an urgent need for updated continuation-policies which leave no leeway for misinterpretations that unnecessarily exclude girls from schools too early into their pregnancies. Instead, aligned educational and health policies should provide the structures that enable schools to confidently support girls to continue schooling throughout their pregnancies and outline the steps and procedures to ensure that pregnant girls are protected from discrimination.

The present results suggest that it may be feasible to extend school-based services (social workers, school-based nurses, or learner support agents) to screen for the characteristics that render pregnant girls vulnerable to school withdrawal and provide further targeted support to at-risk learners. Our findings also indicate that individual or a combination of interventions that address mothers' stressors and are sensitive towards their needs could improve their schooling without specifically targeting retention. Since school withdrawal occurred from the first trimester for some girls, the present study also raises the question of how at-risk girls can be optimally identified and supported early on during pregnancy. Further research on the risk factors that determine the variability in adolescent mothers' school outcomes and assessments of the programmes that could address these factors are crucial to address girls' educational disadvantage, during pregnancy and beyond.

*"[I am proud that] after giving birth, I went back to school, and now I am doing my second year at varsity".*

(Adolescent mother, pregnant aged 16)

# V Paper #2: Who goes back to school after birth? Factors associated with postpartum school return among South African adolescent mothers

This is the second empirical paper of the DPhil thesis which is also based on cross-sectional primary data from the HEY BABY research study. After the factors associated with pregnant girls' school withdrawal were established in the previous empirical paper, this paper set out to investigate the factors associated with South African young mothers' return to school after birth. Aligned with the conceptual framework presented in Chapter II (Figure 13 and Table 7), the paper captures hypothesised covariates of school return from several socioecological levels, including: families, schools, partners, and communities. For each level, variables relevant for the post-pregnancy period were chosen (e.g., childcare access and government child support grant receipt) which are hypothesised to decrease (push and pull correlates) or increase (protective correlates) girls' likelihood to return to school. This paper was submitted to the **Journal of Comparative Education Review.**

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**Statement of Authorship**

I confirm that I completed the majority of the work in this study, including conceptualisation of the methodological approach and execution of all analyses. I co-designed the study measures and drafted the first version of this article. Lucie Cluver and Franziska Meinck contributed to the refinement of the analyses, interpretation of results, and the finalisation of the manuscript.

# Abstract

Adolescent mothers' impaired schooling remains a concern, but there is a paucity of quantitative evidence on the factors that facilitate or hinder young mothers' return to school after birth. This paper is based on interviews with 1,046 girls living in South Africa. Returning to school after birth was associated with more access to basic necessities, fewer repeated grades before the pregnancy, continued schooling during pregnancy, the use of formal childcare, familial childcare support, and not exclusively breastfeeding in the first six months after birth. Mediation analyses showed that higher access to household necessities was not directly associated with school return but via two indirect pathways, namely continued schooling during pregnancy and use of formal childcare. Preventing pregnant girls from school withdrawal during pregnancy and providing adolescent mothers with affordable childcare options may be essential to increase rates of school return. Combination interventions could include access to, and financial supplements for, childcare and specific services supporting girls at-risk for early school withdrawal.


***Keywords:*** adolescent girls and young women, adolescent pregnancy, schooling, school return, South Africa

## 1. Introduction

Adolescent girls in sub-Saharan Africa remain at an educational disadvantage. Fewer girls than boys are enrolled in secondary education, resulting in lower numbers of girls completing high school and tertiary education (UNESCO, 2019). Young mothers in particular are a group that face major barriers to continued education during adolescence. In addition to transitioning into adulthood (Sawyer et al., 2018), young mothers also bear the dual-challenge of parenting and

navigating school. In this context, sustained high rates of adolescent pregnancies might interfere with achieving global Sustainable Development Goals, particularly goal 4 and goal 5 which target gender disparities and unequal access to education and ensure that all boys and girls complete primary and secondary education (UN, 2020a).

Educational attainment remains a major predictor of health across the life span. Among women, levels of completed education have shown to be a strong predictor of health and well-being (Brunello et al., 2016). Whilst most studies focus on the short-term impacts of an early pregnancy, longitudinal studies from the US also indicate that young mothers' education acquired *after* the birth of the child is indirectly associated with self-rated general health at age 50 (Maslowsky, Hendrick, and Stritzel, 2021). Across sub-Saharan Africa, adolescent pregnancy and motherhood occur in the context of high rates of HIV (UNAIDS, 2018) and interventions that aim to increase school attendance have been proposed to reduce the risk of HIV infection (Stoner et al., 2017). However, counteracting mothers' risks with effective interventions, in addition to education sector responses that support girls' schooling (UNESCO 2017b), it is essential to understand the breadth of influences associated with adolescent girls' schooling after birth.

In South Africa, about 20% of female school-going adolescents indicate having ever been pregnant (Jonas, Crutzen, van den Borne, et al. 2016). In 2019 alone approximately 125,000 adolescent girls (aged 10 – 19) gave birth (Maqhina, 2019), suggesting a continued need for a better understanding of the factors that drive school progression among adolescent mothers. Although South Africa's national policy aims to protect mothers' rights to education and encourages girls to return to school after birth, school-going mothers can be asked to take leave for up to two years to fulfil their

parenting responsibilities by school principals (South African Department of Education, 2007). Pregnancy and motherhood do not necessarily cause permanent school dropout and previous evidence indicates that between 30% (Grant and Hallman, 2008) and 50% (Marteleto, Lam, and Ranchhod, 2008) of mothers return to school after birth. However, this variability in school return raises the question of which factors enable or hinder adolescent mothers' return to school.

Few studies examined adolescent mothers' school return quantitatively but ample qualitative evidence from South Africa suggests several pre- and post-pregnancy factors that influence their postpartum return to school. For instance, family support with child care (Bhana and Nkani, 2016; Chigona and Chetty, 2008; Morrell, Bhana, and Shefer, 2012), high familial expectations regarding schooling (Nkani and Bhana, 2016; Willian, 2013), access to formal childcare, determination to complete school (Kaufman, de Wet, and Stadler, 2001; Ngabaza and Shefer, 2013; Nkani and Bhana, 2016), interactions with school staff (Ngabaza and Shefer, 2013; Willian, 2013), and encouragement from peers and the absence of bullying from fellow-learners (Chigona and Chetty 2008; Morrell, Bhana, and Shefer, 2012) have been shown to facilitate a return to school.

In South Africa, two studies, both using data from prior to 2010, addressed the drivers of school return quantitatively. Grant and Hallman (2008) investigated the relationship between school return and retrospectively collected pregnancy and educational histories using a cross-sectional sample of female adolescents from two districts in KwaZulu Natal. Good school performance prior to pregnancy, co-residency with a female household member younger than 60 years, fewer years since birth, and adolescent mothers' higher age at the time of the interview were associated with greater odds of postpartum return to school (Grant and Hallman, 2008). In addition, Timæus and

Moultrie (2015) used longitudinal data drawn from South Africa's National Income Study and showed that living in a higher-income household, higher education of the adolescent mother's caretaker, and rural residency prior to the pregnancy was associated with higher odds of postpartum return to school. These studies made important contributions to the evidence base on adolescent mothers' schooling, even though their analyses are somewhat hampered by the small number of pregnant girls in the respective samples and the limited pre- and post-pregnancy variables that were assessed by the surveys.

The present research aimed to expand upon prior studies and examined the effect of multiple hypothesised pre- and post-pregnancy factors in a contemporary sample of adolescent mothers in South Africa. In addition, this study intended to disentangle the complex role of socioeconomic determinants on schooling. Previous studies in this area showed seemingly contradictory results, indicating that financial constraints are a major reason for dropout (Gustafsson, 2011; Strassburg, Meny-Gibert, and Russel, 2010) whilst others show no association (Fleisch, Shindler, and Perry 2010). Similarly, studies investigating schooling of adolescent mothers in South Africa found that socioeconomic deprivation was associated with increased school dropout as a result of the pregnancy (Ardington, Menendez, and Mutevedzi 2015; Grant and Hallman, 2008; Madhavan and Thomas, 2005), but not with the return to school after birth (Grant and Hallman, 2008). Therefore, this study will also interrogate this relationship by examining the mediating mechanisms through which economic deprivation may exert its effect on schooling among adolescent mothers.

In summary, this study advances the evidence by asking: (i) Which factors are associated with adolescent mothers' postpartum return to school? and (ii) What are the mechanisms through which

economic hardship affects school return? It was hypothesised that mothers' access to childcare, formally and informally, would show associations with school return along with other variables. In addition, we expected that structural disadvantage would be associated with reduced odds of school return, possibly via reduced use of formal childcare.

**Conceptual framework: Schooling and adolescent motherhood**

Many theoretical models have tried to explain school dropout among adolescents (Rumberger and Lim, 2008). Typically, these models acknowledge that a school dropout is not an isolated event but the endpoint of an evolving, long trajectory of disengagement with the educational system, starting when children enter school or even before.

Our framework to understand school return (see Figure 22) builds on previous work in several ways and posits that the return to school after birth is influenced by longer-term educational trajectories in addition to influences from multiple interacting individual, household, school, and community factors. First, it acknowledges adolescent motherhood as a significant 'turning point' in adolescent girls' lives (Dupéré, et al., 2015) which occurs against the backdrop of predisposing factors and vulnerabilities and past social experiences. Applied to school return, it captures two possibilities 1. Adolescents with a longer-term history of educational problems may not go back to school after birth 2. Adolescent girls whose trajectory would not predict a school dropout may also not return to school because the pregnancy and early motherhood disrupted the positive trajectory. Second, the time dimension reflects that girls' schooling may be differently affected by pregnancy and motherhood over time because each stage brings unique challenges. At the same time, schooling at each point in time may be influenced by schooling behaviour at prior stages. Since the present study investigates school return, we consider that not only pre-pregnancy schooling but also schooling during pregnancy may be important for postpartum enrolment.

In addition to the prior schooling behaviour that may influence the return to school, factors on several socioecological levels are likely to influence a return to school (Rumberger, 2011). Based

on the research by Rumberger and Lim (2008), previous conceptual frameworks have coined the term 'push and pull' factors to describe the risk variables that lead to discontinued schooling (Singh and Mukherjee, 2018). Push correlates largely refer to school-related factors (e.g., problems understanding the content of the lessons) whereas pull correlates refer to external factors outside of the school context (e.g., financial hardship). Our framework incorporates the terminology of 'push and pull' correlates which are hypothesised to be negatively associated with the return to school. At the same time, our framework also includes protective correlates which are hypothesised to be positively associated with adolescent mothers' return to school (e.g., available childcare within the community or family childcare support).

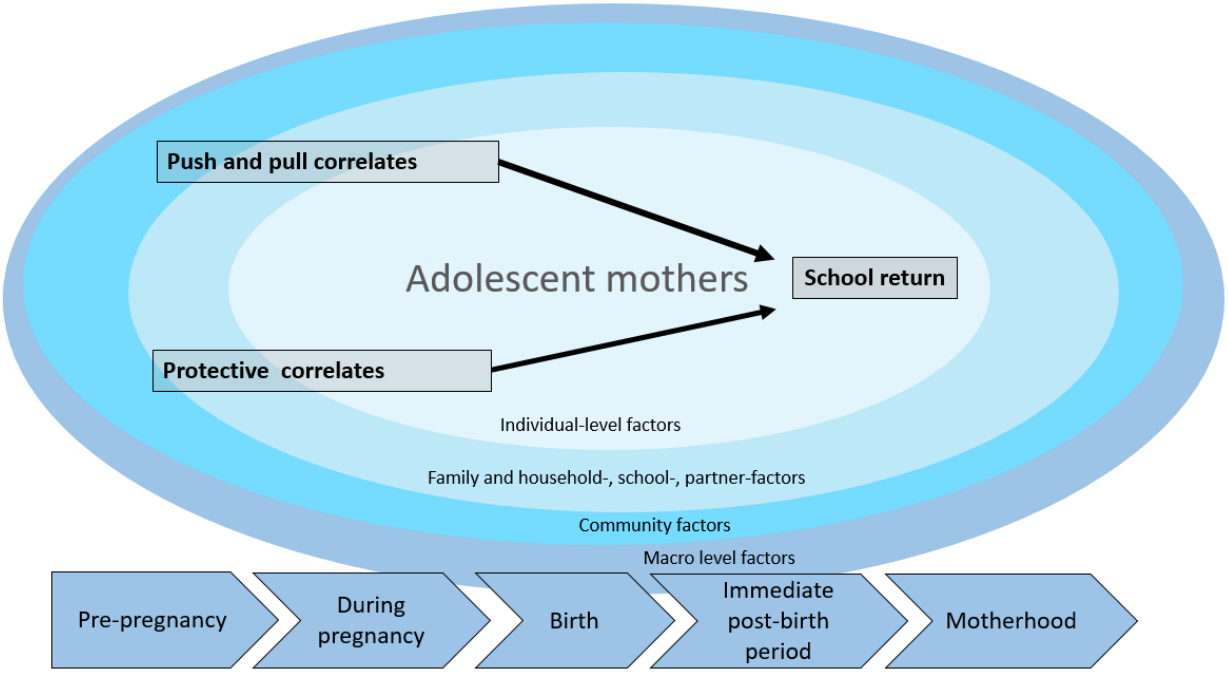



**Figure 22.** Conceptual framework for studying school return after birth, based on Singh and Mukherjee (2018).

## 2. Method

### *2.1 Participants and procedures*

Adolescent mothers ($N$ = 1,046) aged 10 to 24 were recruited from urban and rural locations of two health districts in the Eastern Cape, South Africa between 2017 and 2019. Participants meeting the following inclusion criteria were recruited 1. Female sex; 2. Aged 10 – 24 years at the time of interviewing; 3. Gave birth during adolescence (i.e., below the age of 19); 4. Resided within one of the two health districts, namely the Buffalo City Municipality and Amathole Health District; 5. Consented to participate. Informed consent was sought from adolescents who were above the age of 18 and assent was provided by underage participants in addition to consent from their caregiver. All consent forms and questionnaires were available in English and the local language, Xhosa.

Ethical clearance was provided by two academic institutions and by the provincial government departments of Health, Basic Education, and Social Development. Participants were interviewed in private spaces in and around their own home but they were given the option to conduct the interview in a local restaurant if privacy in the home was compromised.

Assisted by trained interviewers, adolescents completed two complementary questionnaires, each taking about 60 minutes. The items in the questionnaire predominantly concerned the participants' lives at the time of the interview (e.g., access to necessities, rural/urban residency, living with a caregiver, daycare use) but a small number of retrospective questions aimed to capture past events (e.g., medical problems during birth, grade delay at the onset of the pregnancy, the return to school). Confidentiality was maintained throughout the study except where participants requested help or were at risk of significant harm. In this study, 25 referrals were made to health or

counselling services with follow-up support. There were no monetary incentives, but all participants received a certificate, refreshments, and a participant pack containing useful items (e.g., washcloth and soap).

### 2.2 Measures

*School return* after birth was assessed by one item (0: no return to school; 1: return to school).

**Individual-level factors**. The adolescent was considered the *primary caregiver of her infant/child* if the adolescent mother was the main caretaker (0: no; 1: yes). *Exclusive breastfeeding* captured feeding in the first six months postpartum (0: no; 1: yes). *Birth problems* captured as the experience of any of the following: The child was the wrong way around, the child was admitted to neonatal intensive care, excessive bleeding during pregnancy, being sick after birth (0: no; 1: yes). *Grade-delay at pregnancy onset* was assessed by comparing the grade participants were enrolled in at the beginning of their pregnancy against the appropriate grade determined by the South African Schools Act of 1996. Calculations followed the approach taken in comparable studies from South Africa where the correct age norm per grade follows Grade 1 + 6 = age 7; Grade 9 + 6 = age 15; Grade 12 + 6 = age 18 (Herrero Romero et al., 2018). Adolescents who were enrolled in the age-appropriate grade or above were classed as not delayed (0: not delayed; 1: delayed; 2: not enrolled in school). *Continued schooling during pregnancy* was assessed (0: discontinued schooling; 1: continued schooling). *Government child support grant receipt* was assessed (0: no; 1: yes). *Relationship with child's father* was assessed by one item enquiring if the adolescent has a continued relationship with the father of her child (0: no; 1: yes, always/mostly). *Maintenance payment receipt* from the child's father was assessed (0: no; 1: yes).

**Family- and household-level factors.** *Household poverty* was assessed by measuring access to the top eight socially-perceived necessities for children in South Africa i.e., clothes to keep warm in the winter or soap to wash (Barnes and Wright, 2012). Items were summed to create a poverty index (range 0-8) with lower numbers reflecting higher levels of poverty. *Co-residency with the caregiver* enquired whether adolescent mothers lived with their parents, grandparents or another caregiver (0: no; 1: yes). *Household size* assessed the total number of people in the household. *Family childcare support* reflects the level of help with childcare tasks (i.e., washing, playing, care-taking, buying necessities) provided by the young mother's own caregiver or other family members in the past two weeks (0: no help; 1: help with most tasks; 2: help with all tasks).

**Community-level factors**. *Daycare use* was assessed (0: no; 1: yes).

Potential covariates included the *place of residency* (0: urban; 1: rural), the *participant's age*, and the *age of the infant/child* (i.e., the child of the adolescent mother).

### 2.3 Statistical analyses

Participants were eligible for inclusion in analysis if they had not already finished school at the onset of the pregnancy or throughout pregnancy (49 participants were excluded based on this criteria). Additional 15 participants were excluded from the analyses because they had not received all relevant questions on schooling, 14 participants were excluded because they were older than 19 during their pregnancy. Lastly, 31 participants were excluded because it was impossible to determine whether or not they were grade-delayed at the time of pregnancy. Prior to the analyses, the dataset was checked for inconsistencies. 26 participants indicated inconsistent information for

the outcome variable (i.e., the return to school). These cases were re-coded as missing. Little's test (Little, 1988) was used to check whether these variables were missing completely at random, which was the case ($\chi^2$ (4) = 4.74, $p$ = 0.31), thus they were safely excluded from the analyses.

All analyses were completed in Stata 15.1. and Mplus 7. First, descriptive statistics for all outcomes, associated factors, and socioeconomic background variables were calculated for the whole sample as well as disaggregated by return-status. Second, models of risk and protective factors were built empirically in two steps. In step 1, school return was logistically regressed onto each hypothesised correlate, controlling for socioeconomic factors (age at birth, urban/rural location, and infant/child age). Analyses were corrected for multiple comparisons using Bonferroni correction. Subsequently, variables that were statistically significant in step 1 (i.e., Bonferroni-corrected p-value < .003) were included in a hierarchical logistic regression (Cohen et al., 2003). Variables were entered into the model as follows to assess the contribution of each conceptual set that follows a temporal sequence: (i) sociodemographic factors; (ii) household poverty; (iii) school progression; (iv) pregnancy factors; (v) postnatal factors. Finally, mediation analyses were conducted to test whether household poverty operated in 'risk pathways' with individual-level factors acting as mediators. Direct and indirect effects of the tested mediation model were assessed using MPlus 7, using the robust weighted least square (WLSMV) estimator for categorical outcomes. Analyses were conducted using the bootstrapping procedure with 5,000 bootstrapped samples. The fit of the hypothesised parallel mediation model compared to alternative models was evaluated using the DIFFTEST option which tests for $\chi^2$ differences in nested models. The model fit was assessed using the root mean square error of approximation (RMSEA), the comparative fit index (CFI), the Tucker-Lewis index (TLI), and weighted root mean square residual (WRMR).

By convention, a CFI value >0.95 indicates good fit and >0.90 adequate fit. For RMSEA a value of 0.05 indicates good model fit, and for WRMR a value close to 1 indicates good model fit (Brown, 2015; Distefano et al., 2018).

## 3. Results

The analyses were based on 911 adolescent mothers in the sample. As shown in Table 14, out of the 911 participants, 634 returned to school after birth whereas 277 did not return. The mean age of study participants was 18.1 years (*SD* 1.77). Most adolescent mothers still lived with a parent or caregiver (91.6%) and seven participants were married (0.8%). Mothers' mean age at the pregnancy of their oldest child was 16.48 years (*SD* 1.52), 80 mothers (8.8%) had more than one child, and most mothers in our sample were the primary caregiver of their infant/child (94.1%). Over half of the mothers were classed as grade-delayed at the time of the pregnancy (58.1 %) and 73.9% had continued schooling throughout their pregnancy. About 80% of mothers received financial support in form of a government child grant, but only 4.7% of adolescent mothers received maintenance payments from the father of their child. Just over a quarter of children attended formal childcare (27.6%). Approximately half of all participants were still in a relationship with the father of the child (50.1%).

**Table 14.** Descriptive statistics for the sample of adolescent mothers from the Eastern Cape, South Africa (*n* = 911).

| | Total sample (*n* = 911) | Returned (*n* = 634) | Not returned (*n* = 277) |
|---|---|---|---|
| Variable | *n* (%); *M (SD)* | *n* (%); *M (SD)* | *n* (%); *M (SD)* |
| **Demographic covariates** | | | |
| Adolescent mother's age | 18.13 (1.77) | 17.91 (1.71) | 18.63 (1.79) |
| Adolescent mothers' age at the onset of the pregnancy | 16.48 (1.52) | 16.22 (1.45) | 17.10 (1.51) |
| Infant/child age | 1.76 (1.54) | 1.82 (1.54) | 1.61 (1.53) |
| Rural residency (vs. urban) | 260 (28.5%) | 179 (28.2%) | 81 (29.2%) |
| **Individual-level factors** | | | |
| Respondent is primary caregiver of her infant/child | 857 (94.1%) | 589 (92.9%) | 268 (96.8%) |
| Exclusive breastfeeding (first six months postpartum) | 225 (24.7%) | 129 (20.4%) | 96 (34.7%) |
| Medical - any birth problems | 32 (3.5%) | 23 (3.6%) | 9 (3.3%) |
| Grade-delay at pregnancy onset | 529 (58.1%) | 314 (49.5%) | 215 (77.1%) |
| Continued schooling during pregnancy [a] | 633 (73.9%) | 539 (85%) | 94 (42.3%) |
| Government child support grant receipt | 720 (79.0%) | 504 (79.5%) | 216 (77.9%) |
| In relationship with child's father | 457 (50.1%) | 314 (49.5%) | 143 (51.6%) |
| Maintenance payments receipt from the child's father | 43 (4.7%) | 33 (5.2%) | 10 (3.6%) |
| **Family- and household-level factors** | | | |
| Available basic necessities (out of 8) in the household | 5.20 (2.24) | 5.52 (2.16) | 4.44 (2.24) |
| Respondent co-habits with caregiver | 834 (91.6%) | 600 (94.6%) | 234 (84.5%) |
| Household size | 6.26 (2.65) | 6.25 (2.59) | 6.29 (2.77) |
| Family childcare support [b] | 759 (88.6%) | 548 (93.0%) | 211 (78.7%) |
| **Community-level factors** | | | |
| Daycare use [b] | 237 (27.6%) | 204 (34.6%) | 33 (12.3%) |

[a] Percentages reflect participants who continued schooling out of the number of mothers who were enrolled in school at the time of pregnancy (*n* = 856).
[b] Percentages reflect mothers who were the primary caregiver of the child (*n* = 857).

**Table 15**. Independent associations between hypothesised correlates and postpartum school return.

| Parameter | Return to school: AOR [95% CI] |
|---|---|
| **Demographic covariates** | |
| Adolescent mothers' age at the onset of the pregnancy | 0.67 [0.60, 0.75]*** |
| Infant/child age | 1.02 [0.92, 1.13] |
| Rural residency (vs. urban) | 0.94 [0.68, 1.29] |
| **Individual-level factors** | |
| Respondent is primary caregiver of her infant/child | 0.48 [0.23, 1.01] |
| Exclusive breastfeeding (first six months postpartum) | 0.53 [0.38, 0.74]*** |
| Medical - any birth problems | 1.35 [0.60, 3.03] |
| Grade-delay at pregnancy onset | 0.38 [0.27, 0.54]*** |
| Continued schooling during pregnancy (vs. not continued) | 7.61 [5.34, 10.86]*** |
| Government child support grant receipt | 0.99 [0.99, 1.00] |
| In relationship with child's father | 1.10 [0.81, 1.49] |
| Maintenance payments receipt from the child's father | 1.46 [0.69, 3.06] |
| **Family- and household-level factors** | |
| Available basic necessities (out of 8) in the household | 1.27 [1.18, 1.36]*** |
| Respondent co-habits with caregiver | 3.44 [2.06, 5.71]*** |
| Household size | 0.99 [0.94, 1.04] |
| Family childcare support | 2.16 [1.51, 3.08]*** |
| **Community-level factors** | |
| Daycare use | 4.29 [2.72, 6.75]*** |

*Note.* AOR = Adjusted odds ratio; CI = confidence interval; Outcome variable is the return to school postpartum ($n$ = 911). ORs were adjusted for age at pregnancy, urban/rural residency, and child's age. Statistical significance at the 0.05 level was Bonferroni corrected to account for the number of comparisons in this analysis.
***$p$< .003.

**Table 16**. Independent associations between hypothesised correlates and postpartum school return.

| Model | **Step $\chi^2$** | **Model $\chi^2$** | **McFadden's $R^2$** | **Count $R^2$** |
|---|---|---|---|---|
| Step 1: Demographic covariates | 63.54 | 63.54§ | 0.06 | 0.70 |
| Step 2: Household economic factors | 49.06 | 112.60§ | 0.10 | 0.73 |
| Step 3: School factors | 27.03 | 139.63§ | 0.13 | 0.72 |
| Step 3: Pregnancy factors | 68.81 | 208.45§ | 0.19 | 0.74 |
| Step 4: Postnatal factors | 83.39 | 291.85§ | 0.26 | 0.78 |

Final model (including all associated factors and covariates):

| Variable | ***B*** | ***SE*** | **Wald χ2** | **OR [95% CI]** |
|---|---|---|---|---|
| Adolescent mother's age at the onset of the pregnancy | -0.12 | 0.07 | - 1.68 | 0.89 [0.77, 1.02] |
| Rural residency (referent: urban residency) | -0.17 | 0.21 | - 0.82 | 0.84 [0.57, 1.22] |
| Infant/child age | 0.03 | 0.07 | 0.47 | 1.03 [0.89, 1.19] |
| Available basic necessities (out of 8) | 0.17 | 0.04 | 3.93 | **1.18 [1.09, 1.28]***** |
| Grade-delay at pregnancy onset | -0.67 | 0.22 | -3.03 | **0.51 [0.33-0.79]***** |
| Continued schooling during pregnancy (referent: Discontinued schooling) | 1.95 | 0.19 | 9.84 | **7.04 [4.77, 10.40]***** |
| Respondent co-habits with caregiver | 0.50 | 0.36 | 1.36 | 1.65 [0.80, 3.41] |
| Exclusive breastfeeding (first six months postpartum) | -0.69 | 0.21 | - 3.26 | **0.50 [0.33, 0.76]***** |
| Daycare use | 1.42 | 0.28 | 4.99 | **4.15 [2.37, 7.27]***** |
| Family childcare support | 0.84 | 0.23 | 3.60 | **2.33 [1.47, 3.69]***** |

Note. The outcome variable is school return ($n$ = 911). Results are *not* Bonferroni corrected and statistically significant factors are in bold font.
*$p$< .05. **$p$< .01. ***$p$< .001.

### 3.1 Preliminary model building

Independent multiple logistic regressions were run to determine which factors were significantly related to school return, controlling for the age at last pregnancy, urban/rural residency, and the child's age at the time of the interview (Table 15). At this preliminary stage, higher odds of school return were associated with access to more basic necessities, younger age at pregnancy, less grade delay at the onset of the pregnancy, continued schooling during pregnancy, not exclusively breastfeeding in the first six months after birth, co-habiting with a caregiver, receiving childcare support from the family, and the use of formal childcare.

### 3.2 Final risk models

Results from the hierarchical logistic regression analyses are indicated in Table 16. Model 1 included only relevant socioeconomic and demographic variables; Model 2 added household factors; Model 3 captured school progression at the onset of the pregnancy; Model 4 added pregnancy variables, and the final Model 5 added variables on postpartum practices and support. The final model showed that returning to school after birth was associated with more access to basic necessities (OR 1.18, 95% CI [1.09, 1.28]), less grade delay at the onset of the pregnancy (OR 0.51, 95% CI [0.33 – 0.79]), continued schooling during pregnancy (OR 7.04, 95% CI [4.77, 10.40]), the use of formal childcare (OR 4.15 95% CI [2.37, 7.27]) and familial childcare support (OR 2.33 95% CI [1.47, 3.69]), and not exclusively breastfeeding in the first six months after birth (OR 0.50 95% CI [0.33, 0.76]).

### 3.2 Mediation analyses

Mediation analyses were conducted to evaluate whether the household's economic situation affects the return to school after birth via individual-level and family-level factors (Figure 23). Figure 23 shows that higher household access to necessities was not directly associated with the return to school postpartum. In addition, more access to necessities was moderately associated with continued schooling during pregnancy ($\beta$ = 0.15) which, in turn, was associated with returning to school ($\beta$ = 0.52). More access to necessities in the household was also associated with more use of formal childcare ($\beta$ = 0.13) and, in turn, formal childcare use was associated with school return ($\beta$ = 0.42). Lastly, the path between household poverty and return to school via childcare support from the family was not significant.

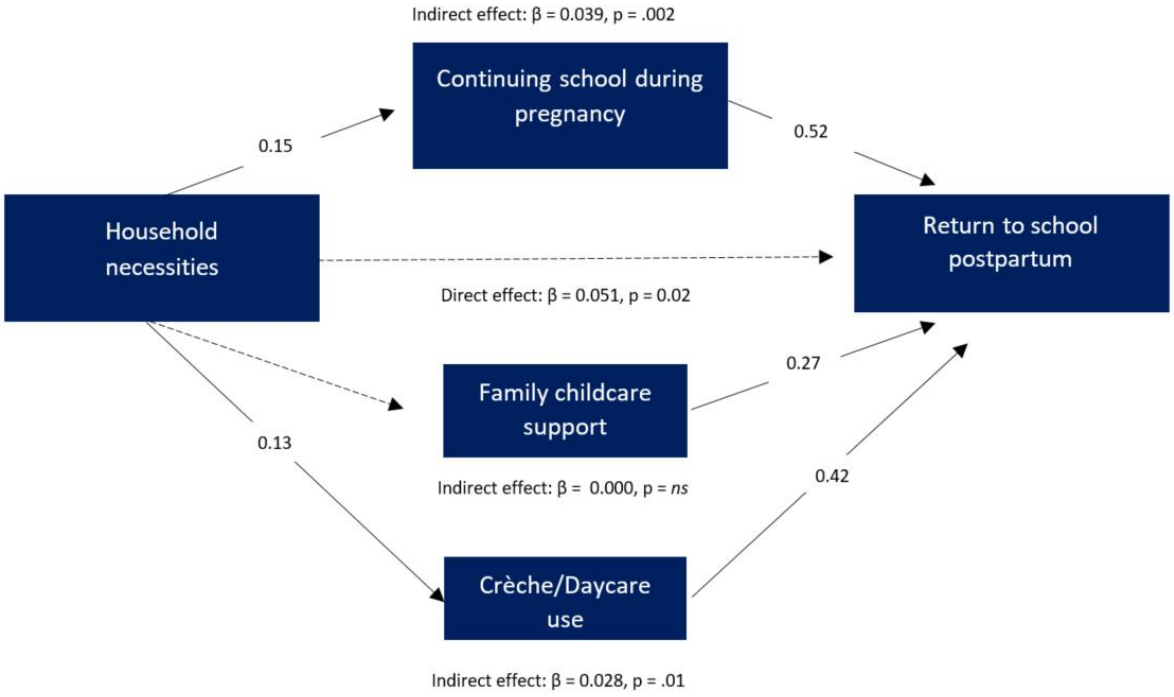



**Figure 23.** Tested mediation pathways towards postpartum school return. Effect sizes (beta) are standardized and based on 5,000 bootstrapped samples. Mediation analyses controlled for all variables in the final model of school return (Table 16), *n* = 856. Dotted lines indicate hypothesised pathways that were non-significant.

## 4. Discussion

Balancing school with caring for a child is challenging. This paper set out to investigate the impact of hypothesised corrrelates on postpartum school return among adolescent mothers. Almost 70% of girls in our sample had returned to school after birth, even in a highly deprived area of South Africa, with very limited educational support services. This is promising compared to the 30% - 50% return-rates previously reported in the country (Grant and Hallman, 2008; Marteleto, Lam, and Ranchhod, 2008) and may indicate increased flexibility from schools to facilitate girls' school return after birth. Many mothers in the cohort also indicated returning to school within the first two months after birth which aligns with findings from other cohorts in South Africa (see Jochim, Groves, and Cluver, 2020). However, about 50% of non-returned mothers in this sample had children younger than one year and it is possible that some of these girls will also return to school as their children get older.

The results from our final regression model align with earlier evidence from South Africa where adolescents' age at the time of the pregnancy was not associated with a return to school (Grant and Hallman, 2008). One may expect older adolescents to have a greater incentive to return to school as they are closer to completion. This may not be the case in South Africa where rates of grade repetition are high and up to 38% of learners continue to attend school even until age 20 (Statistics South Africa, 2013). More generally, scholars in this area have stressed that younger mothers (under 17) have not only different reasons for becoming a mother but also show different outcomes compared to 18 or 19 year old girls (Willian, 2013). This may warrant future investigations into school outcomes and the associated factors in younger versus older adolescent girls.

The present findings also showed no association between school return and co-residency with a caregiver, contrasting previous research on the positive effects of adults in the household (Grant and Hallman, 2008). Whilst our results showed an independent association between living with a caregiver and school return, this association disappeared in our final regression model which included other post-pregnancy characteristics. Even though many caregivers may also provide other necessary material or emotional support or guidance that enable mothers to return to school, the present finding suggest that caregivers may mostly benefit girls' schooling by providing help with childcare. Future studies should examine the relationship between caregiver characteristics and school return, and their interactions with the education system and school policies, in more detail.

Of note is that mothers' exclusive breastfeeding in the first six months after birth was associated with reduced odds of school return. The causal direction of this relationship is unclear and it is possible that mothers who decided not to return to school end up breastfeeding exclusively. Mixed-feeding is common in South Africa (Zweigenthal, Strebel, and Hunter-Adams, 2019) and this finding may highlight the difficulty of navigating schooling whilst adhering to South Africa's Department of Health recommendations to breastfeed the child for six months postpartum (South African Department of Health, 2013). Previous studies highlighted the need for compatible educational policies and infant feeding policies (Zweigenthal, Strebel, and Hunter-Adams, 2019) and future research should address how policies can simultaneously protect adolescent mother's educational rights and maximise healthy child development.

Results from the mediation analyses suggest two distinct routes towards postpartum school return among adolescent mothers (i) a pre-birth pathway where discontinued schooling throughout pregnancy drives lower return-rates; and (ii) a post-birth pathway where the use of formal childcare drives greater return-rates. These findings support a framework of multiple pathways towards early school dropout (Dupéré, Dion, et al., 2015) and suggest that supporting adolescent mothers' education may require a combination of interventions addressing both their pre-birth and post-birth challenges.

Globally, evaluated programmes that support adolescent mothers in returning to school have shown moderate success (Baytop, 2006; SmithBattle, Loman, Chantamit-o-pas, and Schneider, 2017; Steinka-Fry, Wilson, and Tanner-Smith, 2013) and our results show the complex mechanisms underlying the postpartum school return in the South African context. With the exception of one promising pilot intervention (Shazi et al., 2018), no known evaluated programmes exist to improve school outcomes in South Africa's adolescent mothers. In light of present findings, extending school-based programmes to target retention during pregnancy may be required to further increase postpartum return-rates. For instance, school-based antenatal care has been shown to improve attendance and enrolment during pregnancy in high-income countries, even though the effects did not persist after birth (Barnet et al., 2004). Further studies that explore the factors driving school discontinuation in pregnant South African girls are needed to develop services that can interrupt pathways of risk to early school discontinuation.

The present findings also demonstrate the importance of childcare access for adolescent mothers. This finding is not surprising given results from high-income countries where the use of formal

childcare was associated with nine times the odds of school return after birth (Assini-Meytin, Mitchell, and Lewin, 2018). Unexpectedly, our study demonstrated that using childcare facilities showed a much stronger association with school return than childcare support received from the family, opposing notions of the pivotal role of South African families in supporting childcare (Bhana and Nkani, 2016; Chigona and Chetty, 2008). Therefore, it will be essential that future research identifies the barriers to meeting mothers' needs for formal childcare which can build the basis for policy-developments aiming to support girls' education.

It is noteworthy that the mediation model showed no *direct* relationship between lower poverty and postpartum return to school and also indicated that household poverty was only moderately associated with continued schooling during pregnancy and formal childcare, respectively. Previous studies from South Africa showed mixed results for the association between poverty and the return to school (Branson, Hofmeyr, and Lam, 2014; Grant and Hallman, 2008; Timaeus and Moultrie, 2015) and the present study demonstrated that accounting for the identified mediating factors may be important to better understand this relationship. Whilst poverty clearly contributed to continued schooling throughout pregnancy and the use of formal childcare (the mediators in our analyses) their relatively weak association suggests that financial support alone may not be sufficient to address the identified risk pathways. Rather, it seems necessary for future studies to investigate the range of additional factors that influence schooling during pregnancy and the use of formal childcare so that interventions can target the breadth of challenges mothers face beyond financial deprivation.

The present study has several limitations. First, this study only assessed whether or not mothers returned to school at some point after birth and it is possible that mothers subsequently discontinued schooling without completing school. Second, the variables pertaining to pregnancy and birth experiences were assessed retrospectively and may be subject to recall bias. However, for 50% of mothers less than a year had passed since birth, which could reduce the risk for biased recall (Stull et al., 2009).

Third, the cross-sectional nature of the data precludes establishing a clear temporal sequence. To mitigate this, the questionnaire was designed to establish some temporality through items requiring recall of past events (Shahar and Shahar, 2013), such as participants' schooling during pregnancy or any experienced medical problems during birth. However, some covariates were assessed with reference to the time of the interview (e.g., access to necessities, living with a caregiver, grant access, breastfeeding, and available childcare) and it is possible that some of these variables have changed over time, i.e., since the participant returned to school. An examination of the data prior to conducting the analyses, however, indicated that the resulting biases are minimal. Specifically, for the majority of mothers in the sample (85%) less than three years had passed since their pregnancy and 50% of mothers had given birth to their child within the previous 12 months, reducing the likelihood that substantial changes have occurred during this short period of time. In addition, 93% of mothers reported living with a caregiver at the time of the interview and, given the young age of the participants, it appears unlikely that these girls had not also lived with their caregiver during the pregnancy, especially since the presented analyses focussed on school-going girls. It is also possible that participants' childcare arrangements (i.e., formal childcare and familial childcare support) have changed over time so that it is unclear whether or not the relationship

between school return and family support with childcare and the use of formal childcare, respectively, differed for mothers who returned to school relatively soon after birth compared to mothers who returned later. The mediation model in this study has been developed bearing in mind plausible causal pathways that preclude reverse causality, which is one crucial aspect of causality in structural modelling (Cohen, Cohen, West, and Aiken, 2003). For example, receiving formal or informal childcare support does not cause lack of necessities in the household. However, bi-directionality is possible for some pathways, including between a return to school and childcare provisions.

Fourth, the study would have benefitted from additional factors that may affect the return to school, including parental education and different types of social support that mothers' received (i.e., financial, practical, or emotional). Fifth, it is possible that the rates of schooling may be inflated by socially desirable responding, including over-reporting of continued schooling during pregnancy and school return. Sixth, the generalisability of our findings beyond the Eastern Cape requires additional research with samples from other South African provinces. Lastly, it is possible that the binary outcome 'school return' does not sufficiently account for *all* possible educational pathways that the participants had taken since birth. That is, the group of 'returners' includes 1) Mothers who returned to school who were also enrolled in school throughout their pregnancy and 2) Mothers who returned to school who discontinued school during pregnancy. In addition, the group of 'no returners' includes participants who 1) Did not return to school but were enrolled in school throughout their pregnancy and 2) Did not return to school after pregnancy but they had already discontinued school during pregnancy. It is possible that each of these four groups of adolescent mothers is distinct from the other groups, including a unique set of correlates that is

associated with their return to school. Supplementary analyses which explore these pathways further are included in Appendix 5.2.

Despite these limitations, this large quantitative study provides novel empirical insights into the circumstances and reality of current adolescent mothers in South Africa. The pathway model allows the assessment of multiple inter-related factors affecting school return, providing a more nuanced picture of how adolescent mothers' educational disadvantage may unfold from the onset of pregnancy. A key contribution of this study is that it empirically highlights that practical childcare challenges constitute a major hurdle to mothers' return and need to be addressed in addition to socioeconomic and individual-level barriers.

### 4.1 Implications

Our findings have a number of implications for further research on policy and programming in the context of adolescent mothers' schooling. Our results underscore that young mothers in South Africa share the same childcare needs as adolescent mothers from high-income countries. In order to improve school-going mothers' educational outcomes in South Africa, it may be essential to ensure their access to financial support for formal childcare. Many countries, including South Africa, have attempted to increase enrolment rates via conditional and unconditional cash-transfer programmes for girls and young women, but have shown mixed long-term success (Baird, Chirwa, McIntosh, and Ozler, 2010; Baird, Ferreira, Özler, and Woolcock, 2013; Pettifor et al., 2016). Although adolescent mothers (Bhana and Nkani, 2016; Mokoena, 2016) qualify to receive the child support grant – a monthly state-funded unconditional cash transfer – for many these small payments do not cover more than basic necessities for the child which may require the girls to find

work to support their children (Ngubane and Maharaj, 2018). The present results suggest that, in order to interrupt the potential risk pathways for adolescent mothers, additional targeted financial aid for childcare is particularly relevant and that it may be further beneficial to supplement monetary support with programmes addressing the precursors of school withdrawal during pregnancy.

## 5. Conclusion

The present results highlight the importance of meeting adolescent mothers' childcare needs to facilitate the continued education of South African girls. National policy advances across Sub-Saharan Africa (Martinez and Odhiambo, 2018) aiming to protect adolescent mothers' right to education by allowing them to remain in school during pregnancy and motherhood are clearly a necessary step. Yet, some adolescent mothers may need additional financial and childcare support to counteract the hurdles preventing them to return to school after birth.

*"I would like to say [to other adolescent parents], we must work hard in our academics so that we make our parents proud. Do right things for our kids so that they can be also proud"*.

(Adolescent mother, pregnant aged 16).

# VI Paper #3: When do adolescent mothers return to school? Timing across rural and urban South Africa

This is the third empirical paper of the DPhil thesis which is based on cross-sectional primary data from the HEY BABY research study. In addition to Chapter V (*DPhil Paper 2*), this paper also investigates adolescent mothers return to school. Namely, it examines the timing of adolescent mothers' return to school and compares the findings with recommended timings outlined in South Africa's national policy. This paper pooled data from the HEY BABY study with information from the MAMAS (Mentoring adolescent mothers at school) pilot-intervention which was undertaken in the KwaZulu-Natal province between 2017 and 2018 (led by Prof Alison Groves from Drexel University). This paper was published in the **South African Medical Journal** (doi: 10.7196/SAMJ.2020.v110i9.14664).

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**Statement of Authorship**

I confirm that I completed the majority of the work in this study, including conceptualisation of the methodological approach and execution of all analyses. I co-designed the study measures and drafted the first version of this article. Lucie Cluver and Franziska Meinck contributed to the refinement of the analyses, interpretation of results, and the finalisation of the manuscript.

# Abstract

While adolescent mothers' postpartum return to school offers long-term benefits, returning too early in the absence of sufficient support may impede the healthy development of their children. This study assessed the rates of adolescent mothers' return to school in South Africa (SA) and examined how many months after birth school-aged girls resumed schooling. Two independent studies recruited 1,114 adolescent mothers in the Eastern Cape Province and Durban, respectively. Across the two studies, 64.7% ($n$ = 649) and 47.8% ($n$ = 53) of mothers, respectively, had returned to school at the time of the study. Of these mothers, the majority had returned to school within the first two months postpartum (study 1: 67.6%; $n$ = 439; and study 2: 58.5%; $n$ = 31), fewer between two and six months (16.9%; $n$ = 110; and 22.6%; $n$ = 12), and after 12 months (2.0%; $n$ = 13; and unknown). Our findings indicate a mismatch between SA's national policy recommendations and actual return patterns, showing that a large proportion of mothers returned to school much earlier than advised. This study also highlights a particular need to amend school policies that support early-returners and their children. Additional research on the needs of mother-child dyads and studies on the impact of different timescales on educational and health outcomes are needed to further inform policy and practice regarding adolescent mothers' return to school.


## 1. Introduction

In South Africa (SA), approximately 125,000 girls aged 10 - 19 years experience a pregnancy every year (Maqhina, 2019). Rates of adolescent pregnancy are much higher in populations affected by extreme adversities, which limit their educational attainment and specifically their graduation from high school (Moultrie and Timaeus, 2003; van Broekhuizen, van der Berg, and Hofmeyr, 2016; Timaeus and Moultrie, 2015). Previous studies found that only 30 - 50% of girls

return to school after birth or a pregnancy-related dropout (Marteleto, Lam, and Ranchhod, 2008; Grant and Hallman, 2008). Evidence shows that the longer a mother stays out of school after giving birth, the less likely she is to return (Grant and Hallman, 2008).

While SA's 2007 national policy ('Measures for the prevention and management of learner pregnancy') stipulates that learners are allowed to stay in school while pregnant, the policy also recommends that mothers should not return to school in the same year during which the pregnancy occurred. The policy specifies that young parents may take leave for up to two years to exercise full parenting responsibility, and requires the girls to provide a medical report that declares the learner fit for school upon their return (Department of Education, 2007). In 2009, the Human Sciences Research Council published a report on behalf of the Department of Education (DoE), which criticised these stipulations and called for revisions. These included suggestions for flexible school policies that enable early re-entry of young mothers into the schooling system (Panday et al., 2009). Despite these early suggestions, no official changes to the national policy have been made yet.

A small number of empirical studies provided valuable insights into the rates of postpartum schooling of adolescent mothers. Specifically, two longitudinal studies showed that between 35% and 50% of girls who had a child before completing high school were enrolled in school during the year after birth (Marteleto, Lam, Ranchhod, 2006; 2008). Examining how schooling further unfolds over the years after birth, one study indicated that there is an ongoing decrease in enrolment rates after the first year postpartum, showing that an increasing number of girls drop out of school as time passes (Marteleto, Lam, Ranchhod,

2008). By contrast, other studies suggested that the percentage of girls that are enrolled in school is upward sloping after the first year postpartum. This provides some evidence that a few adolescent mothers who dropped out of school had returned at some point after giving birth (Ardington et al., 2015; Marteleto, Lam, Ranchhod, 2006).

While the aforementioned longitudinal studies (Ardington et al., 2015; Marteleto, Lam, Ranchhod, 2006; 2008) report rates of return to school in the first year after birth, there is no research on the specific timing of school return. We have no data on how many mothers returned in the first month after birth versus how many returned when their baby was closer to one year old. These differences are meaningful to the health and wellbeing of the mother and child and warrant further attention. Assessing when adolescent mothers return to school after the birth of their child is also important for the development of school policies that effectively support mother and child needs by recommending realistic timings for school return.

The purpose of our article is to present novel data from two independent projects on the timing of adolescent mothers' school return across two SA provinces. The findings are presented with reference to the recommended timings outlined in SA's current national policy, and their relevance for the development of future policies are discussed.

## 2. Method

### Study 1

Study 1 was the first wave of a prospective cohort study conducted in rural and semiurban areas of Eastern Cape Province, SA. Between 2017 and 2019, 1,003 adolescent mothers (aged 12 - 19 years) were recruited by healthcare facilities (40%), community-based strategies (26%), schools (10%), peer referrals (6.5%), non-governmental organisations (NGOs) (4%), and from a cohort of adolescents, with whom the research team had previously worked (13%).

Informed consent was sought from adolescents who were >18 years old, while caregivers provided consent for underage participants. Adolescent mothers completed two complementary self-report interviews, which asked a range of questions regarding their health, family, relationships, violence experiences and schooling. Each interview was undertaken by interviewers trained in working with vulnerable youth and lasted ~60 minutes.

There was no fixed time point postpartum at which participants completed the interview (i.e., participants' children were aged between three months and nine years). This meant that at the time of the interview, some mothers had had less time to return to school than others. All mothers were interviewed in private spaces in and around their own home, but they were given the option to conduct the interview in a local restaurant if the privacy in their home was compromised. Confidentiality was maintained throughout the study, except where participants requested help or were at risk of significant harm. In these cases, referrals were made to health or counselling services, with follow-up support. There were no monetary incentives, but all participants received a certificate, refreshments and a participant pack containing useful items, e.g. washcloth and soap.

**Ethical approval**

All study activities were approved by the institutional ethics boards at the University of Oxford (ref. nos R48876/RE001 and R48876/RE002) and the University of Cape Town (ref. no. 226/2017).

**Study 2**

Study 2 was a pilot intervention study, i.e., mentoring adolescent mothers at school (MAMAS), conducted in a periurban area of KwaZulu-Natal Province, SA. MAMAS was a non-equivalent comparison group study designed to support adolescent mothers in their return to school after childbirth. A total of 111 adolescent mothers (aged 14 - 19 years) from Umlazi township, who were part of the comparison group (i.e., they did not receive the MAMAS intervention), were recruited at a public maternity ward and at public health clinics between July 2017 and April 2018.

Participants completed a survey at about six months postpartum, during which they answered questions on school experiences during pregnancy, returning to school after childbirth and timing of school return. Voluntary informed consent was obtained from adolescents and their caregivers in cases where adolescent mothers were underage. All interviews were completed on a tablet using audio-assisted computer interviewing. A trained research assistant was available to provide support to complete the surveys, as needed.

**Ethical approval**

All study activities were approved by the institutional ethics boards at Drexel University (ref. no. IRB:1612005048) and the University of KwaZulu-Natal (ref. no. BFC023/17).

## 3. Results

### Study 1

This study was completed by 1,003 participants. The mean age of study participants was 18.21 (standard deviation (SD) 1.80) years. Mothers in the sample were affected by several vulnerabilities (Table 17) – 26.6% indicated not having enough food in the household in the past week and 92.7% came from families receiving at least one social security grant (mean 3.4; SD 2.1). The majority of mothers had only one child (*n* = 916; 91.3%), whereas 87 mothers had ≥2 children (8.7%). The children were aged between three months and nine years.

The majority of the 1,003 mothers in the sample were enrolled in school when they fell pregnant with their oldest child (*n* = 902). After the birth of their oldest child, 64.7% (*n* = 649) of mothers had returned to school, while 35.3% (*n* = 354) had not returned to school at the time of the interview (Table 18). The median postpartum time to return was one month (interquartile range (IQR) 0 - 2). Figure 24(A) shows the return times of the 649 mothers who continued with school after childbirth. Most young mothers who had returned to school reported having returned <1 month after birth (*n* = 301).

### Study 2

This study was completed by 111 participants. Their mean age was 17 (1.33) years, and the population was highly vulnerable (Table 17). Specifically, over half experienced food insecurity in the past month (53.2%) and four-fifths were living in households that received at least one social grant (mean 1.45; SD 1.02). Furthermore, the majority were first-time mothers (*n* = 104; 93.69%). With regard to schooling, just fewer than half of all participants had returned to school at the time of the interview (*n* = 53), which took place at about six months after childbirth (Table 18). Four-

fifths of the girls returned to the same school and most reported that someone at home assisted them with the re-enrolment process. Figure 24(B) shows the return times of the 53 mothers who continued school after childbirth. The median time to return was 1.25 months (IQR 0.72 - 4.11). Four girls reported returning to school within 10 days of giving birth.

**Table 17.** Descriptive statistics for the sample of adolescent mothers from the Eastern Cape, South Africa.

| Characteristic | Study 1 (*n* = 1,003); *n*(%) | Study 1 (*n* = 111); *n*(%) |
|---|---|---|
| **Structural factors** | | |
| Age, mean (SD) months | 18.21 (1.80) | 17 (1.33) |
| Rural residency | 293 (29.2) | |
| Food insecurity | 267 (26.6) (past week) | 59 (53.2) (past month) |
| Maternal orphan | 197 (19.6) | 33 (30.0) |
| Paternal orphan | 278 (27.7) | 42 (40.4) |
| Adults in the household, mean (*SD*) | 3.19 (1.48) | 4.15 (2.98) |
| Adolescent mother had >1 child | 87 (8.7) | 7 (6.48) |
| Family receives a grant | 930 (92.7) | 88 (79.3) |
| **Educational characteristics** | | |
| Currently enrolled | 542 (54) | Unknown |
| Highest completed grade, mean (*SD*) | 9.66 (1.65) | Unknown |
| Repeated at least 1 grade | 577 (60.9) | 35 (31.6) |

**Table 18.** Characteristics of school return across two studies undertaken in Durban and East London, respectively.

| Characteristic | Study 1, *n* = 1,003 | Study 1, *n* = 111 |
|---|---|---|
| Returned to school, *n* (%) | 649 (64.7) | 53 (47.8) |
| Returned to school | 1 (0- 2) | 1.25 (0.72 – 4.11) |
| Returned to same school, *n* (%) | Unknown | 44 (83.0) |
| Received help to return to school, *n* (%) | Unknown | 45 (84.9) |

## 4. Discussion

The studies showed that about 65% and 50% of adolescent mothers from study 1 and 2, respectively, had returned to school after giving birth. Overall, the presented rates are similar to those of previous studies, which reported that up to 50% of learners returned to school in the first year after giving birth (Marteleto, Lam, and Ranchhod, 2008), but higher than results from other studies, where only 30% returned (Grant and Hallman, 2008). It is likely that the variability in the

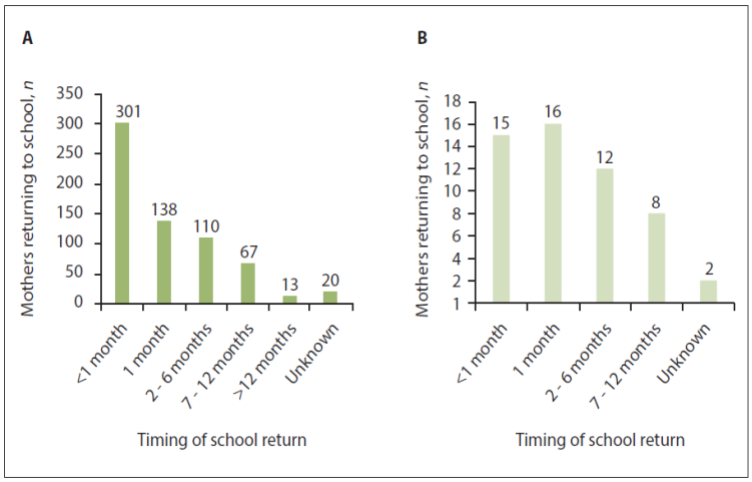



**Figure 24.** Timing of school return for mothers who continued their education after giving birth. (A) Study 1 (*n* = 649); (B) Study 2 (*n* = 53).

proportion of returned mothers across the two studies is partially due to the interviews being completed at different times postpartum. Specifically, participants in study 2 completed interviews at about six months after birth and therefore had less time to return to school than participants in study 1. Therefore, the higher number of returners in study 1 may be due to a number of girls who returned to school during the first few years after giving birth (Ardington et al., 2015; Marteleto, Lam, Ranchhod, 2006).

Our results also indicated a mismatch between recommended timing for readmissions and actual return among SA adolescent mothers. A large proportion of mothers across both studies returned to school within the first two months after birth. Interestingly, this was the case across the two studies despite their differences in terms of study location, follow-up timing and sample size. The observed patterns indicate that school returns may occur much earlier than advised in SA's national policy on pregnant learners, which does not recommend returning to school in the same year that the pregnancy occurred. In line with previous studies (Grant and Hallman, 2008), study 1 also showed that only a very small percentage of mothers returned after the first year postpartum. This finding supports previous research commissioned by the DoE, which highlighted that the proposed two-year leave period may hinder mothers' readmission to school (Panday et al., 2009).

Developing school policies that flexibly promote mothers' rights to education while simultaneously addressing the child's needs is difficult. SA's national policy may attempt to balance both goals, but our results indicate that the policy does not lead to uniform patterns of school return that follow the outlined recommendations. The high proportion of early returners in the two studies discussed above, raises questions about if and how different schools are interpreting and implementing the policy in practice. It is possible that the policy is unknown or partly disregarded by some schools that perceive the recommended timings as ambiguous, overly restrictive or hard to implement. It is also possible that some schools follow the DoE-commissioned research and, as such, enable early re-entry for adolescent mothers (Panday et al., 2009). However, a government policy draft incorporating this research has not yet been made official (Department of Education, 2018).

Our findings point to the particular urgency for policies that are flexible to the needs of adolescents who decide to return to school very soon after childbirth. The high prevalence of early returners in the current sample reinforces previous calls for policy amendments that provide mothers with the flexibility to return to school earlier than recommended in the national policy (Panday et al., 2009). Our results may indicate the level of demand for an updated policy that speaks to girls' realities. A refined policy that considers the timings of return identified in this study may contribute towards increased effectiveness and acceptability among adolescent mothers.

Recent research emphasised the importance of aligning educational policies for adolescent mothers with health policies that protect the needs and development of children (Zweigenthal, Strebel, Hunter-Adams, 2019). SA's Department of Health (DoH) follows the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) recommendations (Wuestefeld, 2013), and advises exclusive breastfeeding during the first six months, with gradual weaning (Department of Health, 2013), irrespective of HIV status. However, recent qualitative research involving 57 South African adolescent mothers indicated low rates of exclusive breastfeeding, despite awareness of its benefits. Even though mothers reported various reasons for introducing mixed feeding early after birth, they indicated that schooling largely precludes exclusive breastfeeding (Zweigenthal et al., 2019).

To ensure that policies affecting adolescent mothers are compatible with one another, the DoH and DoE should work on the development in unison. For instance, it would be intuitive for school policies to recommend a timeframe for school return that is aligned with the six months of recommended exclusive breastfeeding specified in the health policies. Maximising the health and

wellbeing of mother-child dyads and acknowledging the nurturing needs of their children, require policies that not only address questions on school return timings but also outline ways in which the school context can actively support mothers after their return. Given the health benefits of breastfeeding (Victora et al., 2016), policy documents should make recommendations for the way in which schools can facilitate breastfeeding for schoolgoing adolescents who wish to breastfeed. The implementation of similar policies (Department of Education, 2012) that rely on collaborations between the DoH and DoE has proven somewhat challenging (Dibakwane and Peu, 2018; Lenkokile, Hlongwane, and Clapper, 2019; Rasesemola, Matshoge, and Ramukumba, 2019). Therefore, the success of an updated policy for adolescent mothers hinges on the political will and intersectional efforts to formulate clear, realistic, and sustainable implementation processes.

For the development of successful school policies, it is also necessary that future research crystallises additional concrete needs and outcomes of schoolgoing mothers and their children. Building on past research that sheds light on how adolescent mothers navigate schooling, parental responsibilities and nurturing their child (Bhana and Mcambi, 2013; Zweigenthal et al., 2019), further studies should aim to elucidate the motivations and challenges experienced by early returners in particular. To develop social interventions aiming at reintegrating mothers into schools and at increasing breastfeeding uptake among schoolgoing mothers, it is important to identify the factors that contribute to mothers' decision-making in this context. Future research should aim to identify the different routes through which complementary policies from the DoH and DoE could address the factors associated with mixed feeding among adolescent mothers (Zweigenthal et al., 2019), which may interfere with school efforts to support schoolgoing mothers with exclusive

breastfeeding. Lastly, the current findings highlight the need to assess if and how school policies targeting adolescent parents are monitored. Identifying the best ways to monitor the implementation of re-entry policies that promote the right to education is important to achieve educational equity for pregnant teenagers and adolescent mothers.

**Study limitation**

The two studies include several limitations. The cross-sectional nature of both studies precludes insights into the long-term, complex patterns of schooling behaviours. Neither study sought information on the schools' level of implementation of the current learner policy. This means that it is unclear whether or not the decision to re-enter school was guided by the national policy or the recommendations that emerged from research by the Human Sciences Research Council. Lastly, the two presented studies did not assess which breastfeeding practices were in place among the early-returning mothers. It is possible that mothers who returned to school very early decided against breastfeeding, were unaware that breastfeeding would provide benefits, were unable to breastfeed, were HIV-positive and advised not to breastfeed, or managed to breastfeed their child by means of other arrangements (e.g., expressing milk). Knowledge regarding the circumstances surrounding breastfeeding and other nurturing practices is needed to develop policies and programmes to support the realities of young mothers. Finally, our research was restricted to two provinces in SA. Further research with larger samples and in other provinces may increase the generalisability of the findings.

## 5. Conclusion

These are the first studies that report specific timings of return to school for SA adolescent mothers. Our findings highlight the complexity of developing school policies targeting adolescent mothers' return to school. School completion confers long-term benefits (Freudenberg and Ruglis, 2007; Stoner et al., 2007; Sullivan et al., 2011) but returning prematurely could potentially impair child development (Victora et al., 2016) and prolonged breaks can result in permanent dropout (Grant and Hallman, 2008). To maximise the health and wellbeing of adolescent mothers and their children, future policies need to consider these consequences carefully and ensure that recommended timing reflects the best evidence-based practices.

# VII Paper #4: Which factors affect adolescent mothers' school enrolment? A latent class analysis.

This is the fourth empirical paper of the DPhil thesis. In the previous chapters, a variable-centred approach was used to establish relationships between girls' school enrolment during pregnancy (*DPhil Paper 1*) and after birth (*DPhil Paper 2*) and hypothesised correlates. By contrast, this paper deploys a person-centred approach to investigate (homogenous) subgroups of adolescent mothers based on their similarities in family and household-, school-, and community-level variables. Specifically, this paper characterises latent profiles of adolescent mothers and compares probabilities for school enrolment across these identified profiles. This paper is not yet submitted for publication.

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**Statement of Authorship**

I confirm that I completed the majority of the work in this study, including conceptualisation of the methodological approach and execution of all analyses. I co-designed the study measures and drafted the first version of this article. Lucie Cluver and Franziska Meinck contributed to the refinement of the analyses, interpretation of results, and the finalisation of the manuscript.

# Abstract

**Background:** Adolescent mothers' impaired school outcomes are a major concern. However, few studies have investigated if adolescent mothers' school enrolment varies between different subgroups of girls. This study aimed to identify subgroups of adolescent mothers based on their similarities in family and household-, school-, and community-level variables and test associations between subgroup membership and girls' school enrolment. **Methods:** 1,046 adolescent mothers (10-24 years) from rural and urban communities in South Africa's Eastern Cape completed a questionnaire. Using latent class analysis (LCA), we explored emerging latent groups and their relationship to mothers' school enrolment. **Results:** The analyses revealed three distinct groups of adolescent mothers: 1. The '*most disadvantaged*' subgroup experienced multiple risks, including food insecurity, living in informal housing, and lacking positive relationships with their caregiver (39%); 2. A '*less disadvantaged*' subgroup did not experience food insecurities and were exposed to slightly better parenting practises. However, this group still showed high probabilities of residing in informal housing and in communities that expose them to violence (43%); 3. A *'least disadvantaged'* subgroup which was largely unaffected by structural risks whilst receiving the highest levels of good parenting practices from their caregivers (18%). Compared to highly deprived mothers, mothers free from most structural risks showed the highest probability of being enrolled in school (i.e., the probability for school enrolment was 72% for the least deprived mothers and 49% for the most deprived mothers). **Discussion**: It is likely that adolescent mothers' outcomes, including their school enrolment, are not solely determined by individual-level factors. Rather, this study indicates that the household and parenting factors which may function as determinants of an early pregnancy may continue to negatively affect adolescent girls once their baby is born, contributing to the poor outcomes observed within subgroups of mothers. Future

studies should further examine the clusters of individual, structural, and interpersonal factors that affect school enrolment and educational outcomes among adolescent mothers and investigate which interventions or policy changes could address the identified barriers.

## 1. Introduction

Each year 18 million children are born to adolescent mothers, most of which reside in Sub-Saharan Africa (Blum and Gates, 2015; United Nations, 2020b). Adolescent childbearing is associated with adverse health and socioeconomic disadvantage for women and their children (Klein et al., 2015) and account for the majority of maternal deaths of women 15-49 in low-and middle-income countries (Neal et al., 2015).

A prevailing assumption – both in Sub-Saharan Africa and globally – is that adolescent mothers will drop out of school and the lack of qualifications will trap them and their children in cycles of poverty (Eloundou-Enyegue, 2004; Grant and Hallman, 2008; Hofferth, Reid, and Mott, 2001). However, empirical studies estimating the impact of pregnancy on schooling show the substantial impact of pre-pregnancy factors and other disadvantages which, once accounted for, eliminate many of the differences that have been found between adolescent mothers and non-mothers (Geronimus, 2003; Ranchhod et al., 2011). Yet, little is known about the variability of these factors among adolescent mothers and the extent to which they are linked to negative school outcomes within this group.

A small number of U.S.-based studies showed that clusters of individual-level factors assessed during adolescence can predict adult outcomes among adolescent mothers (e.g., Oxford et al.,

2005; 2006). For example, Oxford and colleagues (2005) showed that a subgroup of mothers showing problem behaviours (e.g., delinquency and substance use) during adolescence was more likely to show severe problems during adulthood, indicating that the behavioural patterns that may contribute to an early motherhood in some girls may also predict poor future outcomes. However, adolescent behaviours – including adolescent pregnancy and school behaviours – are not only determined by the individual-level factors but also numerous external influences (Blum et al., 2014; Blum and Gates, 2015). In fact, several systematic reviews support socio-ecological models illustrating that factors which 'push or pull' adolescents out of school (Singh and Mukherjee, 2018), as well as the correlates of adolescent pregnancy, exist on all ecological levels (Chung, Kim, and Lee, 2018; Gunawardena, Fantaye, and Yaya, 2019; Imamura et al., 2007; Kassa et al., 2018; Mmari and Blum, 2009; Pradhan, Wynter, and Fisher, 2015). Drawing on ecological frameworks of adolescence, this paper set out to investigate the family and household-, school-, and community-level patterns that affect school enrolment among adolescent mothers in South Africa.

Studies from low- and middle-income countries, including South Africa, indicate that school dropout and grade failure are associated with structural factors such as poverty (Boyes, Berg, and Cluver, 2017; Fleisch, Shindler, and Perry, 2010; Flisher et al., 2010; Orkin et al., 2014; Watkins et al., 2014), violence (Herrero Romero et al., 2018), and other access variables, such as the distance from school (Singh and Mukherjee, 2018). By contrast, supportive parenting is associated with fewer educational risks amongst children aged 7 to 13 (Sherr et al., 2016) and shown to protect against school delay among adolescents (Herrero Romero et al., 2017). Several structural and parenting risk factors have also consistently been associated with adolescent pregnancy (e.g.,

Gunawardena et al., 2019; Kassa et al., 2018) warranting further investigations into how these correlates, and their combination, affect school enrolment among adolescent mothers.

Hence, the present study aimed to explore how family- and household-, school-, and community-level factors affect school enrolment amongst 1,046 adolescent mothers living in rural and urban South Africa by asking (1) Which subgroups of adolescent mothers can be identified based on family- and household-, school-, and community-level factors? and (2) Is subgroup membership related to adolescent mothers' school enrolment?

## 2. Method

### 2.1 Participants and procedures

Adolescent mothers ($N$ = 1,046) aged 10 to 24 were recruited from urban and rural locations of two health districts in the Eastern Cape, South Africa between 2017 and 2019. Participants meeting the following inclusion criteria were recruited 1. Female sex; 2. Aged 10 – 24 years at the time of interviewing; 3. Gave birth during adolescence (i.e., below the age of 19); 4. Resided within one of the two health districts; 5. Consented to participate. Informed consent was sought from adolescents who were above the age of 18 and assent was provided by underage participants in addition to consent from their caregiver. All consent forms and questionnaires were available in English and the local language, Xhosa.

Ethical clearance was provided by the Universities of Oxford (R48876/RE001; R48876/RE002) and Cape Town (HREC REF: 226/2017) and by the provincial government departments of Health, Basic Education, and Social Development. Participants were interviewed in private spaces in and

around their own home but they were given the option to conduct the interview in a local restaurant if the privacy in the home was compromised.

Assisted by trained interviewers, adolescents completed two complementary questionnaires, each taking about 60 minutes. Confidentiality was maintained throughout the study except where participants requested help or were at risk of significant harm. In this study, 25 referrals were made to health or counselling services with follow-up support. There were no monetary incentives, but all participants received a certificate, refreshments, and a participant pack containing useful items (e.g., washcloth and soap).

### 2.2 Measures

*School enrolment* assessed if the participant was enrolled in school (0: not enrolled; 1: enrolled) at the time of participating in the study.

**Family- and household-level factors.** *Food insecurity* which was determined by one item from the National Food Consumption Survey (Labadarios et al., 2003) to assess insufficient food for more than two days in the past week (0: Food secure; 1: Food insecure). *Informal housing* (i.e., in shacks or living in the street) was assessed by one item from the South African census (South African Census, 2001) (0: Formal housing; 1: Informal housing). *Co-residency with a caregiver* was assessed by one item (0: No; 1: Yes). Table 19 shows the three measures to assess parenting. That is, two subscales from the Alabama Parenting Questionnaire (Elgar, Waschbusch, Dadds, and Sigvaldason, 2007) were used to measure *positive parenting* (i.e., six items on praise, positive reinforcement, and showing affection) and *parental/caregiver monitoring* (i.e., ten items on the

caregivers' oversight of the adolescents' whereabouts, activities, friends and adherence to household rules). The *communication between the adolescent and their caregiver* was assessed using five items from the Child-Parent Communication Apprehension Scale (Lucchetti, Powers, and Love, 2002) which assesses how comfortable the adolescent is to speak to their caregiver about their problems or worries. In addition, items from the UNICEF Measures for national-level monitoring of orphans and other vulnerable children were used to assess physical and emotional abuse (Snider and Dawes, 2006). Past year exposure to *physical abuse* by a caregiver was assessed by indicating having experienced any of the following: Being hit with an item or physically hurt through slapping, punching, hitting, or pulling hair (0: No caregiver violence; 1: Exposed to caregiver violence). Past year exposure to *emotional abuse* by a caregiver was assessed by having experienced any insults, threats, being kicked out of the house, or withholding a meal as punishment (0: Not violence exposed; 1: Violence exposed).

**School-level factors.** *Distance from school* was assessed with one item which was recoded to reflect if participants travelled longer than the sample mean to get to school (0: ≤ 30 min; 1: >30 min.).

**Community-level factors.** *Community violence* exposure in the previous year was assessed with the Child Exposure to Community Violence Checklist (Martinez and Richters, 1993), adapted to the four most common community traumas for children in South Africa (SAPS, 2005), coded as victimisation by any of the following: Assault, robbery, and witnessing of stabbings and/or shootings (0: Not violence exposed; 1: Violence exposed).

**Control variables** were participants' age, having repeated grade at the onset of the pregnancy, number of children of the adolescent mother, rural residency, and daycare use.

**Table 19.** Overview of the scales and items used to assess parenting in the HEY BABY study.

| Measures | Sum Scale (# Items) | Items | Items Response Codes | Scale Score Range |
|---|---|---|---|---|
| *Positive parenting* | APQ<br>(6 items) | 1. Your caregiver tells you that you have done something well.<br>2. Your caregiver rewards you or gives something extra to you for behaving well.<br>3. Your caregiver compliments you when you have done something well.<br>4. Your caregiver praises you for behaving well.<br>5. Your caregiver hugs or kisses you when you have done something well.<br>6. Your caregiver tells you that he/she likes it when you help around the house. | 0= Never<br>1= Almost never<br>2= Sometimes<br>3=Often<br>4= Always | 0-24 |
| *Parental/Caregiver monitoring* | APQ<br>(10 items; all reversed) | 1. You fail to leave a note or let your caregiver know where you are going.<br>2. You stay out in the evening past the time you are supposed to be home.<br>3. Your caregiver does not know the friends you are with.<br>4. You go out without a set time to be home.<br>5. You go out after dark without an adult with you.<br>6. Your caregiver gets so busy that he/she forgets where you are and what you are doing.<br>7. You stay out later than you are supposed to and your caregiver doesn't know it.<br>8. Your caregiver leaves the house and doesn't tell you where he/she is going.<br>9. You come home from school more than an hour past the time your caregiver expects you to be home.<br>10. You are at home without an adult being with you. | 0= Never<br>1= Almost never<br>2= Sometimes<br>3=Often<br>4= Always | 0-40 |
| *Caregiver communication* | C-PCAS<br>(5 items) | 1. When I talk to my parent/caregiver, I am anxious and careful about what I say (reverse coded).<br>2. I have no fear telling my parents/caregiver exactly how I feel.<br>3. I have no fear discussing problems with my parent/caregiver.<br>4. I am relaxed with my parent/caregiver, I can talk to them openly.<br>5. I am comfortable talking about sex with my parent/caregiver. | 0= Never<br>1= Almost never<br>2= Sometimes<br>3=Often<br>4= Always | 0-20 |

### 2.3 Statistical analysis

The final analyses were based on 887 participants. Participants were eligible for inclusion in the analysis if they had *not* already completed school at the onset of the pregnancy ($n$ = 49 excluded) or at the time of the study ($n$ = 50 excluded). In addition, thirteen participants were excluded because they completed early versions of the questionnaire that did not include relevant questions on schooling, nine participants were excluded because they were older than 19 at the onset of their pregnancy, thirty eight participants were excluded because it was impossible to determine if they were grade delayed at the onset of the pregnancy, and one participant was excluded due to over 20% missing data. After these exclusions, missing data were less than 2% on all variables and thus no imputation was conducted.

All analyses were completed in Stata 15.1 and Mplus 7.0. Latent Class Analysis (LCA) was used to explore distinct patterns of exposure to family- and household-, school-, and community-level variables in the sample. In order to compare school enrolment across profiles, a one-step 'distal-as-indicator' model was applied (Lanza, Tan, and Bray, 2013). Typically, researchers have used a two-step 'classify-analyse strategy' to investigate the relationship between latent variables and a distal outcome. In the first step, latent classes are identified and in the second step class membership is used to predict the distal outcome. However, novel statistical approaches have shown that a one-step approach produces significantly less biased estimates of the effect compared to two-step approaches, as well as being a more consistent model (as n increases, bias is reduced; Lanza et al., 2013). Hence, we followed the recommended approach of simultaneously modelling the latent class variable and the associations between the latent profiles and school enrolment (see Figure 25). With a view to identifying factors associated with individual profile membership,

probabilistic predictors (age, grade repetition at the onset of the pregnancy, the adolescent mothers' number of children, and childcare use) were included in the model via the post-hoc AUXILIARY option in MPlus.

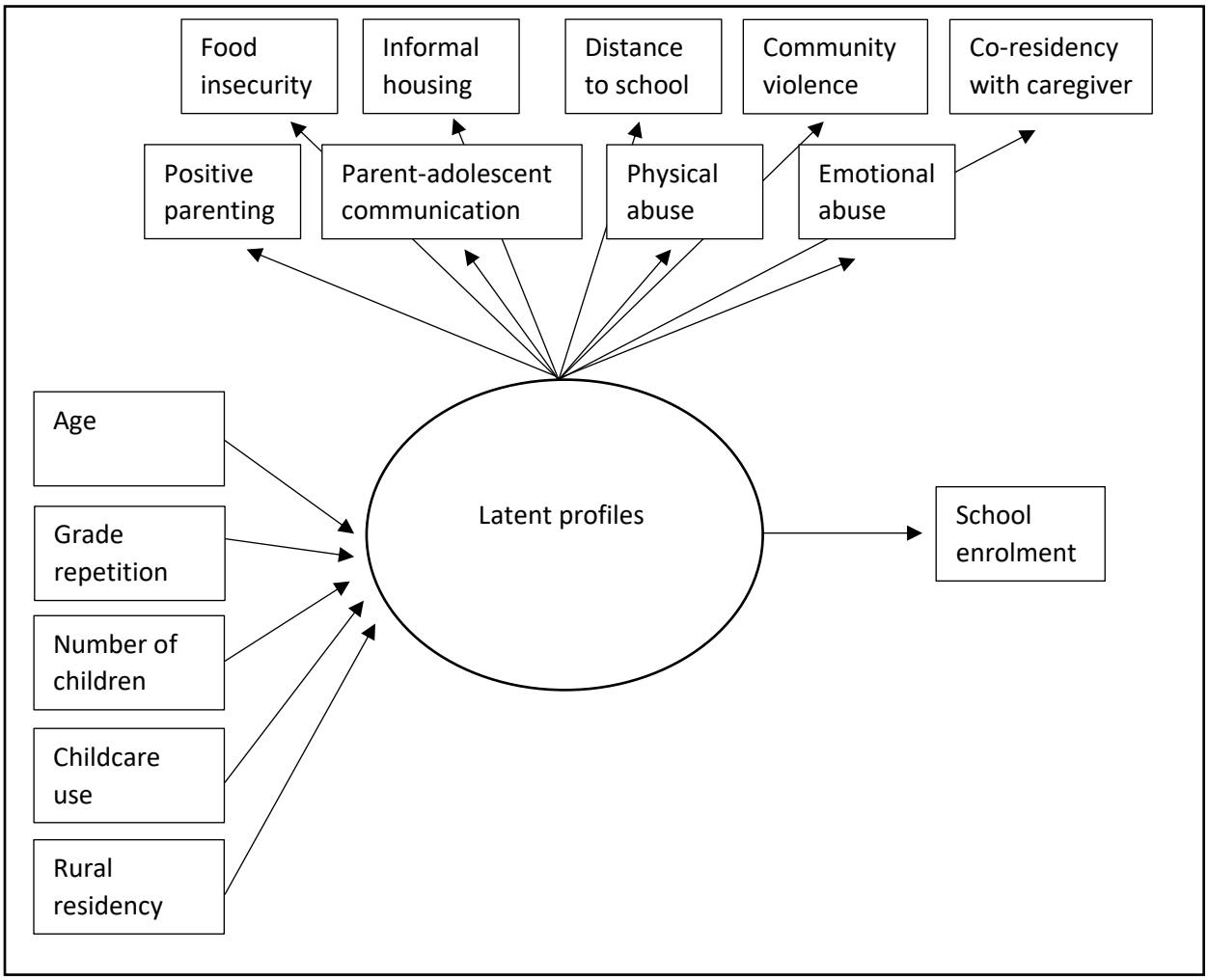



**Figure 35.** Final one-step 'distal as indicator' model.

The number of latent classes was determined iteratively. After conducting a two-profile LCA, successive LCAs estimating three to five profiles were estimated in order to fully test for multiple homogenous groups (Nylund and Muthen, 2007). The decision on the final number of classes was

based on the interpretability of the results, meaningfulness of classes, and five indices to estimate relative model fit.

First, information criteria Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) were examined, where lower values indicate a better model, although sometimes minimum values are not reached (Masyn, 2013; Nylund and Muthen, 2007). Second, the adjusted Lo-Mendell-Rubin Likelihood Ratio Test (ALMR- LR) of goodness of fit which points at the 'best' model with the smallest number of classes that is not significantly improved by the addition of another class (Masyn, 2013). Third, the bootstrap likelihood test which uses the bootstrapped samples. Lastly, classification quality was assessed using relative entropy, with higher values being superior (Masyn, 2013).

## 3. Results

Table 20 displays the characteristics of the sample, showing relatively high levels of socioeconomic disadvantage and large variability in terms of schooling. About a quarter of the participants indicated not having enough food in the house in the previous week (23.6%) and 22.4% indicated living in informal housing.

About 60% of adolescent mothers were enrolled in school at the time of the interview. Across the sample, adolescents had achieved an average of 9.4 grades (*SD* = 1.53). 61.8% of adolescent girls had ever repeated a grade and 59.4% were grade delayed at the onset of the pregnancy. The vast majority of participants (91.8%) continued to reside with their caregiver. The mean for girls' receipt of positive parenting was 17.09 (scale ranged from 0 to 24), exposure to caregiver

monitoring was 32.15 (scale ranges from 0 to 40), and reported caregiver-adolescent communication was 12.70 (scale ranges from 0 to 20).

**LCA model**

The results of the LCAs with 2-5 latent classes are displayed in Table 21. In terms of information and classification criteria, models with greater number of profiles showed smaller values for AIC and BIC, and higher values of entropy. Upon inspection of the interpretability of the models, the solution with three latent classes was meaningful and offers the greatest parsimony. Even though the ALMR test indicated that models with more latent classes offer potential improvements over the three-profile solution, an examination of the proposed classes showed that these models do not offer meaningful advantages.

The LCA showed that there were three heterogeneous profiles of adolescents – differentiated according to their exposure to family- and household-, school-, and community-level factors. Table 22 shows the difference in estimated probabilities and means of all variables across the three profiles. Adolescents in latent class I can be considered to belong to the ***'Most disadvantaged'*** (*n* = 352, 39%) group of mothers, of which 50% experienced food insecurity and 31% lived in informal housing. In addition, this group showed the highest proportion of mothers' travelling longer than 30 minutes to get to school (34%). Participants in this group also experienced the lowest mean scores of positive parenting (12.45; scale ranged from 0 to 24) and parent-adolescent communication (10.41; scale ranged from 0 to 20).

Adolescents in latent class II can be considered belonging to the ***'Less disadvantaged'*** (*n* = 377, 43%) group of mothers, of which only 7% experienced food insecurity, although 24% of this group lived in informal housing. In addition, 40% had been exposed to community violence in the previous year. Adolescents in this group also received the highest mean scores of positive parenting (21.54; scale ranges from 0 to 24). Compared to the 'Most disadvantaged' group, this group also indicated slightly higher scores for parent-adolescent communication (12.39; scale ranges from 0 to 20) and slightly lower scores for caregiver monitoring (30.33; scale ranges from 0 to 40).

Adolescents in latent class III can be considered belonging to the ***'Least disadvantaged'*** (*n* = 158, 18%) group of mothers, of which only 1% resided in informal housing and 5% experienced food insecurity. This group also showed the highest mean scores for parent-adolescent communication (18.43; scale ranges from 0 to 20) and caregiver monitoring (36.95; scale ranges from 0 to 40).[11]

[11] Appendix 5.3 provides the statistical significance tests for comparisons of all latent classes.

**Table 20.** Summary of descriptive statistics for the sample of adolescent mothers from the Eastern Cape, South Africa.

| | Total sample (*n* = 887) |
|---|---|
| Characteristic | *n* (%); *M (SD)* |
| **Demographics** | |
| Adolescent age (years) | 18.04 |
| Age at the onset of the pregnancy (years) | 16.46 |
| Adolescent mothers with more than one child | 70 (7.9%) |
| Rural residency | 256 (28.9%) |
| **Individual-level factors** | |
| School enrolment | 529 (59.6%) |
| Highest grade achieved | 9.40 (1.53) |
| Ever repeated a grade | 548 (61.8%) |
| Grade delayed at the onset of the pregnancy | 527 (59.4%) |
| **Family and household-level factors** | |
| Food insecurity | 209 (23.6%) |
| Informal housing | 199 (22.4%) |
| Co-residency with a caregiver | 815 (91.8%) |
| Positive parenting | 17.09 (5.29) |
| Parental/Caregiver monitoring | 32.15 (8.89) |
| Caregiver – adolescent communication | 12.70 (3.78) |
| Past year physical abuse | 21 (2.4%) |
| Past year emotional abuse | 65 (7.3%) |
| **School-level factors** | |
| Distance from school (> 30 min.) | 240 (27.1%) |
| **Community-level factors** | |
| Past year community violence exposure | 195 (21.9%) |

**Table 21.** Statistical criteria and profile sizes for LCA estimating 2-5 latent profiles (*n*= 887).

| Number of profiles | AIC | BIC | Entropy | ALMR, p-value | BLRT, p-value |
|---|---|---|---|---|---|
| 2 | 23731.841 | 23866.001 | 0.69 | < .001 | < .001 |
| **3** | **23290.840** | **23487.142** | **0.83** | **< .001** | **< .001** |
| 4 | 22997.244 | 23255.788 | 0.85 | < .001 | < .001 |
| 5 | 22755.627 | 23076.413 | 0.88 | < .001 | < .001 |

| | Profile 1 | Profile 2 | Profile 3 | Profile 4 | Profile 5 |
|---|---|---|---|---|---|
| 2 | 274 (31%) | 613 (69%) | | | |
| 3 | 352 (39%) | 377 (43%) | 158 (18%) | | |
| 4 | 341 (38%) | 347 (39%) | 40 (4%) | 159 (18%) | |
| 5 | 99 (11%) | 246 (28%) | 158 (18%) | 40 (4%) | 344 (39%) |

**Table 22.** Probabilities and mean scores for family and household-, school-, and community-level factors, respectively, by profile membership.

| | **CLASS I (39%) 'Most disadvantaged – Poor home, poor community'** | **CLASS II (43%) 'Less disadvantaged – Good home, poor and violent community'** | **CLASS III (18%) 'Least disadvantaged – Good home, good community'** |
|---|---|---|---|
| Characteristic | *Probability*; *M* | *Probability*; *M* | *Probability*; *M* |
| **Family-and household-level factors** | | | |
| Food insecurity | 0.5 | 0.07 | 0.05 |
| Informal housing | 0.31 | 0.24 | 0.01 |
| Co-residency with a caregiver | 0.9 | 0.9 | 0.9 |
| Positive parenting | 12.45 | 21.54 | 16.62 |
| Parental/Caregiver – adolescent communication | 10.41 | 12.39 | 18.43 |
| Parental/Caregiver monitoring | 32.00 | 30.33 | 36.95 |
| Past year physical abuse | 0.04 | 0.03 | 0 |
| Past year emotional abuse | 0.07 | 0.11 | 0 |
| **School-level factors** | | | |
| Distance from school (> 30 min.) | 0.34 | 0.19 | 0.29 |
| **Community-level factors** | | | |
| Past year community violence exposure | 0.13 | 0.40 | 0 |
| School enrolment | 0.49 | 0.64 | 0.72 |

## 4. Discussion

As education is a social determinant of health that is amenable to intervention after a girl gives birth, identifying the correlates of adolescent mothers' school enrolment remains important. This article contributes to our knowledge on the school enrolment of South African adolescent mothers – a population which likely experiences numerous obstacles to their pursuit of education. To our knowledge, this is the first study that has focussed on structural and parenting factors and enrolment, and applied a person-centred approach to identify heterogeneous subgroups of these adolescent mothers (including younger and older adolescents) in South Africa.

Despite the overall risks of adolescents in the sample to experience structural and social disadvantages, our results suggest heterogeneity of the tested factors among adolescent mothers. In particular, the study supports that negative school outcomes among adolescent mothers, which are often attributed to personality 'flaws', such as lack of interest and success in school, are also linked to variability in household-, community-, and parenting-level factors. Overall, we chose to examine several external 'push and pull' correlates that influence poor school outcomes (Singh and Mukherjee, 2018) and have also been identified as significant covariates of early motherhood (Mchunu et al., 2012). For instance, we expected high levels of severe adversity in our sample (over 20% indicated lacking food in the previous week or informal housing), given the strong association between poverty and adolescent pregnancy found in previous reviews (Gunawardena et al., 2019; Mchunu, 2012). In addition, caregiver behaviours and parenting practices – which could have contributed to an early pregnancy – remained important for girls in our sample. That is, the majority of adolescent mothers continued to live with their own caregiver (91.6%), even though many had already entered the years of late adolescence.

It is noteworthy that the present latent class analysis did *not* yield distinct profiles for exposure to structural disadvantages and the parenting variables, respectively. Rather, the emerging profiles suggest a complex relationship between some structural factors and the parenting that adolescent mothers receive from their caregivers. Namely, three distinct groups of adolescents were observed: First, adolescent mothers who are '*most disadvantaged'* (39%) and show high probability to reside in households that struggle economically and experience food insecurity, and lack exposure to positive parenting practices and good communication with their caregiver. Second, mothers who may be slightly '*less disadvantaged'* (43%) as they show lower probabilities to experience food insecurity despite high probabilities to reside in poor neighbourhoods which are characterised by informal housing and neighbourhood violence. At the same time, mothers in this subgroup showed higher probabilities to experience good parenting from their caregivers, particularly positive parenting. Third, adolescent mothers who were '*least disadvantaged'* (18%) because they showed low probabilities to experience extreme forms of economic deprivation whilst receiving the highest levels of caregiver monitoring and adolescent-caregiver communication.

Overall, our results highlight that most adolescent mothers show high probability for exposure to poverty, indicated by their reports of food insecurity and living in informal housing. We expected to find heightened levels of poverty in the sample of young mothers because socio-economic marginalisation is the main determinants of early and unintended pregnancy around the world (Gunawardena et al., 2019; Imamura et al., 2007; Pradhan, Wynter, and Fisher, 2015). In South Africa, several studies have investigated the relationship between poverty and adolescent pregnancies and identified pathways via sexual risk behaviours (Brook et al., 2006) or transactional

relationships (Cluver et al., 2011; Pascoe et al., 2015; Weiser et al., 2007) which, in turn, have shown strong independent associated with adolescent pregnancies in other Sub-Saharan African countries (Austrian et al., 2019).

Further, the results show a complex relationship between poverty and parenting. Specifically, adolescent mothers in the '*less disadvantaged'* latent class received the highest levels of positive parenting, even though girls in this group still had a high probability to live in families with unstable financial situations. From our analyses, it seems possible that particularly severe forms of poverty, those characterised by food insecurity, interfere with certain parenting practices. Recent studies from high-income countries showed that even within families who would be classified as low-income, disparate gradients of poverty may explain different parenting behaviours (Cooper, 2020). Parents from household with food insecurity may be most concerned with meeting their families' physical needs (Lareau et al., 2003) which could explain some of the differences in positive parenting and caregiver/child communication between the *'most disadvantaged'* and *'less disadvantaged'* latent classes.

## Latent classes and school enrolment

The overall probability of being enrolled in school was only about 50% for the majority of mothers in the present sample (i.e., for 82% of the sample; Class I and Class II combined). Whilst this appears low, this percentage needs to be understood in terms of general dropout and school discontinuation rates in South Africa. Enrolment rates in South Africa sharply decline after grade 9 when compulsory enrolment ends (e.g., Timaeus, Simelane, and Letsoalo, 2012) and only about

40% of children starting grade 1 will successfully complete the final grade of high school (Spaull, 2019).

Our results showed the relationship between the identified subgroups of adolescent mothers and school enrolment. Namely, some important predictors of adolescent motherhood – poverty and poor parenting – may continue to affect adolescent girls' lives after the pregnancy and contribute towards some of the negative outcomes observed in this group, such as a lower probability of being enrolled in school. First, the more adolescent mothers were affected by poverty, the less likely they were to be enrolled in school. This finding adds to the limited evidence on experiences of poverty among adolescent mothers by showing how different levels of poverty could impact their school enrolment. Even though adolescent girls were likely affected by multiple disadvantages associated with heightened levels of poverty, such as poor quality of education, our results indicate differences between extreme forms of poverty that affect the household (i.e., hunger) and community-level poverty. Compared to the '*most disadvantaged'* mothers, the '*less disadvantaged'* group showed a 15% higher probability of being enrolled in school (i.e., a probability of 49% versus 64%, respectively; see Table 22). Along with lower levels of extreme poverty, adolescent mothers in the '*less disadvantaged'* latent class also received much better parenting and it is not clear if it is the absence of severe poverty, better parenting, or a combination of both that underlies the higher association with school enrolment.

By contrast, approximately 20% of adolescent mothers who were *not* affected by severe poverty and received the highest levels of parental monitoring and good adolescent-caregiver communication showed a 72% probability of being enrolled in school. Again, in light of the national decline in enrolment rates that is observed throughout adolescents' secondary schooling,

these rates are a promising indicator of potential sources of support that strengthen young mothers' chances to remain enrolled in school. Namely, the present findings suggest that services and interventions which alleviate severe poverty and strengthen family-relationships (either separately or combined) could be a focus for future research to assess their impact on young mothers school enrolment.

Overall, this study suggests that fully understanding young mothers' short-term and longer-term outcomes, including school outcomes, requires knowledge beyond girls' behavioural or personality characteristics. Future explorations of different subgroups of adolescent mothers, which share similarities on a set of variables, and their respective relationship with school progression may help to better understand who requires particular support to successfully complete their education. Similarly, further investigations into the risk factors that cluster together within distinct groups of adolescent mothers may enable the development of interventions that reduce the risk for school dropout through simultaneously addressing multiple risk factors within a subgroup. For instance, the present study suggests that addressing food insecurity in households with adolescent mothers in combination with targeted support for the adolescents' caregiver to strengthen family relationships could be more effective than addressing these potential risk factors in isolation.

This study has several limitations. First, our measures of poverty can only be interpreted as an indicator of greatest disadvantage in an already disadvantaged setting. That is, even adolescents who do not live in informal housing or suffer from food insecurity are likely subjected to other, perhaps less extreme, disadvantages due to the recruitment from largely low socioeconomic

communities. Exposure to economic disadvantages is likely compounded with other risks (including low parental education and attending low-resourced schools) that are associated with school dropout in South Africa. These factors may have further contributed to an accumulated educational risk over time. The present study attempted to account for the impact of these factors by controlling for impaired school progression (i.e., grade delay) at the onset of the pregnancy. However, it would have been useful to include other school-level variables that could affect girls' school enrolment, such as violence exposure from fellow students or teachers. Second, the present study only examined three forms of parenting but did not assess other caregiver behaviours which also influence early pregnancy and schooling. For instance, parents' intention to instil confidence, build self-esteem, or promote self-efficacy may be relevant caregiver-factors for further study. Third, this study relies on self-report which is subject to recall and social desirability bias. We aimed to reduce recall biases by asking about exposure of violence in the previous month, which is a reasonably recent and offers a limited period of time for adolescence to recall (Willoughby, Desrocher, Levine, and Rovet, 2012). Even though the reported rates of physical and emotional abuse were lower than what was expected from previous studies in this area, underreporting due to discomfort was controlled by limiting interaction with research assistants through the use of audio computer-assisted self-interviewing which allowed adolescents to record their answers to these sensitive questions. Fourth, the cross-sectional nature of this study precludes an understanding of causality between subgroup membership and school enrolment which should be examined through future longitudinal research. Fifth, the generalisability of our results and emerged latent classes will need to be tested by future studies. In addition, future studies will benefit from investigating the variables in our analyses in addition to other country- and context-

specific variables which affect adolescent pregnancies and schooling in Sub Saharan Africa, such as child marriage.

## 5. Conclusion

This study showed that the structural and social factors – each showing individual associations with early motherhood – may cluster within distinct subgroups of mothers, rendering some mothers more vulnerable to disrupted schooling than others. Therefore, it is possible that the risk factors which select some girls into early motherhood continue to affect them after the child is born and, at least partly, explain some of the poor outcomes frequently associated with young motherhood. Specifically, our results suggest that combinations of disadvantages experienced in the home and in the community may interfere with adolescent mothers' school enrolment. It follows that young mothers' continued enrolment in school could not only require reducing financial stressors but also improving parent-adolescent relationships. Future research will be able to build on these findings to further disentangle which structural and interpersonal factors co-occur within adolescent mothers, and assess how these are related to individual-level measures which were the focus of prior research in this area. This may include exploration of the numerous external forces and peer influences that young people's behaviour is typically vulnerable to. Gaining an understanding of these 'risk clusters' may further elucidate how interventions can be best tailored to support schooling for the most vulnerable subgroups of adolescent mothers.

*"I would like to say [to other adolescent parents] that just because you have a kid, it's not the end of the road. You are young and still you've got a chance to accomplish your dreams".*

(Adolescent mother, pregnant aged 17)

# VIII Discussion

## 1. Overview of DPhil findings

The main objective of this DPhil thesis was to examine the factors associated with adolescent girls' schooling as they transition into motherhood in South Africa. Specifically, the following four aims were addressed, each resulting in a stand-alone paper:

1. Estimate the associations between school withdrawal during pregnancy and hypothesised individual-, family-and household-level, and school-level factors; In addition, examine how the identified factors affect school discontinuation patterns throughout the pregnancy period (*DPhil Paper 1*).

2. Estimate the association between the return to school after birth and hypothesised individual-level, family-and household-level, and community-level correlates, and examine the mediating mechanisms through which economic hardship impacts the return to school (*DPhil Paper 2*).

3. Assess the timing of adolescent mothers' return to school after birth and discuss them in light of the recommendations outlined in South Africa's current national policy (*DPhil Paper 3*).

4. Identify subgroups of adolescent mothers based on family- and household-, school-, and community-level factors and test whether subgroup membership is related to adolescent mothers' school enrolment (*DPhil Paper 4*).

The empirical findings reported in this thesis illustrate the complex pathways of girls' school enrolment at different times during the pregnancy and thereafter, and the variety of factors that shape these pathways. The most prominent – and unexpected – finding of this thesis is that most mothers stayed attached to their schools after the pregnancy occurred. Evidence from this thesis thereby deconstructs opinions that most adolescent mothers are unmotivated, have no interest in continuing their education, or that only academically weak students choose motherhood as an alternative pathway in life. Rather, of all girls who were enrolled in school at the beginning of their pregnancy, 74% continued schooling throughout their pregnancy, 69.5% returned to school at some point after birth (with the prospect that additional non-returned mothers will go back to school once their children are a bit older), and almost 60% of girls who had not yet completed high school continued to be enrolled in school when they participated in this study.

In this DPhil thesis, the candidate first showed that adolescent mothers' withdrawal from school over the course of the pregnancy was strongly associated with girls' grade delay prior to the pregnancy. In addition, school withdrawal was associated with several factors which could constitute stressors that interfere with pregnant girls' schooling, including household poverty, no intentions or desire to get pregnant, and lacking support or involvement of their own caregiver during the pregnancy period. Subsequently, the candidate shifted focus from school enrolment during pregnancy to the girls' postpartum return to school and showed that, in addition to girls' school performance *before* the pregnancy, their school enrolment *during* pregnancy also affects the return to school. Further, girls' postpartum return to school was also significantly correlated with more access to basic necessities, the use of formal childcare and available childcare in the family, and not exclusively breastfeeding. In a separate paper, the candidate investigated when

adolescent mothers return to school after birth. Here, the study – pooled with results from another study undertaken in South Africa – indicated that the majority of mothers who returned to school did so within the first two months postpartum. This highlights that a large proportion of mothers return to school much earlier than advised in South Africa's current national policy for school-going girls. Lastly, the candidate explored latent classes among adolescent mothers and their relationship to school enrolment, showing that schooling is not only associated with individual-level factors but also clusters of structural and parenting factors.

In the following section, the overarching findings from this thesis will be discussed, categorised into three themes: 1) Continuation versus turning points - The link between girls' schooling before, during, and after pregnancy, 2) The barriers to school enrolment throughout pregnancy and motherhood, and 3) Testing multiservice support packages for South African adolescent mothers. Subsequently, the candidate will reflect on the strengths and limitations of this DPhil project before discussing implications for future research and policy. Finally, the candidate will provide a summary of dissemination strategies deployed as part of this DPhil project, and an overall conclusion.

### 1.1 Continuation versus turning points - The link between girls' schooling before, during, and after pregnancy

One of the key issues in this area of research concerns the question of whether or not adolescent mothers who do not complete their education would have dropped out of school even if they had delayed childbearing (see Geronimus, 2003). In this view, there is continuity in girls' school trajectories whereby a history of poor school performance impairs subsequent educational outcomes, irrespective of a pregnancy. On the one hand, the present DPhil findings offer support

for life course models which posit that behaviours, such as school enrolment or dropout, at any given point in time are heavily influenced by the trajectories and patterns of behaviour that led up to that point (e.g., Rumberger, 2011). For example, the present study showed that girls' grade delay at the beginning of the pregnancy impacted their withdrawal from school during the pregnancy and the return to school after birth, respectively. At the same time, girls' withdrawal from school during pregnancy was associated with their school return postpartum. In this context, an early pregnancy may accelerate the process of dropping out of school for girls who are already struggling to perform well. Overall, these findings support longitudinal evidence on school trajectories of *all* South African adolescents (i.e., not just pregnant girls and young mothers) which indicate that not being able to keep pace in school is a significant determinant of who drops out (e.g., Branson et al., 2014).

On the other hand, much of the counterfactual thinking about young mothers' schooling (i.e., the question of whether or not adolescent girls who experience an early pregnancy would have discontinued school prematurely even if they had *not* had a child during adolescence) emerged from studies which compared adolescent mothers with their female counterparts who had delayed childbearing. These studies are very different from the present research which was focussed on a sample entirely composed of adolescent girls with children. Namely, in the context of the present study, one may argue that – from a life course perspective – it is altogether unexpected that girls with an impeccable school history would conceive a child during the adolescent years. That is, half of the mothers in our sample showed seemingly unhindered educational advances as they reported not having repeated any grades. Typically, higher educational attainment increases girls' human capital and strengthens their focus on future goals. As a result, the perceived benefits of

childbearing are reduced which, in turn, is thought to decrease the risks for early pregnancies (Becker, 1985; Hayford et al., 2016). In fact, previous empirical evidence from South Africa showed that girls whose school history is characterised by poor performance and dropout are much more likely to experience a pregnancy during adolescence (Grant and Hallman, 2003; Manlove, 1998; Rosenberg et al., 2015; Stoner et al., 2019). Some researchers interpreted these findings to suggest that girls who are either not invested in their education or struggle to perform well academically may conceive to initiate an 'alternative life course' (Geronimus 1991, 2004; Preston-Wythe and Zondi 1991, 1992). Yet, the present findings highlight that many pregnant girls do not show any precursors to negative school outcomes, pointing to the plethora of other factors that potentially determine an early pregnancy other than a history of poor school performance.

In summary, the present study does not support the stance that all adolescent mothers are equally likely to 'drop out of school anyway' due to the poor pre-pregnancy performances that select many of them into early childbearing. By contrast, it is remarkable that many girls in the present sample appear to have followed a rather smooth progression through South Africa's highly challenging school system which is not only under-resourced but also characterised by poor quality of education and high rates of grade repetition (e.g., Spaull, 2013).

In the introductory chapters of this thesis, the candidate discussed the 'Stress Process, Life course' framework (Dupéré et al., 2015) which includes adolescent motherhood as a potential 'turning point' which could 1) Reinforce longer-term life trajectories leading to negative school outcomes or 2) Derail educational trajectories even for adolescent girls whose pathways would not predict a

school dropout. The present study offers support for the former (e.g., adolescent mothers with a history of poor school performance were more likely to discontinue school during pregnancy) and the latter (e.g., adolescent mothers' access to childcare improved the return to school even after controlling for a history of poor school performance). However, neither the model by Dupéré and colleagues (2015), nor any other comparable models that aim to explain school outcomes, include adolescent pregnancy and its determining factors (including school history). Based on the previous

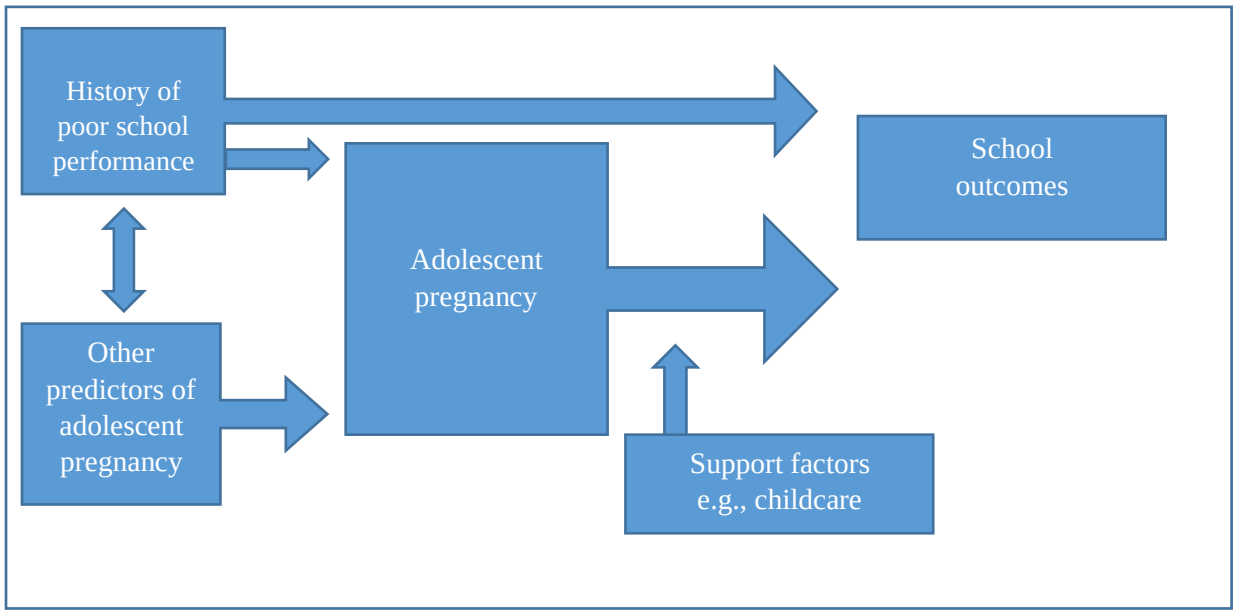



**Figure 26.** Adapted framework of Dupéré et al. (2015) 'Stress Process, Life course' framework to study adolescent mothers' schooling.

summary of our findings, future studies may be able to unpack these pathways in much further detail using an adapted framework (see Figure 26 for a suggestion) which specifically investigates school pathways among adolescent mothers.

### 1.2 The barriers to school enrolment throughout pregnancy and motherhood in the Eastern Cape

The present study aimed to explore which barriers to school enrolment exist within different layers of adolescent mothers' socioecological systems. Socioecological frameworks – like the one used for this study (see p.73) – view development as a product of mutual interaction between the adolescent and various nested layers of their environment (Rumberger and Lim, 2008). Generally speaking, this framework appeals as a conceptual tool for guiding interventions and it clearly provided a useful scaffolding for this thesis which found significant associations of adolescent mothers' schooling within several layers of the ecological model:

On the *individual level,* girls' pregnancy intentions and exclusive breastfeeding were related to school enrolment. On the *social level* (i.e., including household, parent, caregiver, and partner variables), the results showed that girls' school enrolment was not only associated with receiving information on the pregnancy from their caregiver but the exposure to certain forms of good parenting also enhanced the probability of being enrolled in school. On the *community level*, schooling was associated with neighbourhood violence. Lastly, *structural level* factors, such as experiencing severe poverty, decreased the probability of being enrolled in school. The study also showed that a significant correlate of schooling at any point in time was the school performance and enrolment at previous stages, supporting an ecological model which also includes the *chronosystem* that reflects intertwined processes and outcomes over time (e.g., Bronfenbrenner and Ceci, 1994).

A general objection to results from studies deploying ecological frameworks is that they do not yield narrow and specific enough recommendations for policy and practice (Eriksson, Ghazinour, and Hammarstroem, 2018). Indeed, the factors associated with school enrolment identified in this thesis vary in the extent to which they offer clear practical guidance for further research. For instance, the empirical analyses include several proxy-variables (e.g., the information about the pregnancy that adolescent mothers received from their caregiver or their school, respectively, may reflect sources of various forms of social support) as well as measures that may be subject to reverse causality (e.g., the relationship between exclusive breastfeeding practises and the return to school after birth could show bi-directionality). Even though the present study has been deliberately careful not to jump to unwarranted policy recommendations, it did present multiple suggestions for further exploration of the barriers to education based on the associations found in the three empirical chapters. These variables will require much further testing to unpack the proposed suggestions on how they exert their effects on girls' schooling. In the following, the candidate will discuss one specific key barrier to schooling that was identified, childcare, followed by a discussion on the possible approaches to addressing this barrier within South African populations.

### *1.2.1.* Daycare centres

The second empirical paper indicated that young mothers who used daycare centres showed over four times the odds of returning to school after birth compared to mothers who do not make use formal daycare. This finding is not surprising given that early research on adolescent mothers in the U.S. already remarked that "one of the biggest barriers to school completion for female student parents is the relative lack of affordable, appropriate, and conveniently located childcare

programmes" (Furstenberg, 1976). As indicated by a New York Times article from 1982, specific school models which cater to the educational needs of adolescent mothers and allow them to bring the children to school emerged around the same time. Over time, these models spread across the world to the extent that government-supported 'young mom schools', which only enrol young mothers and provide on-site childcare, currently exist in Canada, England, New Zealand, Germany, Australia, and online (Hartley, 2020; Hill, 2011; https://academy21.co.uk/teenage-mothers/; https://teenparentschools.org.nz/;www.kprschools.ca/en/our_schools/resources/secondaryprograms/schoolforyoungmoms.html;www.youvillecentre.org/are-you-a-young-mom/; www.diebarke.de/Teenie-Muetter.html). Other countries provide supported living services, including free childcare, so that young mothers can continue visiting regular schools. At least in high-income countries, governments also developed financial support programmes that ameliorate young mothers' childcare needs. For instance, the Department of Education and Skills in England set up the initiative 'Care to Learn?' which supports young parents (defined as those aged under 20) with £160 - £175 childcare coverage per week (https://www.gov.uk/guidance/care-to-learn-guide-for-the-2020-to-2021-academic-year).

However, the effectiveness and acceptability of these models, and their individual components, is not well documented in the academic literature. This is surprising given that large U.S.-based longitudinal studies ($N$ = ~8,000) have shown that childcare outside the home is particularly beneficial for adolescent parents and significantly improves outcomes for the child (scores in reading and maths, and positive behaviour) and the mother (more educational attainment, higher household income, better work status, and fewer repeat pregnancies) (Molborn and Blalock, 2012).

In addition, promising data has emerged from over 300 young mothers who enrolled in one of the first school-based programmes in a large urban school district in New York State between 1982 and the 1990s. The programme allowed mothers to follow the national curriculum in addition to receiving basic parenting classes, referral information, and a natural support system consisting of participating adolescent mothers. Archived school records showed that 70% of adolescents who participated in the program ($n$ = 81) managed to graduate from school compared to only 28% of mothers who had applied for the program but did not receive the service ($n$ = 89) (Crean, Hightower, and Allan, 2001). Some alternative high schools which only enrol adolescent mothers show impressive graduation rates of 100% (see Brower, Foster, and Jalensky, 2018), even though lacking evaluations with a comparison group precludes an understanding of the possible selection effect within the programmes' admissions (e.g., it is possible that mothers accepted into the program were among the most ambitious students who also had the most promising school trajectories prior to the pregnancy). Interviews with mothers participating in such alternative schools indicate that they perceive childcare – formal daycare as well as care provided by kin – as the most important source of support to achieve their educational goals (Brosh, Weigel, and Evans, 2007).

Even less documentation on available programmes for adolescent mothers exists for Sub-Saharan Africa. A recent scoping review on the support programmes available for HIV-affected young mothers in the region highlighted the lack of published research on existing support programmes (Toska et al., 2019). Even though the same review reported on promising, yet not evaluated, support programmes which were found in the grey literature or discovered through expert consultations, none of the education-focussed programmes appears to address mothers' childcare

needs. A 2018 Human Rights Watch report on the 'Discrimination in education against pregnant girls and adolescent mothers in the African Union' indicates that few larger efforts, orchestrated by governments, exist to support access to childcare across Sub-Saharan Africa. However, one exception surfaced in the report, pointing to efforts by the government in Gabon which started to support establishing nurseries and daycare centres close to school to ensure easy access for school-going mothers (Martinez and Odhiambo, 2018).

In South Africa, individual reports cover initiatives like the Pretoria Hospital School where pregnant girls can continue to follow the national curriculum before the delivery of their child (SAPA-AFP, 2013). Another intervention targeting HIV-affected young mothers' schooling, MAMAs (Mentoring Adolescent Mothers at School), which was undertaken in the province of KwaZulu Natal, showed promising results (Shazi et al., 2018). Specifically, the group of girls who received support from mentor mothers (i.e., older mothers who were themselves pregnant adolescents) showed increased re-enrollment in school after birth compared to adolescent mothers who did not receive the intervention (74% versus 50% after six months; 71% versus 18% after nine months). However, the participation in the group sessions decreased over time so that only 13 out of 68 participants completed the 11 sessions of the program. Among other factors, mothers reported struggling to coordinate attendance to the group sessions with their school commitments, in addition to childcare difficulties, which could be addressed in future research using a similar design.

To the best of this candidate's knowledge, there are no further specific programmes aiming to improve adolescent mothers' schooling which manage to address the need for childcare that affects

so many mothers. Thus, South Africa's adolescent mothers have the same daycare options as adult parents. Formal provision of good childcare and early childhood development are limited in South Africa due to lacking or complex systems for service providers to seek financial support from the government (Giese and Budlender, 2011). In response, the social franchise SmartStart was developed in 2015. The initiative seeks to provide a systems solution to delivering early learning at scale by helping unemployed men and women to set up their own childcare centres. A 2020 World Bank report, which advocates for investments in childcare provisions worldwide, indicates that 6,429 SmartStart centres have been established to date, serving over 63,000 children (Devercelli and Beaton-Day, 2020).

In parallel of these developments, many communities have taken the initiative to develop their own childcare centres (see Figure 27 captures the candidate's own experience in South Africa). However, these projects predominantly operate entirely through donations and, without any financial support from the government, they are often unsustainable over longer periods of time. In 2019, UNWomen launched a report – aligned with the World Bank report mentioned above – advocating for universal childcare services to foster the life chances and well-being of children within three middle income countries, including South Africa (De Henau et al., 2019). Presenting an economic argument for increased investments in childcare, their analyses showed that South Africa currently only spends about 0.06% of their gross domestic product (GDP) on childcare provisions. An increase to 1.8% or 3.2% of GDP would lead to 1.3 million and 2.3 million new jobs, respectively, particularly for women who will receive accredited high-quality child-care training, which would help reduce gender inequality through their increased earning and employment opportunities. Moreover, an increased investment in early childhood development

would also include better trained staff which will raise the overall quality of childcare and help improve child development. Currently, 95% of pre-school teachers in South Africa lack the appropriate qualifications for the job (De Henau et al., 2019) which could partly explain why children attending informal pre-schools in underprivileged areas show poorer nutritional outcomes than children who stay at home (Madiba, Chelule, and Makgatle, 2019). Hence, it appears that current adolescent mothers – and many parents from poor communities – have limited childcare options which force them to rely on under-funded childcare initiatives that may only exist temporarily, or use daycare centres with under-qualified staff.



**Figure 27.** A community project which set up a childcare centre in the Bompini community, a remote village near East London, South Africa. (The Candidate's own photo).

In summary, parenting adolescents often face a normative double bind, where they are seen as failed mothers if they make use of formal daycare services to continue school, but failed adults if they stay home to look after their children. To date, much research in Sub-Saharan Africa has fixated on the poor school outcomes for young mothers and the compromised development of their children. However, a shift in research to examine potential benefits of access to universal childcare

and investments in good quality daycare alongside financial support for daycare centres to allow young mothers to take up these services could help to foster sustainable solutions to improve both mother and child outcomes.

### *1.2.2.* The support of family networks with childcare

Despite the strong association between the use of formal childcare and the return to school in the present thesis, the second empirical chapter also suggested that the available childcare support from the family might increase the rates of school return. In South Africa, extended family networks are often highlighted as an important source of childcare among Black families (Russel, 2003; Moore, 2013; Makiwane et al., 2016), and several qualitative studies describe the role of the family, particularly grandmothers, in providing care to children (e.g., Schatz and Ogunmefun, 2007; Bohman et al., 2009). Compared to their White counterparts, Black families face different circumstances affecting their family composition and childcare needs. That is, the majority of African children in South Africa do not grow up in two-parent households (Hatch and Posel, 2018) as a result of 1) high needs for labour migration due prevailing high rates of unemployment within Black communities and lack of formal and low-cost housing in urban areas (Posel and Marx, 2013); 2) low and declining marriage rates among African couples and high rates of non-marital pregnancy means that many African fathers are not part of their child's household, even as non-resident household members (Casale and Posel, 2002; Hosegood et al., 2009; Hunter, 2010; Posel et al., 2011); and 3) elevated mortality rates from HIV/AIDS are much higher among Black families, placing African children at a greater risk to be maternal or paternal orphans (Ardington and Leibbrandt, 2010). Therefore, African children are most likely to live with one parent, which is almost always the mother (Hatch and Posel, 2018). Despite the relatively higher demands for

childcare in these Black single-parent households, Black families are less able to pay non-family members in the community to provide childcare which means that relying on other family members is often the only option to receive childcare support (Hatch and Posel, 2018).

Scholars aiming to highlight the differences between Western and African households suggest that adult mothers can easily "free themselves" for paid work and are presented with "many options" to secure childcare through relying on members of the wider family unit to take care of their children. Examples of options for mothers to recruit family members to support childcare include sending their children away to be cared for elsewhere or invite an older child from another household into the family and support the childcare in exchange for board and lodging (Russel, 2003). Recent empirical data from the National Income Dynamics study, covering 7,300 households and 28,000 individuals partly supports this view, showing that almost 80% of Black children receive caregiving from people other than the primary caregiver, with the highest rates of co-caregiving for the youngest children (Hatch and Posel, 2018). Despite receiving childcare support, the nationally representative household survey shows that the provision of primary childcare in South Africa remains highly gendered. Even if the majority of children receive physical care from more than one person, women are typically the primary caregiver of the child and, hence, continue to carry the responsibility of providing or navigate childcare.

Similar to adult mothers, adolescent mothers often receive childcare support from the child's maternal grandmother which is considered an acceptable practice and a norm in the South African society (Chohan, 2010; Jewkes, Morrell, and Christofides, 2009; Madhavan and Roy, 2012; Panday, 2009). Occasional childcare support from other family members living in the same

household as the adolescent parent, such as siblings, is also described in the literature (Bhana and Nkati, 2018; Shefer and Bhana, 2012). A number of qualitative studies indicate a strong commitment of families to support adolescent mothers' childcare to enable the girl's continued schooling, acknowledging that the girls' education is going to benefit not only herself but also the wider family unit through her future income (Bhana and Nkani, 2016). Even though adolescent mothers may receive some or even substantial support from their families, it is often not enough to maintain the level of good attendance and performance needed to succeed in school (Willian, 2013; Chigona and Chetty, 2008). Particularly for adolescent parents, relying on family support with childcare might not be a reliable or sustainable solution because, compared to adult mothers, the caregivers' of young mothers are less likely to have entered retirement age and reports indicate that their own employment might interfere with the provision of childcare support (Bhana and Nkani, 2016; Chigona and Chetty, 2008). In addition, some families fester resentment over the early pregnancy and refuse to provide childcare to motivate the girl to support the finances of the family with employment (Chigona and Chetty, 2008).

In summary, even though the wider family network is frequently involved in the childcare support for adolescent mothers in South Africa, it is less clear to what extent it can successfully support her need for education. Despite previous qualitative accounts of family's support for girls' continued education, the present results showed that the relationship between familial childcare support and the return to school was relatively weak compared to the use of formal childcare. Whilst relying on family childcare might not reliably secure girls' continued education, it is also likely to perpetuate gendered cycled of poverty in communities where women are already economically disadvantaged. Namely, the average amount of time that women spend on childcare

is more than eight-fold larger than the time spent by men (Statistics South Africa, 2013). Across all age groups, African children who do not receive primary care from their mother are far less likely to receive this care from their father than from another woman in the household and particularly from their grandmother (Hatch and Posel, 2018). In most cases, adolescent mothers' need for childcare support is also provided by fellow female family members which, in turn, limits their own workforce participation or places increased burden for older women whose pension grant is often the only source to substitute missing income and buffer unexpected financial shocks (Schatz and Ogunmefun, 2007). Hence, if the burden of childcare is likely distributed over multiple generations of women in one household with potentially impaired outcomes for everyone, increasing access to formal childcare may be one way to alleviate the current gendered provision of childcare. At the same time, it remains important to consider – even in addition to formal childcare opportunities – which programmes could encourage fathers' contributions.

### 1.3 Testing multiservice support packages for South African adolescent mothers

The support of adolescent mothers is an issue that cuts across the responsibilities of a wide range of institutions and service providers – including the family, schools, social protection agencies, and health services (UNESCO, 2014). However, the question remains what type of interventions, or combinations of interventions, can effectively meet adolescent mothers' needs to enhance their school progression (i.e., being enrolled in school and attending classes) and educational attainment (i.e., completing school). In addition to increasing access to formal childcare, which was discussed in the previous section of this chapter, the empirical chapters of this thesis also referred to other potential points of intervention to target continued school enrolment and school completion among young mothers. The present section will contextualise these findings by first reiterating the key

evidence on effective interventions from the global literature before comparing and contrasting key features of these interventions with the empirical results from the present thesis.

Meta-analyses which synthesise the evidence on existing programmes aiming to promote adolescent mothers' school outcomes reflect the breadth of settings (i.e., school-based, clinic-based, community-based, and home-based programmes), components (i.e., case management, parenting support, counselling, welfare assistance, etc.), and combinations thereof that are available for girls' support – at least in high-income countries like the U.S. (Baytop, 2006; Harding et al. 2020; SmithBattle et al., 2017; Steinka-Fry et al., 2013). The results from U.S.-based studies show that some interventions appear effective in promoting positive school outcomes among expectant and parenting teens (Baytop, 2006; Steinka-Fry et al., 2013), even though the effects are rather small for studies with rigorous randomised designs (Baytop, 2006; SmithBattle et al., 2017). For instance, Baytop's (2006) meta-analysis investigated adolescent mothers' enrolment in school or any alternative educational or vocational training after receiving a program or intervention. The results nicely illustrate how selection effects likely overestimate the impact of non-randomised interventions, showing that reports on 15 randomised studies indicated a small effect (OR 1.21; 95% CI 1.04, 1.41), whereas the 14 non-randomised studies showed much larger effects (OR 2.55; 95% CI 1.59, 4.09). Here, it is interesting that none of the randomised interventions included school-based studies which did show success in non-randomised settings. On the one hand, school-based programmes may show potential because they entail daily exposure to a curriculum, and they frequently include childcare programmes and daycare on the school premises. On the other hand, without proper randomisation, it is unclear to what extent these programmes are

predominantly attended by highly motivated adolescent mothers who are predisposed to achieve good outcomes, as opposed to adolescent mothers who decline participation.

A subsequent systematic review by Steinka-Fry et al. (2013) indicates that multiservice packages that include monetary incentives to increase school attendance may be slightly more effective than programmes which do not provide financial support alongside other services (OR 1.61 versus OR 1.99), even though this difference was not statistically significant. Overall, the authors report outcomes from 15 studies, showing that adolescent mothers who received educational interventions were almost twice as likely to graduate from high school compared to those who did not receive the intervention (OR = 1.83; 95% CI: 1.54, 2.18). However, similar to Baytop (2006), the analyses include both, randomised and non-randomised studies and, hence, it is likely that they also mask the much weaker effects of included randomised studies. To illustrate, the studies by Baytop (2006) and Steinka-Fry (2013) show quite similar odds ratios for the combined effects of randomised and non-randomised studies (OR = 1.68 in Baytop, 2006; OR = 1.83 in Steinka-Fry et al., 2013). It is likely that these odds ratios are largely reduced for randomised studies when separating studies by their design (e.g., Baytop, 2006). Despite the breadth of interventions reflected in these meta-analyses, they highlight the further need for rigorous evaluations to clearly establish ‘what works’.

The most recent systematic review by Harding and colleagues (2020) partly addressed the concerns about the overestimated effects caused by including non-randomised programmes in previous meta analyses. Focussing on randomised studies, and excluding non-randomised research that does not report baseline differences to assess the equivalence across study groups, their results highlighted

that only about half of the programmes (also all U.S.-based) to support expectant and parenting adolescents (7 of 13 studies) showed some favourable effects on adolescent mothers' education. It is interesting that the programmes with the highest effect sizes, all of which are randomised controlled trials, offer different combinations of support in various settings (see Table 23 for all studies that reported effect sizes). For instance, the program *New Chance* offers curriculum-based courses and regular educational and employment services as well as childcare over 18 months; *Pathways Teen Mother Support Project* assists finding services for mothers' support, strengthens mothers competencies, and increases support from their immediate and extended family over two years; *Early Head Start* provides a family centred-service, focussing on parenting support, developing self-sufficiency, and provides 20 hours of childcare each week; and the *Learning, Earning, and Parenting program* offers case management services as well as financial incentives for school enrolment. Across the programmes, successes were shown for educational attainment (ORs range between 0.02 - 0.31) and school progression (OR range between 0.10 - 0.24). Unsurprisingly, most studies showed higher success for immediate than longer-term educational achievements, suggesting that the effects of the interventions do not necessarily lead to lasting results. One promising exception is the programme 'New Chance' which showed positive effects for both short-term education as well as long-term academic attainment, such as graduating high school. Interestingly, the systematic review by Harding et al. (2020) also showed that studies which did not find any significant effects on educational outcomes were mostly home-visitation services which intended to improve the health outcomes of the mother and child, support healthy child development, or educate the girls about contraception to avoid repeat pregnancies. None of the unsuccessful programmes were school-based or provided case-management to support schooling, childcare during school hours, or targeted financial incentives to attend school which may be

indicative that these school-specific targeted approaches are needed to adequately support adolescent mothers' schooling.

**Table 23.** Summary of successful studies for adolescent mothers identified in the systematic review by Harding et al. (2020).

| Program (study) | Study design | Study setting | Study sample and sample size | Description of the intervention | Outcomes Timing of outcome assessment |
|---|---|---|---|---|---|
| **New Chance** (Quint et al., 1997) | RCT | Community-based | Primarily low-income mothers in urban settings (16 sites across the U.S.)<br><br>*N* = 2,079 | New Chance, a program for young welfare-eligible mothers who have dropped out of school, aims to improve mothers' employment potential and parenting skills through curriculum-based courses and individualised case management. The 18-month program offers regular educational and employment services as well as child care, with case managers providing up to an additional 12 months of follow-up. | **Diploma receipt**<br>• Immediate (18 months after enrolment)*<br>• Longer-term (42 months after enrolment)*<br><br>**Receiving college credits**<br>• Immediate (18 months after enrolment)*<br>• Longer-term (42 months after enrolment) |
| **Pathways Teen Mother Support Project** (McDonnel et al., 2007) | RCT | Community-based | Primarily African American, first-time, low-income mothers in a rural setting (South Carolina, U.S.)<br><br>*N* = 144 | The Pathways Teen Mother Support Project aims to strengthen mothers' personal and social competencies, increase support from teens' immediate and extended family, and increase the role of community social institutions in supporting the teens' success. The program consists of five voluntary components: case management, family group decision making, mutual assistance peer groups, life skills education, and leadership development activities. Individualised case planning is used to select the services most suited to helping teens meet their goals over two years. | **Diploma receipt**<br>• Immediate (12 months after enrolment)*<br>• Immediate (18 months after enrolment)<br>• Immediate (24 months after enrolment)<br><br>**Experience educational lag**<br>• Immediate (12 months after enrolment)<br>• Immediate (18 months after enrolment)<br>• Immediate (24 months after enrolment |
| **Early Head Start** (Love et al., 2001; 2002; Vogel et al., 2010) | RCT | School and Home | Primarily low-income mothers and faher (1%) in urban and rural settings (17 programmes across the U.S., half urban, half rural)<br><br>*N* = 788 | Early Head Start programmes provide family-centred services for low-income families with very young children to promote the development of the children and to enable the parents to fulfill their roles as parents and move toward self-sufficiency. Programmes may be centre based, home based, or a combination of the two. In centre-based programmes, trained teachers provide up to 20 hours of child care and other services each week. In home-based programmes, home visitors visit participants weekly. Services are available from pregnancy through the child's third birthday. | **Diploma receipt**<br>• Immediate (16 months after enrolment)<br>• Immediate (28 months after enrolment)<br><br>**Participation in education or training**<br>• Immediate (16 months after enrolment)<br>• Immediate (28 months after enrolment)*<br><br>**Highest education level**<br>• Long-term (9 years after enrolment) |

| | | | | | |
|---|---|---|---|---|---|
| **Learning, Earning, and Parenting program** (Bos and Fellerrath, 1997) | RCT | Welfare office | Primarily first-time, low-income mothers and fathers (2%) in urban and rural settings (Ohio, U.S.) | The Ohio Learning, Earning, and Parenting (LEAP) program seeks to reduce future welfare receipt by encouraging welfare-eligible teen mothers who do not have a high school degree to complete secondary education. LEAP provides case management services and financial incentives for school enrolment. Mothers are expected to be enrolled in school while they are receiving welfare, and mothers who do not comply are sanctioned. Case managers evaluate teens' enrolment status monthly, offer guidance, and authorise support services. Adolescents can participate until they receive their high school diploma/GED, no longer receive welfare, or turn 20 | **Diploma receipt**<br>• Longer-term (3 years after enrolment)<br><br>**Completed grate 9**<br>• Longer-term (3 years after enrolment)*<br><br>**Completed grate 10**<br>• Longer-term (3 years after enrolment)*<br><br>**Completed grate 11**<br>• Longer-term (3 years after enrolment)* |

Unfortunately, there is a persistent lack of documentation and scientific investigation into the programmes that support adolescent mothers' schooling in Sub-Saharan Africa. Despite the deliberate attempt of Steinka-Fry et al. (2013) to include support programmes for adolescent mothers that are available across the world, only U.S.-based studies emerged from the literature search. However, the present study offers some preliminary support that the rigorously evaluated interventions from the U.S. could also effectively enhance adolescent mothers' schooling in South Africa. That is, studies which assessed the impact of multi-service packages through randomised controlled trials (see Table 23) included several components which also showed strong associations with school enrolment in the present study:

First, the presented analyses have shown that fewer household necessities were associated with higher risks to discontinue schooling during pregnancy (*DPhil Paper 1),* and subgroups of mothers' suffering from food insecurity indicated lower probabilities of being enrolled in school (*DPhil Paper 4*). Even though adolescent mothers in South Africa can apply for the Child Support Grant, which was accessed by about 80% of mothers in the present sample, the findings of this study suggest that additional financial support which addresses severe deprivation (*DPhil Paper 4*) or financial support towards childcare (*DPhil Paper 2*) may facilitate girls' schooling at different stages of their pregnancy and thereafter. Several existing multiservice packages include 'attendance monitoring' programmes which provide financial contingencies for continued school enrolment or attendance (Steinka- Fry et al., 2013; Harding et al., 2020). These programmes could be effective at meeting young mothers' financial challenges, which are often reported as a major barrier to continued schooling (e.g., Willian, 2013). However, these programmes would have to be developed very carefully, bearing in mind that mothers should not feel pressured to return to school immediately after birth as it could compromise their own recovery from the birth, bonding

with the child, and interfere with recommended practices of exclusive breastfeeding (Zweigenthal et al., 2020).

Second, the present study offers some support that programmes that include family-strengthening elements (e.g., 'Pathways Teen Mother Support Project', see Table 23) could also prove effective for adolescent mothers in South Africa. Namely, the fourth empirical paper, which aimed to identify clusters of characteristics that affect adolescent mothers' school enrolment, suggests that potential combination interventions which address severe poverty alongside strengthening the young mothers' relationships with their own caregivers may be effective. That is, subgroups of adolescent mothers exposed to certain parental practices (e.g., positive parenting, good communication with the caregiver, and caregiver monitoring) showed higher probabilities of being enrolled in school compared to mothers who were not exposed to these practices (*DPhil Paper 4*). The potential benefits of a holistic approach to support adolescent mothers, which includes the girls' family or caregivers, also emerged in other parts of the thesis. Namely, caregivers' provision of information was associated with continued schooling during pregnancy (*DPhil Paper 1*) and family support with childcare was associated with higher odds to return to school (*DPhil Paper 2*). Whilst previous studies pointed to the protective properties of positive parenting for adolescents' school delay in South Africa, the present results require future studies to assess which forms of parenting and social support (emotional support, tangible assistance, informational guidance, positive feedback and reassurance, socialising and pregnancy-related assistance; Gee and Rodes, 2007) are most beneficial to South African adolescent mothers.

In summary, it is still unclear which intervention packages or individual intervention components aiming to support adolescent mothers' schooling could be effective in the South African context.

Whilst the provision of daycare services emerged as a potential point of intervention to support adolescent mothers' schooling (*DPhil Paper 2*), the results from the present study also warrant further adaptation and testing of evaluated interventions from high-income countries within South Africa's resource-limited context.

## 2. Limitations and strengths

### 2.1 Limitations of the study

**Measuring school progression and attainment over time**

Educational outcomes of adolescents and adolescent mothers can be measured in various different ways, including school progression (e.g., enrolment and attendance) or attainment (e.g., graduation from high school), as was shown in Chapter II. This section will discuss some of the issues surrounding the utilised variables to measure adolescent mothers' schooling, namely 1. Grade delay at the onset of the pregnancy, 2. Enrolment during pregnancy, and 3. Enrolment after birth.

First, school delay was measured based on South Africa's regulations on enrolment in age-appropriate grade. Therefore, it is a proxy measure to assess achievement in school which could have also been assessed using alternative measures, such as numeracy and literacy skills. School delay in South Africa can be a product of many other factors besides learner's academic underachievement (UNESCO, 2006). It is not unusual in South Africa that children are promoted to the next grade or retained in the same grade based on factors other than achievement (e.g., late school enrolment, temporary dropout due to common movement of children between extended households, etc.). Measuring numeracy or literacy skills or using national standardised test results that are available via school records may have been appropriate alternatives to capture girls' achievement in school. However, researchers from the same team had previously experienced

difficulties with missing or unreliable data when using school records. Hence, this approach was not considered practical and 'grade delay' as a measure of school progression was chosen. Future research that is able to measure both, 'quantity' (years of school and school progression) and 'quality' (the actual learning) in South Africa would offer valuable additions to the present study (Spaull and Taylor, 2015).

Second, the present study focussed on school enrolment during pregnancy (*DPhil Paper 1*) and after birth (*DPhil Paper 2, DPhil Paper 3, and DPhil Paper 4*) which was assessed through self-report. It would have been possible to extract girls' enrolment for each school year from school records as was done in other studies undertaken in South Africa (e.g., Stoner et al., 2019). However, as outlined in Chapter III of this thesis, accessing and recruiting participants via schools proved challenging as under-resourced staff were often unable to provide much time and effort to support the research team's request to help with recruitment. This may have also caused interference with gathering data on enrolment from schools which could have impaired the completion of the study within the funded timeframe.

Third, the present study was unable to separate school enrolment and attendance. For instance, 70% of mothers indicated that they re-enrolled in school after birth, but there is no certainty that all adolescents who returned to school also regularly attended classes. Previous studies have shown that adolescent mothers who do return to school show impaired performance and struggle with regular attendance (Morrell, Bhana, and Shefer, 2012; Ngabaza and Shefer, 2013). Differences in attendance, despite enrolment, is likely to cause variability in school progression across returned mothers which is unaccounted for in the presented results *(DPhil Paper 2 and DPhil Paper 3*). Past research on the same topic has cautioned confusing enrolment with attendance (Ardington,

Menendez, and Mutevedzi, 2015) and other recent studies have been able to rely on schools' attendance registers to counteract any resulting biases (e.g., Stoner et al., 2019). Future studies in this area will benefit from collecting attendance data alongside enrolment rates in order to complement the results from this thesis.

Lastly, the present study includes participants aged 10 – 24 and, especially for young participants, it is likely that some assessed school outcomes (e.g., the return to school) will continue to change over time. That is, the presented cross-sectional analyses preclude an understanding of girls' final school outcomes, which would have required interviewing participants at an age where they are unlikely to acquire further education (e.g., at age 25). The second wave of this study, which will be completed in 2021, will constitute an opportunity to address this issue.

**Proxy-variables and the lack of validated scales**

This doctoral study used several proxy-variables where validated scales would have provided more conclusive results. For instance, the study relied on two dichotomous variables, enquiring if the participant has received any information on the pregnancy from their caregiver or the school, respectively. As discussed within the empirical chapter (*DPhil Paper 1),* it is possible that these variables measure emotional or practical support from the caregiver, which contributed to the mothers' school enrolment (Assini-Meytin, Mitchell, and Lewin, 2018; Calasanti and Slevin, 2001). However, these interpretations remain speculative and future studies will benefit from adapting validated scales, such as the Social Support Network Questionnaire (Gee and Rodes, 2007). This scale was developed for pregnant and adolescent mothers to measure the different types of support they receive, including emotional support, tangible assistance, informational

guidance, positive feedback and reassurance, socialising and pregnancy-related assistance. Hence, this questionnaire would allow one to assess different types of support and disentangle their respective impact on school outcomes.

Similarly, previous studies from South Africa have assessed teachers' academic and emotional support using adapted items from the Emotionally Supportive Climate scale (UNICEF, 2009) and the emotional/information subscale of the Medical Outcome Study Social Support Survey (Sherbourne and Steward, 1991). These items have previously been adapted for similar samples with socioeconomically disadvantaged adolescents in South Africa and showed good reliability (e.g., Herrero Romero, Hall, and Cluver, 2018). Future studies on adolescent mothers could consider using the same items.

**Bi-directionality and causality**

The analyses presented in the empirical chapters of this thesis aimed to be mindful of the temporal sequence of events. All independent variables were supposed to have occurred prior to the assessed school outcomes. However, this was not possible for all included variables, so bi-directional relationships between the outcomes and associated factors are possible. For instance, the second empirical paper found an association between childcare use and the return to school. However, the use of childcare was assessed with reference to the time of the study whilst the return to school occurred in the past. It is therefore not entirely clear if childcare enabled adolescent mothers to return to school or if adolescent mothers decided to return to school and only subsequently started using childcare.

Similarly, results showed that participants who participated in exclusive breastfeeding were less likely to return to school after birth. Whilst it is possible that participants who decided to breastfeed exclusively were less likely to return to school, it is also possible that mothers decided not to return to school and, as a result, ended up breastfeeding the child. On the one hand, the latter seems likely given that rates of exclusive breastfeeding are low among South African adolescent mothers (Zweigenthal, Strebel, and Hunter-Adams, 2019) and schooling has been described as an obstacle to exclusive breastfeeding (Hannon et al., 2000). On the other hand, exclusive breastfeeding may be correlated with the mothers' wish to take time off school to bond with the child (Zweigenthal, Strebel, and Hunter-Adams, 2019). Future quantitative studies will be able to explore the direction of this relationship through 'zooming in' on the post-birth period and assessing exclusive breastfeeding and the return to school over multiple timepoints.

**Study setting**

The study was carried out in rural and urban locations in the Eastern Cape. As indicated in the introductory chapters of this thesis, the province is characterised by high levels of poverty. This study area was partly selected due to the over-arching aim of the research project to assess the needs of adolescent mothers living in difficult circumstances. About 86% of people living in the Eastern Cape are Black (StatsSA, 2012) and many of them are affected by poverty which, in turn, is associated with high rates of adolescent pregnancy. The majority of the adolescent mothers in this sample were Black African with some having a Coloured background. Therefore, the results of this study cannot be generalised across all South African adolescent mothers. However, they may provide a good indication of challenges adolescent mothers in low-income areas face.

**Reliance on self-report data**

Another potential limitation of the four empirical papers presented in this thesis is the reliance on self-reported data. Some respondents may have felt uncomfortable to give accurate reports on the study outcomes, particularly because education is highly valued across South Africa where 99% of students report high intentions to graduate from high-school, and *not* completing school is a source of worry for many adolescents (Nduna and Jewkes, 2012; National Income Dynamics Study, 2008). Hence, it may have been distressing or embarrassing for some students to admit that they have repeated several grades or that they discontinued school before their graduation. In general, participants are not only likely to underreport potentially stigmatising behaviours (e.g., having repeated grades) but also to over-report positively connoted behaviours (i.e., being in a continued relationship with the child's father) in face-to-face interviews. This could have affected the study results. For instance, 34 participants (3%) showed inconsistencies in the data they reported across different interviews, simultaneously indicating that they had never returned to school after birth whilst also stating that they are currently enrolled in education. It is possible that these results arose because the two separate questionnaires were administered by different enumerators, one of whom could have made the participant more comfortable to disclose the truth.

**Unmeasured confounding**

It is highly likely that unmeasured confounding affected some of the results in this study as confounding cannot be ruled out in research that does not rely on randomisation (Ho, Peterson, and Masoudi, 2008). Although the variables that were identified as significant in this study align with findings from other qualitative and quantitative research undertaken in South Africa, one needs to be aware of other potential confounding effects of unmeasured (third) variables. For

instance, important school-level factors, such as poor teaching, education quality, teachers support, and the application of school policies were not investigated in the present study. Further individual and social factors could also affect adolescents' school enrolment, such as motivation to do well in school, parental education, and peer influences. Future research which aims to reduce the impact of unmeasured confounding will be able to build on the present analyses by revisiting some of the significant relationships, using directed acyclic graphs to identify a minimally sufficient adjustment set of time-fixed and time-varying confounders (Shrier and Platt, 2008).

**Translations**

The research team has much experience with the careful translation and back-translation of questionnaire items into the local language, Xhosa. Yet, translation errors cannot be fully discounted. Where children did not understand questions, interviewers were asked to clarify, which may have introduced interviewer bias and unintended changes to the translated versions of the questionnaire.

**Clustering**

It is possible that there were clusters within the dataset that are unaccounted for within the presented analyses. For instance, the methodology chapter outlined how deploying multiple recruitment strategies aimed to ensure that mothers who are exposed to schools and healthcare are recruited in equal parts to women in rural or destitute areas who are unable to access those services. Even though we intended to account for the clusters of recruitment mechanisms, this was impossible because many participants were recruited via multiple channels, which negates the purpose of including clustering in the analyses.

### 2.2 Strength of the study

Despite its limitations, this DPhil thesis contributes an important shift in the literature on adolescent mothers' schooling in South Africa. Whilst this thesis acknowledges the potential for pregnancies to derail girls' educational pathways, it does not focus on quantifying the differences in school outcomes between adolescent mothers and non-mothers – which is the approach that has dominated the South African literature to date. Unlike the small number of studies in this area which examined associations between adolescent mothers' schooling and sociodemographic factors or household compositions, the present study aimed to explore the impact of multiple *modifiable* variables which will further the development of interventions aiming to support adolescent mothers. Overall, the utilised HEY BABY questionnaire, which included socioeconomic, school, health and social factors, allowed the candidate to address research questions that have, to date, never been examined.

In addition, this is the first study which unpacks adolescent mothers' school enrolment at different stages throughout the pregnancy and thereafter, controlling for schooling at prior stages. Adolescent girls are exposed to very different situations and challenges before, during, and after the pregnancy but, to date, no study has been able to explore when adolescent mothers' educational disadvantages emerge. For instance, girls should be able to continue their schooling for as long as possible during the pregnancy and many barriers to schooling, such as bonding with the child and the need for childcare, only emerge after the child is born. This study was not only able to show that schooling at different points in time are intimately linked with one another but also showed the factors that are uniquely relevant at each stage.

Third, the study sample included adolescent mothers from various ages, backgrounds, and locations who were both in and out of school and differed in their level of access to healthcare and other services. In order to increase the generalisability of the sample to other adolescent mothers in the Eastern Cape, and even across South Africa, the study deployed various recruitment strategies to increase its reach and ensure that even girls who have little or no engagement with services or care are included. In addition to clinic- and school-based recruitment of adolescent mothers, the study enrolment was therefore also driven by local knowledge on remote or destitute areas where particularly vulnerable adolescent mothers may be found. In these areas, door-to-door recruitment (and subsequent snowball sampling) was particularly valuable to trace childbearing girls or adolescent mothers who may not have been located through the other formal channels.

Fourth, the study experienced relatively low rates of refusal to participate (2% of eligible participants refused to participate in the study). There are multiple reasons for this, including the extensive experience of the research team in working with vulnerable adolescents and their families. Specifically, research assistants were very accustomed to introducing the study in a way that clearly outlined the participant's commitments whilst explaining the overarching goal of the study to gather evidence on their support needs. Most importantly, the research team's local knowledge and the experience of working in their own communities provided them with the intuition and skills to adequately address many concerns that could have prevented participants from participating in the study.

Fifth, the study used mobile devices (tables) for data entry as opposed to pen and paper questionnaires. This eased data entry, checking, submission, and storage. The open-source data collection tool that was used for this study provided enough flexibility to include a complex set of

questions which, through the use of skip patterns, were only asked to relevant subsets of participants. In addition, the platform's features allowed for an improved experience of completing the questionnaire (e.g., through colourful pictures) and strengthened the accuracy of responses on sensitive topics via the means of Audio-Computer Assisted Self-Interviews which increases participants' willingness to disclose highly stigmatised activities or experiences.

Finally, the study only recruited adolescent mothers. This provides an advantage over previous retrospective studies in two ways. First, other studies in this area relied on reports of pregnancies without consideration of who carried their pregnancies to term. This leads to conflated associations which simultaneously capture the relationship between school outcomes and pregnancy and motherhood, respectively (e.g., Stoner et al., 2019). Second, studies based on data that was not collected with the intention to investigate adolescent mothers specifically, typically include fewer girls with children than the present study (e.g., Ardington et al., 2015 included $n$ = 684; Grant and Hallman, 2008 included $n$ = 439; Stoner et al., 2019 included $n$ = 372). Hence, the present large sample of adolescent mothers provides more power for statistical analyses.

## 3. Direction for future research

The present study constitutes a shift from the question of whether or not an early pregnancy causes poor school outcomes among adolescent mothers. Instead, it focusses on the modifiable factors that help or hinder adolescent mothers to continue with their education once they are pregnant. To date, very few large-scale *quantitative* studies have set out to study adolescent mothers' support needs. Whilst this study provides important evidence on the correlates of adolescent mothers' schooling in South Africa, it also raises several further questions and highlights important areas for future research.

First, developing effective interventions for adolescent mothers requires evidence on the spectrum of factors which will, when changed, decrease the risk for permanent school dropout. Whilst the present study explored correlations between schooling and several hypothesised variables, future studies would benefit from including additional measures and scales in their questionnaires to identify the impact of variables which likely contribute to adolescent mothers' school outcomes. These measures could include assessments of schools' monitoring and implementation of national policies for pregnant learners and learners with children as well as individual school policies, teachers' attitudes and perceived teacher support, and stigma and discrimination experienced within schools and communities.

In this context, a post-positivist approach to the question 'Which factors are associated with the school outcomes of pregnant girls and adolescent mothers?' could also include using a variety of perspectives and methods to answering it. For instance, a critical multiplist approach would suggest posing a series of complementary research questions, each relevant to a single entity in their environment (e.g., family, school, etc.), allows for a breadth of views to emerge. That is, the government may be most interested in understanding if adolescent mothers' school dropout contributes towards failing to meet the Sustainable Development Goals (e.g., Goal 4 which aims to ensure that all girls and boys complete free primary and secondary education by 2030). Local stakeholders and provincial governments may be interested in the cost of supporting adolescent mothers' schooling. Head-teachers and school staff may wish to know about the length of absence that impacts girls' school outcomes whereas adolescent mothers may be most concerned with their experience of continuing schooling when their pregnancy becomes visible and navigating childcare once the child is born. In the view of critical multiplists, an approach that collates

evidence from these (and further) stakeholders would help address the inherent complexity of building knowledge on adolescent mothers' schooling.

Second, the relationship of key-variables and girls' school outcomes is best evidenced by prospective–longitudinal studies, which measure exposures and outcomes over time. In the present study, adolescent mothers' schooling and associated factors were investigated retrospectively which may have caused biases. These should be addressed in future study designs which enrol adolescent participants from the onset of their pregnancy. In addition, the present cross-sectional data was unable to capture all girls' final achievements in school. That is, previous studies from South Africa showed that adolescent mothers continue to catch up on their schooling until the age of 23. Therefore, only longitudinal studies which observe adolescent mothers until their mid-20s, will be able to fully capture the longer-term impact of adolescent pregnancy and the factors that contribute to the girls' educational attainment. The HEY BABY follow-up wave of data collection which, due to the COVID-19 pandemic, moved from face-to-face interviewing to Computer Assisted Telephone Interviews, will provide some additional information on the girls' school trajectories which the candidate plans to explore in future post-doctoral work.

Third, different 'push and pull' correlates that influence adolescents' school leaving are present during early, middle, and late adolescence (Singh and Mukherjee, 2018). Previous studies have shown that younger adult mothers (<17 years) do not only show poorer school outcomes at the age of 20 (Ardington, Mendez, & Mutevedzi, 2015) but that they are also more vulnerable to certain risk factors, such as experiencing an unwanted and unplanned pregnancy (Christofides et al., 2014). Future research may benefit from explorations into the different needs of young mothers versus older mothers to develop further targeted interventions for different age groups.

Lastly, much further documentation is needed on the type of support or interventions which are already available for young mothers in Sub-Saharan Africa. Whilst previous research has investigated the effect of government child support grants on fertility rates of adolescents (Udjo, 2014), only a few studies (none quantitative) have addressed its effect on adolescent mothers' outcomes. Whilst results from the present study suggests that U.S.-based intervention programmes may also meet the needs of South African adolescent mothers, these suggestions need to be rigorously tested in future research.

## 4. Policy implications

The results from this thesis do *not* present evidence on causal relationships between variables so translating the presented findings into policy recommendations is inappropriate without any further explorations and testing. That being said, the thesis findings relate to several international policy agendas as well as South Africa's national policy commitments to support adolescent girls' schooling which will be discussed here.

### 4.1 Pregnancies and school enrolment and the Sustainable Development Goals (SDG)

The rates of adolescent pregnancies per country function as an indicator for UN SDG 3.7 which states that by 2030, countries should ensure universal access to sexual and reproductive healthcare services (UN, 2020a). Above all, the basic quantitative data on the number of girls in the Eastern Cape who carry their pregnancies to term may be useful to 1) Estimate current provincial birth rates to compare them against national and provincial targets for the reduction of adolescent birth rates, 2) Map the prevalence rates of adolescent births against existing sexual and reproductive healthcare services in the province, and 3) Stimulate further explorations into the meaning of these

birth rates in terms of access to as well as gaps in service provisions to reduce adolescent birth rates.

In a similar vein, SDG 4 aims to ensure that all girls and boys complete free primary and secondary education by 2030 (UN, 2020a). This study showed that 91% of adolescent mothers were enrolled in school at the onset of their pregnancy whilst an additional 5% had already completed their education. These rates are comparable with the frequently cited universal rates of primary school enrolment in South Africa (UNESCO, 2018). Against the backdrop of South Africa's low school completion rates (Gustafsson, 2011; Spaull, 2015), the present study contributes valuable information on the obstacles to achieving SDG 4 caused by adolescent pregnancies, particularly for girls who already performed poorly in school prior to the pregnancy. That is, the study showed that about 25% of girls are vulnerable to withdrawing from school during the pregnancy and 30% of girls who were enrolled in school at the onset of the pregnancy had not returned after birth. It follows that further explorations into 'when and why' schools are 'losing' adolescent girls due to pregnancies could bolster the attainment of SDG 4 through targeted interventions that support girls' schooling at different stages throughout pregnancy and thereafter. The present thesis offers several insights into South African adolescent mothers' potential support needs and outlined suggestions for further explorations on the combination of service provisions and policies that would best support adolescent mothers. For example, it is possible that increasing childcare opportunities and financial support for childcare (*DPhil Paper 2*) can not only facilitate adolescent mothers' return to school in the short-term but also contributes a potential solution towards achieving SDG 4.

### 4.2 Education sector responses to pregnant adolescent and young mothers

Policies that support adolescent mothers are embedded in a range of societal systems, services, and institutions. A discussion paper by UNESCO (2014) highlights that school systems benefit from established infrastructures and connections to other services that should be leveraged. The paper summarises education sector responses to adolescent pregnancy, emphasising the rights of pregnant girls and adolescent mother to education in a discrimination-free environment. In fact, school policies and practices on pregnancy and adolescent mothers vary greatly across Sub-Saharan Africa with 26 countries across the African Union having some type of law, policy, and/or strategy in place to protect the rights of pregnant girls and young mothers to continue their education unhindered (Martinez and Odhiambo, 2018).

South Africa is one of these countries, so the present findings need to be understood in South Africa's wider policy environment, even though this study has not explicitly assessed girls' exposure to school policies nor their understanding of the policies that affect them. For instance, existing policies may be relevant to understand the rates of continued school enrolment during pregnancy (75%) and the proportion of mothers who managed to return to school after birth (70%). Whilst it appears that schools remain accessible for many young mothers, the present study also points to the challenges of developing educational policies that simultaneously protect the mothers' education and their children's health. Namely, the majority of mothers (70%) who had returned to school had done so within the first two months after birth - much earlier than the recommended two years outlined in South Africa's national policy. This finding raises questions about the application of the policy across South Africa, its ability to speak to girls' realities, and the alignment with international health policies which advise exclusive breastfeeding for the first six months of the infant's life. Hence, this study also strengthens the case for an updated policy

for learners with children which caters more flexibly to early-returners whilst "articulating the necessity for a well-defined recovery and bonding time postpartum" (Zweigenthal et al., 2020, p.9).

Lastly, an isolated focus on the rates of school enrolment might overshadow other concerns about the stigma and discrimination that pregnant learners and adolescent mothers may experience in school and in their communities. Pregnant girls and adolescent mothers are not often rewarded for their persistence in education and negative experiences may lower their self-esteem and performance in school. UNESCO (2014) advocates for "stigma free schools which is echoed by the current revisions for the South African policy which aims to ensure that schools are "stigma-free, non-discriminatory and non-judgemental environments for pregnant learners, pre-and post-delivery, to support their physical and psychological health and dignity" (Department of Education, 2018, p. 25). Even though the draft policy is clearly well-intentioned, it has been severely critiqued by human rights groups as failing to provide sufficient information for implementers and lacking mechanisms of accountability (Equal Education Law Centre and Section 27, 2018). Therefore, without further amendments, it appears unlikely that the current policy draft will be able to reduce the number of school dropouts among motivated mothers who predominantly discontinue school because they are discriminated against.

### 4.3 Adolescent girls' schooling as a continued priority

Lastly, UNICEF's current Gender Action Plan 2018-21 – a roadmap for promoting gender equality throughout the organisation's programmes – includes a targeted focus on adolescent girls (UNICEF, 2017). This plan, shown in Figure 28, entails tracking the progress on girls' outcomes in a range of areas, including 1. Girls' nutrition, pregnancy care, and prevention of HIV/AIDS and

human papilloma virus, 2. Advancing girls secondary education, learning and skills, including science, technology, engineering and mathematics, 3. Preventing and responding to child marriage and early unions; preventing and responding to gender-based violence in emergencies, and 4. Facilitating accessible and dignified menstrual hygiene management.

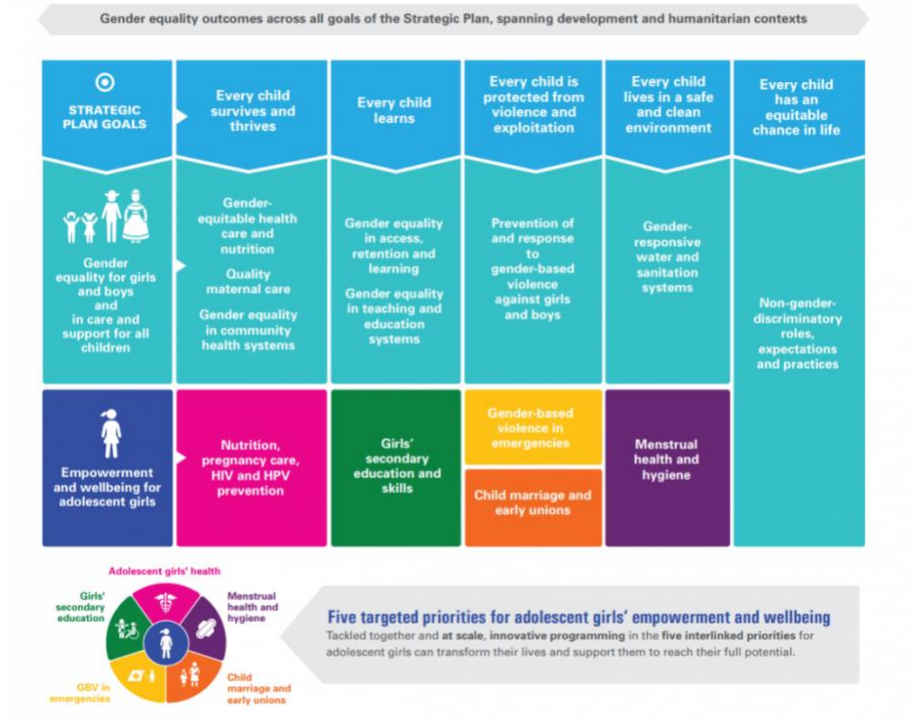



**Figure 28.** UNICEF's Gender Action Plan 2018-2022. Source: https://www.unicef.org/gender-equality/gender-action-plan-2018-2021. *Source: https://www.unicef.org/gender-equality/gender-action-plan-2018-2021*

Thus far, the Gender Action Plan has benefitted adolescent mothers in at least two ways. One, UNICEF supported the 'Every Newborn Action Plan' to provide quality maternal care for adolescent mothers (aged 15-19), resulting in 52% of pregnant girls receiving at least four antenatal visits (meeting the 2021 target) and 55% of mothers receiving postnatal care by 2019 (moving towards the 75% target of 2021). Second, UNICEF's efforts to increase access for out-of-school children, includes young mothers. In Mozambique, UNICEF and partners successfully advocated for the repeal of a law that mandated that pregnant women attend school only at night. In Chad,

more than 11,000 young mothers resumed classes thanks to more than 800 community talks organised by parents' and leaders' associations on the importance of keeping girls in school.

At the time of writing, the development of an updated (and bolder) Gender Action Plan is underway. The plan will include a continued commitment to supporting adolescent girls with ongoing discussions on support packages specifically designed for young mothers. That is, similar to the programmes presented in Chapter VIII above (Section 1, p.232), these plans might include multi-service support including health, education, and parenting resources. In the meantime, the Gender Action Plan monitors international educational goals for all girls, including an increase of the net attendance rate in secondary education and a decrease in the number of out-of-school girls. Figure 29 reflects the 2020 assessment of the Gender Action Plan, indicating that the targets for lower and upper secondary education attention show strong progress but that the developments on out-of-school girls lag behind. Given the results from this thesis – which showed that up to 30%-40% of adolescent mothers could be at risk of permanently discontinuing their education – additional programmes which cater to their needs could help strengthen progress towards the educational goals for adolescent girls.

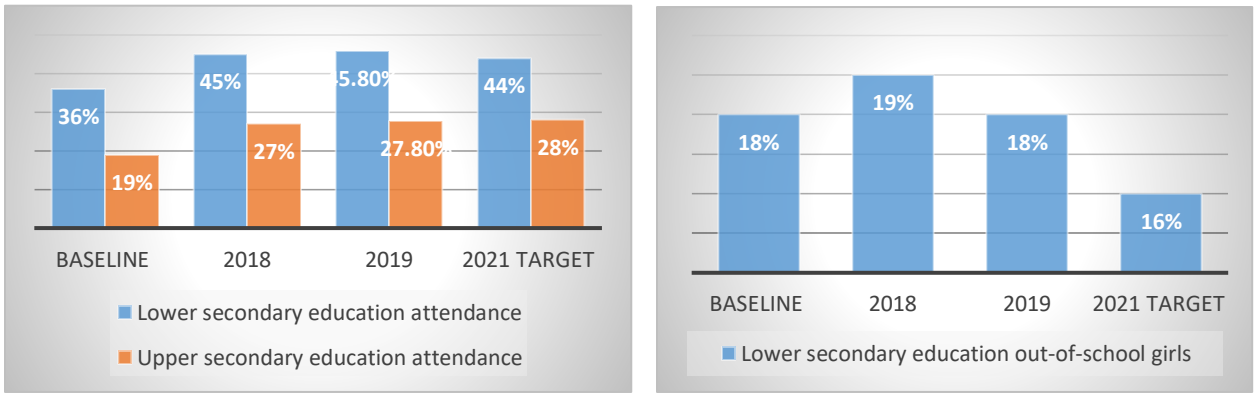



**Figure 29.** Gender Action Plan outcome indicator: Net attendance rate of children from the poorest quintile in lower and upper secondary education for girls (left) and the number of out-of-school girls (right) from baseline to the 2021 target. *Source: UNICEF Data companion & scorecard to the UNICEF Gender Action Plan, May 2020.*

## 5. Dissemination

The dissemination of findings from this DPhil include the four stand-alone journal articles, one of which has been published in the South African Medical Journal and two are currently under review by the Journal of Educational Development and Comparative Education Review, respectively. This candidate has presented findings from her dissertation at 1) International academic conferences, annual meetings of the UKRI GCRF Accelerating Achievement for Africa's Adolescent Hub, and the research student conference at the Department of Social Policy and Intervention, University of Oxford, 2) Research seminars at the Centre for Evidence-Based Intervention research group of the Department for Social Policy and Intervention and Green Templeton College at the University of Oxford, 3) Talks of the Grand Union doctoral training centre, the British Federation of Women Graduates, and wider international research audiences, such as the Coalition for Children Affected by AIDS, and 4) Meetings with the South African field team while the HEY BABY follow-up wave of data collection was underway. Future dissemination plans also include the development of written materials and presentations for collaborating schools in the East London and King William's Town area. In addition, a longer-term local dissemination plan is being developed which involves the capacity building of local team members to share these findings with local NGOs, research partners and the provincial department of Basic Education in South Africa. Further, the thesis results on retaining girls' in school – and particularly our data on the potential benefits of childcare – will be shared with the UK Foreign, Commonwealth & Development Office and the Department for International Development and in a policy brief for UNICEF.

# IX Conclusion

*"Being a young mother or father is not a walk in the park. It's hard, but if you believe that everything will be okay then it shall be okay".*

(Adolescent mother, pregnant aged 18)

In 2021, the COVID-19 pandemic continues to derail much of the progress that has been made towards the 2030 Sustainable Development Goals (UNFPA, 2020). UNFPA predicts that the crisis will cause an additional seven million unintended pregnancies across the world (see Cousins, 2020). Adolescent girls are at a particular risk for increased pregnancy rates as they are disproportionally affected by other consequences of the pandemic, including heightened poverty, restricted access to sexual and reproductive healthcare, child-marriages, and permanent school dropouts (Burki, 2020; Giannini, 2020; Grant, 2020; Jones, 2020; UN, 2020b). Ensuring the continued education for these adolescent mothers might not only be important for their own health (Stoner et al., 2017) and long-term wellbeing (Maslowsky, Hendrick, and Stritzel, 2021) but could also help to promote the developmental progress of their children (Barlow, 2012).

As mentioned in the introductory chapter of this thesis, it is possible that early motherhood is a conscious decision for some girls to ignite an 'alternative life course' (Geronimus, 1991, 2004; Preston-Whyte and Zondi, 1991, 1992) in an environment where poverty, unemployment, and lack of prospects pervade. However, adolescent girls across Sub-Saharan African often find themselves lacking knowledge, agency, services, and supportive environments that compromise their sexual and reproductive health and rights in addition to harmful gender norms, leading to unintended pregnancies. These have the potential to unexpectedly interfere with their transition into adulthood

(Santhya and Jejjeebhoy, 2015). Therefore, it remains important to offer adolescent girls options to build their ability to make informed life choices and equip them with the support they need to strengthen their future prospects and independence.

Adolescent mothers have the right to receive and complete the same education as everybody else. Most young people in South Africa share a desire to complete their education and hold high aspirations for their academic achievements. Whilst this study indicates that many adolescent mothers do manage to pursue their education throughout pregnancy and motherhood, aspirations alone are not enough for all young mothers. For many adolescent girls, a pregnancy exacerbates the numerous obstacles they already faced prior to the pregnancy and they deserve the same support and access to resources to achieve their educational goals that are within reach for many adolescent mothers' in high-income countries.

Few existing programmes target pregnant and parenting girls' schooling in South Africa, and there is a lack of scientific engagement and systematic documentation of the effectiveness of those programmes that do. Even though multiple promising interventions exist in the U.S., there is little evidence concerning the attempts to adapt and test the effectiveness of these interventions in the South African context. This DPhil project aimed to provide new and much needed evidence to guide future work towards improved support services and interventions for adolescent mothers in South Africa. The over-arching aim of this study was to support the development of targeted help for adolescent girls who struggle the most to complete their secondary education. This study provides large-scale evidence of adolescent mothers' school enrolment before, during, and after pregnancy and was able to examine the interrelationship between school progressions at these different stages. This is also the first study to examine several *modifiable* factors that help or hinder adolescent mothers' schooling at different stages during and after the pregnancy.

It is hoped that this study will enable fellow researchers and policy makers to leverage its results to guide their work towards improved services for adolescent mothers in the Eastern Cape and beyond.

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# Appendices

## Appendix 1.1: Ethics approval from University of Oxford. I-DREC of the Social Sciences and Humanities Division, University of Oxford (R48876/RE001; R48876/RE002).

SOCIAL SCIENCES & HUMANITIES
INTER-DIVISIONAL RESEARCH ETHICS COMMITTEE

Research Services, University of Oxford, Wellington Square, Oxford OX1 2JD
Tel: +44(0)1865 616576 Fax: +44(0)1865 280467
ethics@socsci.ox.ac.uk

17 January 2017

Professor Lucie Cluver
Department of Social Policy & Intervention

Dear Professor Cluver,

**Research Ethics Approval (CUREC 2)**
**Ref No: R48876/RE001**
**Title: HEY BABY**

The above application has been considered on behalf of the Social Sciences and Humanities Inter-divisional Research Ethics Committee (IDREC) in accordance with the procedures laid down by the University for ethical approval of all research involving human participants.

I am pleased to inform you that, on the basis of the information provided to the IDREC, the proposed research has been judged as meeting appropriate ethical standards, and accordingly approval has been granted.

Should there be any subsequent changes to the project, which raise ethical issues not covered in the original application, you should submit details to the IDREC for consideration.

Yours sincerely,

Claudia Kozeny-Pelling
Research Ethics Manager and Secretary SSH IDREC

cc: Sally Medley; Jenny Doubt; Sarah Hoeksma; Lidewij Arthers, SPI DREC

SOCIAL SCIENCES & HUMANITIES
INTERDIVISIONAL RESEARCH ETHICS COMMITTEE

Research Services, University of Oxford, Wellington Square, Oxford OX1 2JD
Tel: +44(0)1865 616576 Fax: +44(0)1865 280467
ethics@socsci.ox.ac.uk




6 November 2018

Prof Lucie Cluver
Department of Social Policy & Intervention
University of Oxford

Dear Prof Cluver

**Amendment of research ethics application**

**Ref No: R48876/RE002**

**Title: HEY BABY**

**Number of Amendment:** 1

**Month notification received:** January 2018

**Subjects of amendment:** Increase sample size of adolescent-parent families including parents (ages 14-24) and their children (under 5 years) to n=1000; Primary caregivers of the children of adolescent parents will be asked questions about the children's care, health and nutrition when adolescent parents are not the main caregiver of the child; Collecting additional data sources from adolescent and their children; Linking adolescent and child clinical records to adolescent interviews in collaboration with the National Health Laboratory Service of South Africa; Number of participating countries; Location of participating countries; Consent procedures; Country-level approvals; Participant pathway through the research; Handling of project data; Considering ethical issues; Types of secondary data collected.

The above request for amendment has been reviewed on behalf of the Social Sciences and Humanities Interdivisional Research Ethics Committee (IDREC).

I am pleased to inform you that, on the basis of the information provided to the IDREC, this amendment has been judged as meeting appropriate ethical standards.

Yours sincerely,

Claudia Kozeny-Pelling
Research Ethics Manager & Secretary SSH IDREC

cc: Inge Wessel, Camille Wittesaele, Elona Toska, Elizabeth Button, Maria Michalopoulou, Sally Medley

# Appendix 1.2: Ethics approval from University of Cape Town.

**UNIVERSITY OF CAPE TOWN**
**Faculty of Health Sciences**
**Human Research Ethics Committee**

**Room E53-46 Old Main Building**
**Groote Schuur Hospital**
**Observatory 7925**
**Telephone** [021] 406 6492
**Email:** sumayah.ariefdien@uct.ac.za
**Website:** www.health.uct.ac.za/fhs/research/humanethics/forms

01 June 2017

**HREC REF: 226/2017**

**Prof L Cluver**
Division of Child and Adolescent Psychiatry
Psychiatry & Mental Health
J-Floor, OMB

Dear Prof Cluver

**PROJECT TITLE: HELPING EMPOWER YOUTH BROUGHT UP IN ADVERSITY WITH THEIR BABIES AND YOUNG CHILDREN (HEY BABY)**

Thank you for your response letter dated 29 May 2017, addressing the issues raised by the Human Research Ethics Committee (HREC).

It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study.

**Approval is granted for one year until the 30 June 2018.**

Please submit a progress form, using the standardised Annual Report Form if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed within the approval period.
(Forms can be found on our website: www.health.uct.ac.za/fhs/research/humanethics/forms)

**Please quote the HREC REF in all your correspondence.**

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please note that for all studies approved by the HREC, the principal investigator **must** obtain appropriate institutional approval before the research may occur.

Yours sincerely

**PROFESSOR M BLOCKMAN**
**CHAIRPERSON, FHS HUMAN RESEARCH ETHICS COMMITTEE**

Federal Wide Assurance Number: FWA00001637.
Institutional Review Board (IRB) number: IRB00001938
This serves to confirm that the University of Cape Town Human Research Ethics Committee complies to the Ethics Standards for Clinical Research with a new drug in patients, based on the Medical

# Appendix 1.3: Ethics approval from Department of Health

Province of the
EASTERN CAPE
HEALTH

Office of the Sub – District Manager: Amahlathi Sub- District • 1 Bridge Street • West Bank • King William's Town • Eastern Cape
Private Bag X7425 • King William's Town • 5605 • REPUBLIC OF SOUTH AFRICA
Tel.: +27 (0)43 642 2794 • Fax: +27 (0)43 642 2147• Website: www.ecdoh.gov.za
E-mail: nombulelo.mdewuka@echealth.gov.za

| | |
|---|---|
| To: | Clinic Supervisor<br>Operational Managers: Amahlathi Sub-District Facilities |
| From: | Amahlathi Sub-District Manager |
| **Subject:** | Permission to conduct a research study in Amahlathi Sub-District:<br>**Promoting antiretroviral adherence and sexual reproductive health service access amongst adolescent parents and their children, living with and without HIV** |
| Date: | 22/05/18 |

This communique serves to inform the Operational Managers of Amahlathi Sub-District that Lucie Cluver, Elona Toska and the HEY BABY Research Team have been granted permission to conduct research in the facilities of Amahlathi Sub-District.

The sub-district office requests that the team be assisted with the information they need without compromising confidentiality of both consumers of the service and the image of the department. Your co-operation is always appreciated.

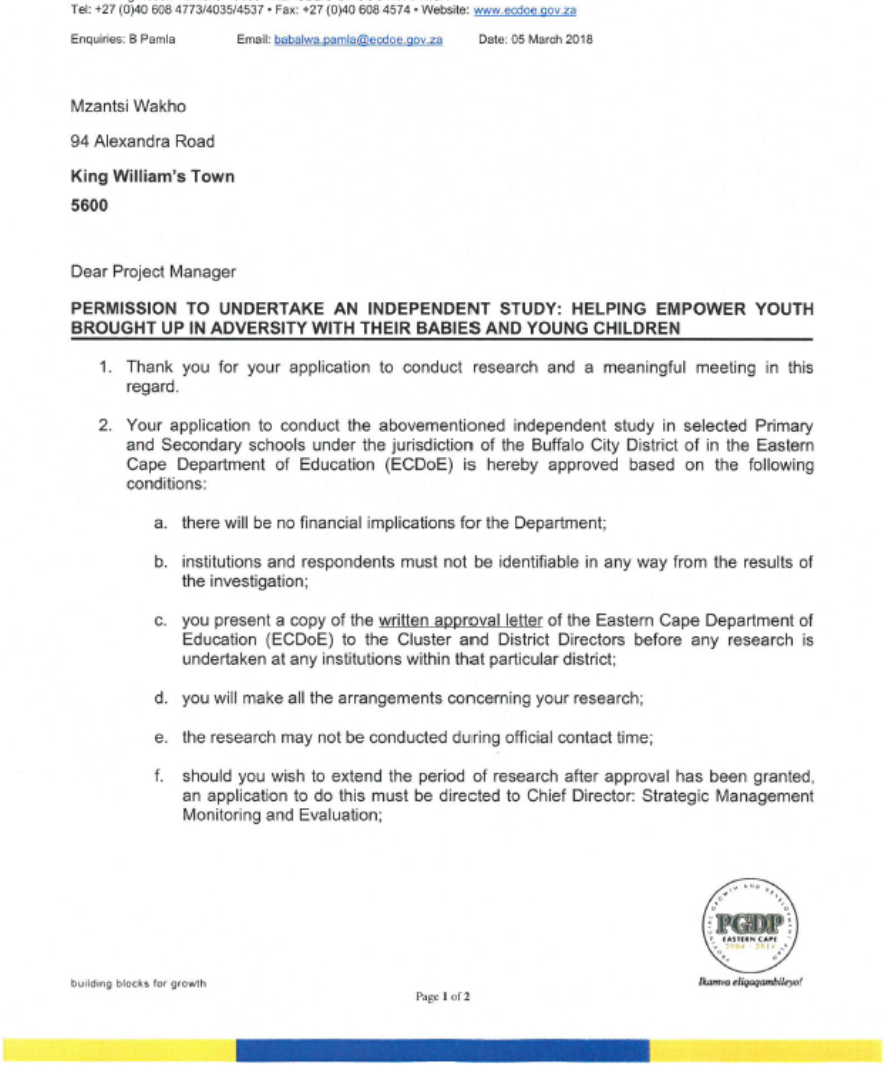
**Acting Sub-District Manager: N. E. Shugu** **Date** 22/05/18

*Together, moving the health system forward*

Fraud prevention line: 0800 701 701
24 hour Call Centre: 0800 032 364
Website: www.echealth.gov.za

2030 NDP

# Appendix 1.4: Ethics approval from Department of Basic Education



Province of the
EASTERN CAPE
EDUCATION

**STRATEGIC PLANNING POLICY RESEARCH AND SECRETARIAT SERVICES**
Steve Vukile Tshwete Complex • Zone 6 • Zwelitsha • Eastern Cape
Private Bag X0032 • Bhisho • 5605 • REPUBLIC OF SOUTH AFRICA
Tel: +27 (0)40 608 4773/4035/4537 • Fax: +27 (0)40 608 4574 • Website: www.ecdoe.gov.za

Enquiries: B Pamla Email: babalwa.pamla@ecdoe.gov.za Date: 05 March 2018

Mzantsi Wakho

94 Alexandra Road

**King William's Town**

**5600**

Dear Project Manager

**PERMISSION TO UNDERTAKE AN INDEPENDENT STUDY: HELPING EMPOWER YOUTH BROUGHT UP IN ADVERSITY WITH THEIR BABIES AND YOUNG CHILDREN**

1. Thank you for your application to conduct research and a meaningful meeting in this regard.
2. Your application to conduct the abovementioned independent study in selected Primary and Secondary schools under the jurisdiction of the Buffalo City District of in the Eastern Cape Department of Education (ECDoE) is hereby approved based on the following conditions:
    a. there will be no financial implications for the Department;
    b. institutions and respondents must not be identifiable in any way from the results of the investigation;
    c. you present a copy of the written approval letter of the Eastern Cape Department of Education (ECDoE) to the Cluster and District Directors before any research is undertaken at any institutions within that particular district;
    d. you will make all the arrangements concerning your research;
    e. the research may not be conducted during official contact time;
    f. should you wish to extend the period of research after approval has been granted, an application to do this must be directed to Chief Director: Strategic Management Monitoring and Evaluation;

g. your research will be limited to those institutions for which approval has been granted, should changes be effected written permission must be obtained from the Chief Director: Strategic Management Monitoring and Evaluation;

h. you present the Department with a copy of your final report free of charge in hard copy and electronic format. This must be accompanied by a separate synopsis (maximum 2 – 3 typed pages) of the most important findings and recommendations if it does not already contain a synopsis.

i. you present the findings to the Research Committee and/or Senior Management of the Department when and/or where necessary.

j. you are requested to provide the above to the Chief Director: Strategic Management Monitoring and Evaluation upon completion of your research.

k. you comply with all the requirements as completed in the Terms and Conditions to conduct Research in the ECDoE document duly completed by you.

l. you comply with your ethical undertaking (commitment form).

m. You submit on a six monthly basis, from the date of permission of the research, concise reports to the Chief Director: Strategic Management Monitoring and Evaluation

3. The Department reserves a right to withdraw the permission should there not be compliance to the approval letter and contract signed in the Terms and Conditions to conduct Research in the ECDoE.

4. The Department will publish the completed Research on its website.

5. The Department wishes you well in your undertaking. You can contact the Director, Ms. NY Kanjana on the numbers indicated in the letterhead or email nykanjana@live.co.za should you need any assistance.

**NY KANJANA**
**DIRECTOR: STRATEGIC PLANNING POLICY RESEARCH & SECRETARIAT SERVICES**

**FOR SUPERINTENDENT-GENERAL: EDUCATION**

# Appendix 1.5: Ethics approval from Department of Social Development

Province of the
EASTERN CAPE
SOCIAL DEVELOPMENT

174 I deal Homes Building -Oxford Street –East London-5200– Private Bag X0039 – Bhisho – 5605 – REPUBLIC OF SOUTH AFRICA
Tel: +27 (0)40-6026000 FAX: 043 722 1480 - Email address: mtutuzeli.njungwini@ecdsd.gov.za - Website: www.ecdsd.gov.za

**ORSA**
**70 Stewart Dr**
**East London**
**5241**

Dear Project Manager

**LETTER FOR SUPPORT FOR AN INDEPENDENT STUDY: HEY BABY (Helping Empower Youth Brought up in Adversity with their Babies and Young children)**

The Department has recognized the importance of addressing the specific needs of adolescent-parents and their children and supports the above project's research activities in communities in the Eastern Cape. This research project is designed to assess longitudinal pathways to resilience amongst adolescent parent-child dyads. This study will:

1. interview adolescent-parents and their children
2. assess pathways to resilience amongst adolescent parent families living with and without HIV
3. identify resilience promoting and protective factors which can mitigate risks
4. examine the potential impacts of social protection provisions (cash transfers, home-based visits, access to support groups), education support and childcare provisions on interrupting pathways to adversity
5. inform social and health policy and programming for adolescent-parents and their families

The DSD recognizes that the success of South Africa's social development programmes requires that health initiatives are interlinked with social services. We anticipate that this research will be useful in thinking about how to improve the well-being adolescents and young families in South Africa and how to ensure that social services work better for them. Therefore, the research project's goal and objectives are aligned with DSD's work.

The Department wishes you well in your undertaking.

Please contact Mr M. Njungwini at 0824124314 for more information.

**M.NJUNGWINI**
**SOCIAL WORK MANAGER**
**DATE:** 15/04/2018

# Appendix 2.1: Study questionnaires and assessments

## 1. Adolescent Parent Questionnaire (APQ) and Primary Caregiver Questionnaire (PCQ)

Adolescent parents also completed the APQ, which consisted of 9 sections that collected information on 1. Details of all children, 2. Child support (financial and social), 3. Pregnancy and birth experiences, 4. The father of the children, 5. Children's interaction with other children, 6. Children's food and nutrition, 7. Children's health, 8. Parenting experiences, 9. Activities that parent and child have engaged in over the past month, 10. HIV disclosure (where applicable). In cases where a child/children had a primary caregiver other than the adolescent parent, this person completed the PCQ which included the APQ questions which the adolescent would be unable to comment on (i.e., Child support, children's food and nutrition, children's interaction with other

children, and children's health).

# HEY BABY
## ADOLESCENT PARENT QUESTIONNAIRE

### INTRODUCTION





Thank you for taking the extra time to speak to us.
We are speaking to young people - men and women - who have had children. We would like to understand the experiences and needs of young people who have child(ren) – young parents – in your community.

Some of these questions will be specifically about your child(ren), others about your birth experiences and pregnancy. We would also like to ask about your child(ren)'s other parent and your parenting experiences.

We know some of the questions we ask will be difficult to answer but we are thankful for your honesty. Please remember that all your information is completely confidential and you will not be judged.

1. How many of your own (biological) children do you have?
*Note: You must have at least 1 biological child to continue with this questionnaire. The maximum number of children you can enter is 4.*

☐

**Thank you for sharing. If you have NO biological children, please chat to the RA about the children you have.**

2. What is your relationship to the child(ren)?

☐ Mother ☐ Father ☐ Other

You selected other. You must be the child's Mother or Father to continue with this questionnaire. Please speak to the RA.



HEY BABY
CONSENT

| | Yes | No |
|---|---|---|
| I have read and I understand the information sheet for this study and have had a chance to ask | * | |
| I understand that I have chosen to take part and that I am free to stop at any time, without giving any reason. This will not change any support or help I am getting. | * | |
| I agree to take part in this study. | * | |
| I agree that information from my school and clinic records can be added to my questionnaire responses. | * | |
| Where applicable, I allow Mzantsi Wakho to access my personal data from the National Health Laboratory Service. | * | |
| I am aware of who will have access to my information and that it may be shared with other researchers and governments. | * | |
| Do you understand that you and/or your child may be recorded and agree to being filmed on video? | * | |
| I agree for my child's health data (including information from Road to Health book, clinic information and other research health activities) to be collected and shared. | * | |
| Where applicable, I allow Mzantsi Wakho to collect and share my child(ren)'s personal data from the National Health Laboratory Service. | * | |
| I have understood how personal data will be collected, used, and protected. | * | |
| Do you want to be part of this study? | | |
| *Note: You must agree and want to take part in this study in order to continue. Please speak to the RA.* | | |

10. Participant Signature. I (the participant) have given consent and would like to take part in this study:

11. Does the participant's caregiver need or want to give consent?
*Note: Is the participant younger than 18 years of age?*

☐ Yes ☐ No

12. Caregiver Consent and Signature. As the legal guardian/parent, I give consent for the participant to take part in this study:

13. Choose your name (who is conducting the interview)?

- ☐ Amanda
- ☐ Babalwa
- ☐ Beauty
- ☐ Bongiwe
- ☐ Chunyiswa
- ☐ Mavis
- ☐ Philiswa
- ☐ PhumlaMn
- ☐ PumlaMy
- ☐ Nontuthuzelo
- ☐ Sibulelo
- ☐ Sindiswa
- ☐ Sisanda
- ☐ Thabisa
- ☐ Thandokazi
- ☐ Thembani
- ☐ Vuvu
- ☐ Zoliswa
- ☐ Mazibuko
- ☐ Onela
- ☐ Simphiwe
- ☐ Phakamami
- ☐ Nobathembu
- ☐ Nqanqa S
- ☐ Nomawele
- ☐ Zano
- ☐ Deneo
- ☐ Nqanqa M
- ☐ Xolelwa
- ☐ Sinebhongo
- ☐ Busisiwe M
- ☐ Busisiwe T
- ☐ Olwethu M
- ☐ Unathi S
- ☐ Busiswa M
- ☐ Trainee RA
- ☐ Test Questionnaire
- ☐ Fundiswa
- ☐ Nozuko
- ☐ Noxolo

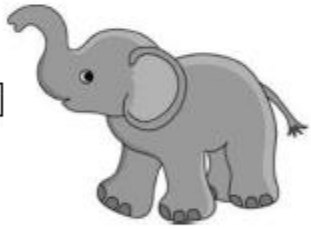


14. Please enter the SERIAL NUMBER for the participant you are interviewing:

*Note: If you don't know, please put 9999 and check later. Serial number must be between 0 and 5999 or '9999' if you don't know.*

15. Please select the participant's animal:

☐ 

☐ 

☐ 

16. Please enter TODAY's date:



17. [PC Gateway] Speak to the research assistant about how much you help taking care of your child(ren) are you able tell us more about your child(ren)'s nutrition, health and care?

☐ Yes ☐ No

HEY BABY



# SECTION 1: CHILD 1 DETAILS

**Now we would like to know a bit more about each of your children and your experiences with them. We will ask you the same questions for each of them. Thank you for your patience!**

**Let's start with your FIRST (oldest) child.**

18. What is your FIRST child's name?

_____

19. Please confirm the SERIAL NUMBER of the participant's first child by re-entering the participant's number here:
*Remember: The 'a' represents that this is the participant's FIRST (oldest) child.*

a

20. Is your child a girl or a boy?

☐ Boy ☐ Girl

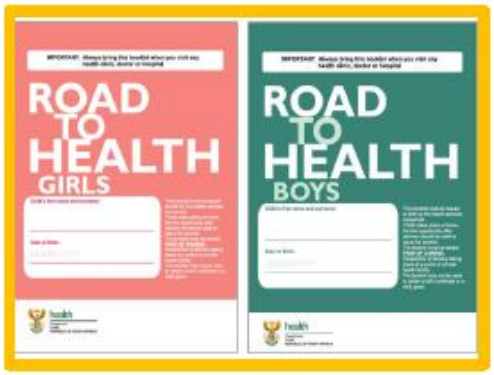
21. When was your child born?

22. Does your child have a birth certificate?

☐ Yes ☐ No ☐ I don't know

23. Does your child have a Road to Health booklet? Is it available for photographing?
*Note to the RA: Please talk to the primary caregiver about phographing the Road to Health Booklet.*

☐ Yes ☐ No




24. You selected 'No'. Please specify why your child doesn't have a Road to Health booklet:

_____

HEY BABY

25. Does this child live with you?

- ☐ Yes, all the time (**Skip to Q27**)
- ☐ Yes, 4 or more nights a week (**Skip to Q27**)
- ☐ Yes, but less than 4 nights a week
- ☐ No



26. Who does the child live with 4 nights or more a week?

- ☐ With their mother
- ☐ With their father
- ☐ With another caregiver near here
- ☐ With another caregiver far away
- ☐ I don't know

27. Who is the person who looks after this child the most?

*Note: Child's mother or father could be the participant.*

- ☐ Child's mother
- ☐ Child's father
- ☐ My caregiver
- ☐ My partner/husband/boyfriend (not child's father)
- ☐ My partner/wife/girlfriend (not child's mother)
- ☐ Someone else in my family (e.g. Grandmother/ grandfather, aunt/uncle)
- ☐ Neighbour/Someone in the community

28. You selected 'Someone else in the family'. Who is the member that looks after this child the most?

_____



29. How often do you see your child?

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ A few times a year
- ☐ Once
- ☐ Never

HEY BABY



# SECTION 2: CHILD 1 SUPPORT

How old was your child when you started getting the child support grant?
*Note: Please enter 777 in all boxes if you are not receiving child support grand for them. Enter 999 in all boxes if you do not know.*

30. Years: *Note: Cannot be more than 15 years.* ☐

31. Months: *Note: Cannot be more than 11 months.* ☐

32. Weeks: *Note: Cannot be more than 4 weeks.* ☐

33. Who receives the child support grant for your first child?

- ☐ Child's mother
- ☐ Child's father
- ☐ My caregiver
- ☐ My partner/husband/boyfriend (not child's father)
- ☐ My partner/wife/girlfriend (not child's mother)
- ☐ Someone else in my family



34. CODE G (Child 1) – If participant doesn't receive or doesn't know about child support grant.

Please Acknowledge ☐

35. CODE GRANT (Child 1)

Guidance Questions:

- What challenges have you faced in receiving a child support grant?
- Would like us to assist you in finding help? (e.g. Information on grants, social worker)

Please Acknowledge ☐

# CHILD 1 SUPPORT CONTINUED

Questions 36 to 69 should only be answered if the participant answered 'Yes' to the PC Gateway question (Q17). Skip to question 70 if the participant answered 'No' to the PC Gateway question (Q17)"

All couples and families are different. Sometimes it is easy for the mother and the father of the child to live together, at other times, they need to live separately. Sometimes, one of the parents cannot be involved or lives away from the child.



36. How often does the other parent have contact (home visits, phone calls, meeting up at another place) with your first child?

- ☐ Every day
- ☐ Every week/weekend
- ☐ Every month
- ☐ Every couple of months
- ☐ Every year
- ☐ Never
- ☐ I don't know

Sometimes we must leave the house to do chores, fetch water, go to the shops, or to meet with people. It is difficult to always bring a child with us, even when we want to.

37. How many children <u>older</u> than <u>your first child</u> live in the same house as this child?
*Note: If you don't know please enter 999. You cannot put more than 20.*

38. How many children who are <u>younger</u> than <u>your first child</u> live in the same house as this child?
*Note: If you don't know please enter 999. You cannot put more than 20.*

39. How days in the last week, did you have to leave your child alone at home without an adult?
*Note: If you don't know please put 999. You cannot put more than 7 days.*

40. CODE N (Child 1) – If child has been left at home ever (i.e. more than 0 days)

Please Acknowledge ☐

41. CODE NEGLECT (Child 1)

Guidance Questions:

- How does your child feel about being left alone?
- Would like us to assist you in finding help? (e.g. Information on grants, social worker)

Please Acknowledge ☐

42. Does anyone help you look after your child at home (without you) at least once every 2 weeks?
*Note: Choose as many as apply. You cannot select 'No one' with any other options.*

- ☐ Child's mother
- ☐ Child's father
- ☐ My caregiver
- ☐ My partner/husband/ boyfriend (not child's father)
- ☐ My partner/wife/girlfriend (not child's mother)
- ☐ Someone else in my family
- ☐ A friend, neighbour, or someone else in the community
- ☐ A community organisation
- ☐ No one

43. Does anyone help you buy things for your child, like nappies, food and clothes at least once every 2 weeks?
*Note: Choose as many as apply. You cannot select 'No one' with any other options.*

- ☐ Child's mother
- ☐ Child's father
- ☐ My caregiver
- ☐ My partner/husband/ boyfriend (not child's father)
- ☐ My partner/wife/girlfriend (not child's mother)
- ☐ Someone else in my family
- ☐ A friend, neighbour, or someone else in the community
- ☐ A community organisation
- ☐ No one

44. Does anyone help you with the washing or preparing food for your first child at least once every 2 weeks?
*Note: Choose as many as apply. You cannot select 'No one' with any other options.*

- ☐ Child's mother
- ☐ Child's father
- ☐ My caregiver
- ☐ My partner/husband/ boyfriend (not child's father)
- ☐ My partner/wife/girlfriend (not child's mother)
- ☐ Someone else in my family
- ☐ A friend, neighbour, or someone else in the community
- ☐ A community organisation
- ☐ No one

45. Does anyone else spend time with the child playing, talking, singing and telling stories at least once every 2 weeks?
*Note: Choose as many as apply. You cannot select 'No one' with any other options.*

- ☐ Child's mother
- ☐ Child's father
- ☐ My caregiver
- ☐ My partner/husband/ boyfriend (not child's father)
- ☐ My partner/wife/girlfriend (not child's mother)
- ☐ Someone else in my family
- ☐ A friend, neighbour, or someone else in the community
- ☐ A community organisation
- ☐ No one

HEY BABY

46. How many days did your child attend a child care centre, crèche, or reception class last week?
*Note: If it is a holiday, think of the last week when the child care centre, crèche, or reception class was open. If you don't know, please put 999. If child does not attend ECD, put 0.*

47. If you put 0, why does your child not go to ECD?

- ☐ We preferred to look after them (family care)
- ☐ The crèche/educare not open long enough
- ☐ The crèche/educare is not safe
- ☐ The crèche/educare is too expensive
- ☐ The crèche/educare is too far away
- ☐ I did not think they would take care of my child well
- ☐ The child goes to school
- ☐ The child is too old for creche

**If you put 0 to Q46, skip to Q68**





HEY BABY



# CHILD 1 ECD

48. What is the name of the child care centre, crèche or reception class your child goes to at least once a week?

49. How many hours a day does your child attend this place?
*Note: You cannot select more than 20 hours.*

50. How much does it cost per month (ZAR)?

51. How many children attend the same place as your child?
*Note: You cannot select more than 200. If you don't know, please enter 999.*

52. How many teachers/helpers are there at the place where your first child goes?
*Note: You cannot select more than 200. If you don't know, please enter 999.*

The following statements describe some things about crèches or educares. Please tell us how they relate to the care your child is receiving at the crèche/educare they go to.

| | Disagree | Not Sure | Agree |
|---|---|---|---|
| 53. My child feels safe and secure in care | | | |
| 54. The caregiver is warm and affectionate toward my child | | | |
| 55. It's a healthy place for my child | | | |
| 56. My child is treated with respect | | | |
| 57. My child is safe with this caregiver | | | |
| 58. My child gets a lot of individuals attention | | | |
| 59. The caregiver and I share information | | | |
| 60. The caregiver is open to new information and learning | | | |
| 61. The caregiver shows he/she knows a lot about children and their needs | | | |
| 62. The caregiver handles discipline matters easily without being harsh | | | |
| 63. My child likes the caregiver | | | |
| 64. The caregiver is supportive of me as a parent | | | |
| 65. There are a lot of creative activities going on | | | |
| 66. It's an interesting place for my child | | | |
| 67. The caregiver is happy to see my child | | | |

68. Has anyone visited your home in the past year to help you with you child?
*Note: Choose as many as apply. You cannot select 'No one' with any of the other options.*

- ☐ Someone from the clinic visited my home
- ☐ A social worker visited my home
- ☐ Someone from the government visited my home
- ☐ Someone from a local organisation visited my home
- ☐ I attended a parenting group
- ☐ I got help from a local organisation
- ☐ Family and friends
- ☐ No one

69. What was the visit for?
*Note: Choose as many as apply.*

- ☐ Other researchers (other than this team)
- ☐ Meet my child(ren)
- ☐ Sales person
- ☐ Help us with difficulties at home
- ☐ Support with accessing grants and services
- ☐ Help with TB/HIV treatment
- ☐ Support with other health issues



**You are amazing for being a parent – we know that even with some help it's a 24/7 job!**

HEY BABY

# SECTION 3:
# CHILD 1 PREGNANCY & BIRTH EXPERIENCES

Now we'd like to ask you some questions about pregnancy and birth. Becoming a parent can feel like a real mix. We might be proud, happy, and also scared or even angry that this has happened unexpectedly. It can also be really difficult. Can we ask you about how this has been for you?



## BOYS ONLY (Girls skip to Q77)

FOR BOYS ONLY: Jongile has had a girlfriend for a long time. His girlfriend got pregnant last year. Jongile decided to support the child. Jongile's friend Fikile likes lots of girls and has had sex with many of them. Some of these girls have told Fikile they got pregnant, but he is not sure what happened with the baby.

70. How old were you when your first child's mother was pregnant?
*Note: You cannot enter an age older than 24.*

71. Tell us a bit more about this pregnancy:
*Note: Choose as many as apply.*

- ☐ I was not planning on getting my girlfriend pregnant
- ☐ I did not want to get my girlfriend pregnant
- ☐ I did not care whether my girlfriend got pregnant or not
- ☐ I wanted to get my girlfriend pregnant
- ☐ I was planning on getting my girlfriend pregnant

72. Was your baby born before their due date?

- ☐ Yes
- ☐ No (**Skip to Q74**)
- ☐ I don't know (**Skip to Q74**)

73. If yes, how many weeks early?
*Note: You cannot put more than 20 weeks.*

HEY BABY

74. What did you do during the pregnancy?
*Note: Choose as many as apply. You cannot select 'I was not involved at all' with any other choices.*

- ☐ I was not involved at all
- ☐ I went to some antenatal bookings with the child's mother
- ☐ My child's mother did not want me to go to antenatal bookings with her
- ☐ I followed the pregnancy and watched the baby growing
- ☐ I bought baby things to prepare
- ☐ I help the child's mother with her chores
- ☐ I was there when the child was born
- ☐ Other

75. You selected 'Other'. Please specify what else you did during the pregnancy:

76. Please tell us more about your experience at the clinic's during your child's mothers antenatal visit:
*Note: Choose as many as apply.*

- ☐ I felt uncomfortable being there
- ☐ I felt welcome to be there for my child's mother
- ☐ The clinic staff or nurses did not let me join in the consultation



HEY BABY

## GIRLS ONLY (Boys skip to Q117)

FOR GIRLS ONLY: Sometimes being pregnant is difficult. Noxolo got pregnant when she was 16. She was not sure when it happened or how, but she decided to keep the baby with her grandmother's help. Nomvula got pregnant at 15, but decided that she could not have the baby. Some friends told her to take some herbs, other friends suggested she go to the hospital to end the pregnancy.

77. How old were you when you were pregnant with your first child?
*Note: You cannot enter an age older than 24.*

78. Often it can be difficult when you find out that we will become a parent. Sometimes people feel happy, others get scared and worried. How did you react, when you found out you were pregnant with your first child?
*Note: Choose as many as apply.*

- ☐ I was ok (neither happy nor unhappy) with it
- ☐ I was happy
- ☐ I was upset
- ☐ I wanted to end the pregnancy

79. What grade were you in when you got pregnant with your first child?
*Note: Put 666 if you were not at school. Enter 999 if you do not remember. Your grade cannot be higher than 12.*



HEY BABY

# PREGNANCY & SCHOOL



When we are pregnant, our bodies go through a lot of physical changes. This can be very tiring and sometimes it is really hard to carry on with school. Some young mothers stay in school until they give birth, but others need to stop schooling earlier during their pregnancy.

80. How long did you continue going to school when you were pregnant with your first child?

- ☐ Until the end of my pregnancy (**Skip to Q83**)
- ☐ I stopped going as soon as I found out that I was pregnant
- ☐ I stopped going as soon as others could tell I was pregnant
- ☐ I stopped going for other reasons

81. You selected 'Other'. Why did you stop going to school during the pregnancy with your first child?

82. Please specify how long you continued going to school:

_____

83. Tell us a bit more about when you were pregnant with your first child:
*Note: Choose as many as apply.*

- ☐ I was not planning to get pregnant
- ☐ I did not want to get pregnant
- ☐ I did not care whether I got pregnant
- ☐ I wanted to get pregnant
- ☐ I was planning to get pregnant

HEY BABY

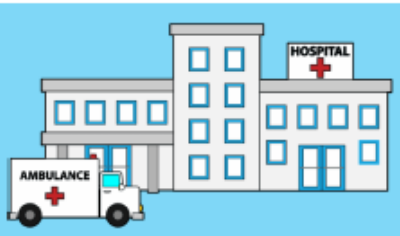
84. Was your baby born before their due date?

- ☐ Yes
- ☐ No (**Skip to Q86**)
- ☐ I don't know (**Skip to Q86**)

85. If yes, how many weeks early?
*Note: You cannot put more than 20 weeks.*

86. How did you give birth to your baby?

- ☐ At home
- ☐ In the hospital/clinic (natural birth)
- ☐ I had a caesarean (c-section)




Being pregnant is really hard – sometimes we get sick, sometimes we are very tired. It may be harder to remember things, like taking medicine or clinic appointments. When we get closer to giving birth, it is harder to move without help. We would like to ask you a couple of questions about when you were pregnant with your first child. If this was a long time ago, that is ok!

87. When was the first time you had a clinic/hospital appointment when you were pregnant with your first child?

- ☐ First trimester (1-3 months pregnant)
- ☐ Second trimester (4-6 months pregnant)
- ☐ Third trimester (7-9 months pregnant)
- ☐ I don't remember but while I was pregnant
- ☐ I did not go to the clinic during pregnancy – just during or after birth

88. Who was there with you?
*Note: Choose as many as apply. You cannot select 'I went alone' or 'I don't remember' with any other choices.*

- ☐ I went alone
- ☐ My caregiver/parent
- ☐ Child's father
- ☐ My partner/boyfriend
- ☐ Friends
- ☐ I don't remember




89. Did anyone ever beat you or hit you during your pregnancy?

- ☐ Yes
- ☐ No (**Skip to Q94**)

90. CODE B (Child 1)

Please Acknowledge ☐





91. CODE BEATEN (Child 1) Who was it?

*Note: We will keep this information confidential and anonymous. We would like to know so that we can make sure that we best protect young women while they are pregnant.*

- ☐ Caregiver/parent
- ☐ A family member
- ☐ Child's father
- ☐ Boyfriend, husband, sexual partner (not child's father)
- ☐ Someone else

92. Who did you ask for help?

*Note: Choose as many as apply. You cannot select 'I didn't ask anyone for help' with any of the other choices*

- ☐ I didn't ask anyone for help
- ☐ Parent or person who cares for me
- ☐ Rest of my family
- ☐ Friends at home
- ☐ Friends at school
- ☐ Other friends
- ☐ Teachers/principal at school
- ☐ People at church
- ☐ Others who live near my house
- ☐ Police
- ☐ Social worker
- ☐ My nurse/doctor
- ☐ Other

93. How did the person you asked for help react?

*Note: Choose as many as apply.*

- ☐ They believed me and supported me
- ☐ They believed me, but did not care
- ☐ They believed me but told me not to tell anyone or ask for help
- ☐ They blamed me for causing it
- ☐ They did not believe me at all
- ☐ They took me to the clinic, police or social worker

94. When you were pregnant with your first child, how many pregnancy-related/antenatal appointments at the clinic or hospital did you attend?

- ☐ 9 or more
- ☐ 5 to 8 appointments
- ☐ 2 to 4 appointments
- ☐ 1 appointment
- ☐ None
- ☐ I don't remember how many appointments



95. Think about the appointments that you were not able to get to. Why did you miss them?
*Note: Choose as many apply. You cannot select 'I have never missed an appointment' with any other options.*

- ☐ I had no travel money
- ☐ I had to go to school
- ☐ I had a job
- ☐ There was no one to go with me
- ☐ I was afraid the nurses would yell/shout at me
- ☐ I did not know that I should attend the clinic/make a booking
- ☐ My partner/caregiver stopped me from going
- ☐ Other
- ☐ I have never missed an appointment

96. You selected 'Other'. Please specify why you missed appointments:

97. Sometimes, the nurse or doctor are not able to provide all the help and care that you need while pregnant. What did you do to get the antenatal care/ services that you were looking for?
*Note: Choose as many apply.*

- ☐ I stayed at the same clinic
- ☐ I went to different clinics that had better services and staff
- ☐ I went to a traditional clinic instead
- ☐ I stopped getting antenatal care
- ☐ I did not go back to the clinic I was booked at
- ☐ I went to a clinic closer to home
- ☐ Other

98. You selected 'Other'. Please specify what you did to get the antenatal care/services that you were looking for:

99. Did you have any problems during pregnancy?
*Note: Choose as many apply. You cannot select 'There were no problems' with any other option.*

- ☐ I had high blood pressure
- ☐ I had seizures or fits
- ☐ I bled a lot during pregnancy
- ☐ I had a fever
- ☐ My palms went yellow
- ☐ Other
- ☐ There were no problems

100. You selected 'Other'. Please specify any problems you had during pregnancy:

101. Did you have any problems during birth?
*Note: Choose as many apply. You cannot select 'There were no problems' with any other option.*

- ☐ My child was the wrong way round
- ☐ My child was admitted to neonatal intensive care
- ☐ I bled a lot during birth
- ☐ I was sick after giving birth
- ☐ There were no problems (**Skip to Q105**)

How long were you sick for?

102. Weeks:

103. Days:

104. Please specify what you were sick with:

105. Was your baby sick when they were born?

☐ Yes ☐ No (**Skip to Q109**)

How long was your baby sick for?

106. Weeks:

107. Days:

108. Please specify what your baby was sick with:

Please tell us how the healthcare providers made you feel during the birth of your first child:

| | Not at all | Sometimes | Most of the time |
|---|---|---|---|
| 109. I felt comfortable | | | |
| 110. They were not paying attention | | | |
| 111. I was shouted at | | | |
| 112. They did not know the answers to my questions | | | |
| 113. They were too busy to give me the help I needed | | | |

114. After you were discharged, how many times did you have a health-check about your health as a young mother at a hospital or clinic?

- ☐ Once
- ☐ More than 2 times
- ☐ None (**Skip to Q116**)

115. When did a health care provider check about your health as a young mother?
*Note: Choose as many as apply.*

- ☐ The day after I was discharged
- ☐ Within a week of being discharged
- ☐ Six weeks after giving birth
- ☐ Before my baby was 3 months
- ☐ After my baby turned 3 months

116. If you had an appointment to check on your health after birth but could NOT attend, what was the main reason for missing it?
*Note: Choose as many as apply. You cannot select 'I did not miss any appointments' with any of the other options.*

- ☐ I was not told to get a check-up
- ☐ There was no one to look after my baby
- ☐ I did not have enough transport money
- ☐ It is too far to walk
- ☐ The nurses treated me badly the last time I went
- ☐ I had to go to school
- ☐ I had a job and could not take time off
- ☐ Other
- ☐ I did not miss any appointments

HEY BABY

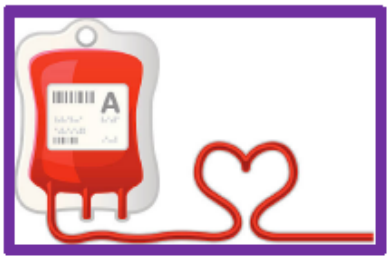
# HEALTH QUESTIONS

117. Have you had your blood pressure checked in the last year?

- ☐ Yes
- ☐ No (**Skip to Q119**)

118. What were the results of your blood pressure?

- ☐ The clinic said I had high blood pressure
- ☐ The clinic said my blood pressure was OK
- ☐ The clinic said I had low blood pressure
- ☐ I do not remember
- ☐ I was told the results but did not know what it meant
- ☐ I was not told the results




119. Do you know your blood type?

- ☐ Yes, I did a blood type test and know my blood type
- ☐ Yes, I did the blood type test but do not know my blood type
- ☐ No, I've never had a blood type test

120. Have you ever had a HIV test?

- ☐ Yes, in the last year
- ☐ Yes, more than a year ago
- ☐ No, I've never had a HIV test (**Skip to Q137**)

121. What were the results of your HIV test?

- ☐ I am HIV positive
- ☐ I am HIV negative (**Skip to Q137**)
- ☐ I did not get the results (**Skip to Q137**)

122. When did you find out you were positive?

- ☐ Before my FIRST child
- ☐ During my pregnancy with my FIRST child
- ☐ After my FIRST child
- ☐ During my pregnancy with my SECOND child
- ☐ After my SECOND child
- ☐ During my pregnancy with my THIRD child
- ☐ After my THIRD child
- ☐ During my pregnancy with my FOURTH child
- ☐ After my FOURTH child

HEY BABY

## HIV+ BOYS ONLY (Girls skip to Q124)

123. With regards to your first child, when did you find out you were HIV positive?

- ☐ I am not HIV-positive
- ☐ When I was younger (before my child's mother got pregnant/ gave birth)
- ☐ Whilst my child's mother was pregnant
- ☐ During or after my child's birth
- ☐ I don't remember

## HIV+ GIRLS ONLY (Boys skip to Q161)

124. With regards to your first child, when did you have your HIV test?

- ☐ Before I got pregnant
- ☐ While I was 0-3 months pregnant (first trimester)
- ☐ While I was 4-6 months pregnant (second trimester)
- ☐ While I was 7-9 months pregnant (third trimester)
- ☐ I don't remember, but while I was pregnant
- ☐ During or after birth



125. When did you start taking antiretroviral treatment/HIV medicine?

- ☐ I have never started ART
- ☐ Before I got pregnant
- ☐ While I was 0-3 months pregnant (first trimester)
- ☐ While I was 4-6 months pregnant (second trimester)
- ☐ While I was 7-9 months pregnant (third trimester)
- ☐ I don't remember, but while I was pregnant
- ☐ During or after birth



126. How long did the nurse or doctor tell you that you should drink antiretroviral (HIV/AIDS) pills for?

- ☐ To drink while I was pregnant, in labour or breastfeeding
- ☐ To keep drinking for the rest of my life

HEY BABY



127. How long did you take antiretroviral treatment/HIV medicine for?

- ☐ Only one time
- ☐ Less than a month
- ☐ Less than one year
- ☐ 1-2 years (12-24 months)
- ☐ 3 or more years
- ☐ For life/ I am still taking them

128. Which clinic were you given your antiretroviral treatment/HIV medicine for the first time?

- ☐ ANC clinic - clinic where I saw a nurse during my pregnancy
- ☐ Labour ward - while I was waiting to give birth to my baby
- ☐ ARV clinic - the clinic where all other people get their ARVs
- ☐ Children's clinic

129. Did you stay at that clinic until you stopped breastfeeding, or did you pick up your antiretroviral treatment (HIV/AIDS) pills/medications somewhere else?

- ☐ Yes, I stayed at the same clinic
- ☐ No, I changed clinics

130. Where did or do you usually pick up your antiretroviral treatment/HIV medicine?

- ☐ Hospital
- ☐ Clinic
- ☐ Other

131. You selected 'Other', please specify where else you usually pick up your antiretroviral/HIV medicine:

HEY BABY

132. When you were pregnant or breastfeeding with your first child, did you ever stop taking your medication?

- ☐ Yes, I stopped completely
- ☐ Yes, I stopped and restarted
- ☐ No, I did not stop (**Skip to Q135**)

133. CODE AD (Child 1)

Please Acknowledge ☐

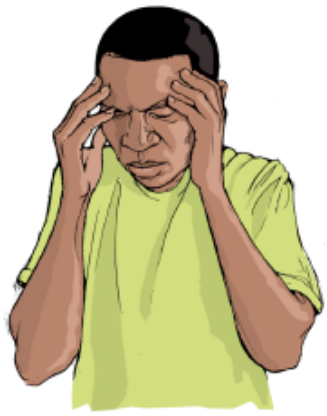


134. CODE ADOLESCENT DEFAULTER (Child 1)

Guidance Questions:

- How long did you stop taking your medication for?
- Did you start taking your medication again?

Please Acknowledge ☐



135. What side-effects did these pills give you while you were pregnant or breastfeeding?
*Note: Choose as many as apply.*

- ☐ None
- ☐ Nausea
- ☐ Vomiting
- ☐ Diarrhoea
- ☐ Headaches
- ☐ Bad dreams/problems sleeping
- ☐ Other

136. You selected 'Other', please specify what other side-effects these pills give you:

HEY BABY

# HEALTH QUESTIONS (ALL GIRLS ONLY)

Sometimes nurses, or doctors, offer young mothers methods to help them decide when and if they want to have another baby.



137. Which of the following were you recommended are you gave birth to your first child?

*Note: Choose as many as apply. You cannot select 'None of the above' with any of the other options.*

- ☐ Condoms
- ☐ IUD
- ☐ Implant
- ☐ Injection
- ☐ Pill
- ☐ Sterilization
- ☐ None of the above

138. Did you choose to use anything to help you decide when and if you want to have another baby?

*Note: Choose as many as apply. You cannot select 'None of the above' with any of the other options.*

- ☐ Condoms
- ☐ IUD
- ☐ Implant
- ☐ Injection
- ☐ Pill
- ☐ Sterilization
- ☐ None of the above

HEY BABY

Being pregnant can be exciting, but also a bit confusing. Things are changing all the time. You can have cravings, cramps, or strange aches.

139. Where did you get your information about your pregnancy and taking care of yourself from?
*Note: Choose as many as apply.*

- ☐ My mother/caregiver
- ☐ Nurse/ Doctor at the local clinic
- ☐ Community health worker or peer/mentor mom
- ☐ Pharmacy
- ☐ Traditional healer
- ☐ Social worker
- ☐ Friends/other young moms like me
- ☐ School
- ☐ Book/ library
- ☐ Internet
- ☐ Social media (Facebook, Twitter, Instagram)
- ☐ Mobile app (MomConnect, BeWise, BabyCentre, etc)
- ☐ Other

140. You selected 'Other'. Where else did you get information about your pregnancy and taking care of yourself from?

141. How supported did you feel during your pregnancy?

- ☐ Very supported (**Skip to Q144**)
- ☐ Sometimes supported (**Skip to Q144**)
- ☐ I felt rejected
- ☐ Not supported at all (**Skip to Q144**)

142. CODE P (Child 1)

Please Acknowledge ☐ ⚠



143. CODE PREGNANCY SUPPORT (Child 1)

Guidance Questions:

- Who rejected you?
- What happened?
- Did you ask for help?
- Did you receive any help from other people?

Please Acknowledge ☐ ⚠

144. Did you enjoy your first pregnancy?

- ☐ Yes
- ☐ No
- ☐ I don't remember



Having children makes your life really busy and parenthood makes it often difficult to focus on other things, such as going to school and school-work. Some mothers cannot go back to school after they had a child whilst others are able to continue with their schooling. We would like to hear about your experiences.



How old was your first child when you went back to school?

*Note: Enter 777 if you did not go back to school at all.*

145. Months: ☐ 146. Weeks: ☐

147. If you put 777, what was/were your reason(s) you did not go back to school after you had your first child?

*Note: Choose as many as apply.*

- ☐ I was unable to pay school fees
- ☐ I had to care for the child
- ☐ I needed/wanted to work
- ☐ I was not interested in school
- ☐ I was sick
- ☐ I had to care for a sick relative
- ☐ Other

148. You selected 'Other', please specify the reason(s) you did not go back to school:




149. Which grade did you start when you returned to school?

Please think about THE LAST FULL TERM YOU WENT TO SCHOOL. If you are not sure when this was, please chat with the Research Assistant.

In the last full term of school, how often did the following happen when you needed to take your first child to the clinic/facility for their health during school-time:

| | Never | Sometimes | Often |
|---|---|---|---|
| 150. I missed school | | | |
| 151. Someone else took them | | | |
| 152. I went to school late | | | |
| 153. I did not take my first child to the clinic during that time | | | |
| 154. Other | Skip to Q156 | | |

155. You selected 'Other', please specify when you had to take your first child to the clinic/facility for their health:

156. In the last full term of school, how many weeks did you miss school (not including weekends, holidays or public strikes) because you looked after your first child?

- ☐ Less than a week in total
- ☐ About a week in total
- ☐ About 2 weeks in total
- ☐ About 3 weeks in total
- ☐ More than a month

157. In the last full term of school, how many weeks were you unable to spend the time you needed on homework/ studying for exams because you looked after your first child?

- ☐ Less than a week in total
- ☐ About a week in total
- ☐ About 2 weeks in total
- ☐ About 3 weeks in total
- ☐ More than a month

158. Is there a song you like so much you have it completely memorised? What is the title?

HEY BABY

# SECTION 4: CHILD 1: THE OTHER PARENT



We would like to ask a bit more information about your first child's other biological parent. This information will be kept completely anonymous and confidential.

**GIRLS ONLY (BOYS SKIP TO Q161)**
Akhona had a baby last year. She isn't sure of who the father is, but is bringing the child up together with her grandmother. Lindiwe also had a baby last year, and she lives with the father of the child. But sometimes the relationship with your child's other parent can also be difficult. What about you?

159. Do you know who the father of your first child was?

- ☐ Yes
- ☐ No (**Skip to Q186**)
- ☐ Not sure (**Skip to Q186**)

160. How old is the father?
*Note: If you don't know, please enter 999. If they are not alive any more, please enter 777. You cannot put more than 100 years.*

161. How old is the mother?
*Note: If you don't know, please enter 999. If they are not alive any more, please enter 777. You cannot put more than 100 years.*

162. How old was the first child's father or mother when the first child was born?
*Note: If the other partner died during the pregnancy, put their age at the time. If you don't know, put 999. You cannot put more than 100 years.*

HEY BABY

**GIRLS ONLY**

163. Often it can be difficult when we find out that we will become a parent. Sometimes people feel happy, others get scared and worried. How did your first child's father react when you told them about the baby, when you were pregnant?
*Note: Choose as many as apply. You cannot select 'I did not know who the father was' or 'I never told him about the baby/child' with any other options.*

- ☐ I did not know who the father was
- ☐ They were okay with it
- ☐ They denied being the father
- ☐ They were happy
- ☐ They wanted me to end the pregnancy
- ☐ They were supportive
- ☐ They were angry
- ☐ They yelled at me
- ☐ They hit me or beat me up
- ☐ I never told them about the baby/ child

**BOYS ONLY**

164. Often it can be difficult when we find out that we will become a parent. Sometimes people feel happy, others get scared and worried. How did you react, when your first child's mother told you that she was pregnant?
*Note: Choose as many as apply. You cannot select 'She never told me about the baby/child until they were born' with any other options.*

- ☐ I was ok with it
- ☐ I was not sure it was child
- ☐ I was happy
- ☐ I was upset/shocked
- ☐ I wanted her to end the pregnancy
- ☐ She never told me about the baby/ child until they were born



**GIRLS ONLY**

165. Do you know your first child's father's HIV status now?

- ☐ HIV-positive
- ☐ HIV-negative
- ☐ I don't know

**BOYS ONLY**

166. Do you know your first child's mother's HIV status now?

- ☐ HIV-positive
- ☐ HIV-negative
- ☐ I don't know

**GIRLS ONLY**

167. Is your first child's father still your partner?

- ☐ Yes, all of the time
- ☐ Yes, sometimes
- ☐ No

**BOYS ONLY**

168. Is your first child's mother still your partner?

- ☐ Yes, all of the time
- ☐ Yes, sometimes
- ☐ No




**GIRLS ONLY**

169. Where do they (the father) live?

- ☐ They live with me and the child
- ☐ They live nearby
- ☐ They live far away
- ☐ I don't know where they live

**BOYS ONLY**

170. Where do they (the mother) live?

- ☐ They live with me and the child
- ☐ They live nearby
- ☐ They live far away
- ☐ I don't know where they live

**GIRLS ONLY**

171. Have you had arguments with the child's father about money to look after the child?

- ☐ Yes
- ☐ No

**BOYS ONLY**

172. Have you had arguments with the child's mother about money to look after the child?

- ☐ Yes
- ☐ No

173. Has your first child's other parent ever hit or beaten you up?

☐ Yes ☐ No

**GIRLS ONLY**

174. Have you sought a maintenance order for your first child from their father?

- ☐ No, I haven't tried to get this (**Skip to Q178**)
- ☐ Yes, I have tried but didn't get any maintenance order (**Skip to Q178**)
- ☐ Yes, I have a maintenance order

**BOYS ONLY**

175. Have you sought a maintenance order for your first child from their mother?

- ☐ No, I haven't tried to get this (**Skip to Q178**)
- ☐ Yes, I have tried but didn't get any maintenance order (**Skip to Q178**)
- ☐ Yes, I have a maintenance order

**GIRLS ONLY**

176. Does their father comply with the maintenance order?

- ☐ Yes
- ☐ No

**BOYS ONLY**

177. Does their mother comply with the maintenance order?

- ☐ Yes
- ☐ No

**IF 'YES' ON Q176/177, GIRLS SKIP TO Q181, BOYS SKIP TO Q183**

HEY BABY

178. Would you like some information on how to get a maintenance order?

☐ Yes ☐ No (**Girls skip to Q181, Boys skip to Q183**)

179. CODE MO (Child 1)

Please Acknowledge ☐



180. CODE MAINTENANCE ORDER (Child 1)

Guidance questions:

- What obstacles have you faced in getting a maintenance order?
- Would like us to assist you in finding help? (e.g. Information on maintenance, social worker)

Please Acknowledge ☐

**GIRLS ONLY**

181. Has your first child's father paid damage to your family?

☐ Yes (**Skip to Q186**)
☐ No
☐ Not applicable (Not part of my child's culture) (**Skip to Q186**)

182. You selected 'No'. What happened?

☐ My family did not ask them
☐ They are still negotiating with my family
☐ No they refused to pay



**BOYS ONLY**

183. Have you paid damage to the child's mother's family?

☐ Yes (**Skip to Q186**)
☐ No
☐ Not applicable (Not part of my culture) (**Skip to Q186**)

184. You selected 'No'. What happened?

☐ Her family did not ask
☐ They are still negotiating with my family
☐ My family refused to pay
☐ Other

185. You selected 'Other'. Please specify what happened with the damage?

_____

_____

# CHILD 1 & OTHER CHILDREN



Questions 186 to 209 should only be answered if the participant answered 'Yes' to the PC Gateway question (Q17). Skip to question 210 if the participant answered 'No' to the PC Gateway question (Q17)"

Not all children are the same. Sindi had a little boy, called Zolani, while her sister, Aphiwe had a daughter called Xoliswa. Even though Zolani and Xoliswa were the same age, Zolani learned how to walk before Xoliswa. But she could speak a lot more words before Zolani did. What about your child? How did they do compared to other children their age?

| | Yes | No | Child is too young |
|---|---|---|---|
| 186. Compared to other children, did your first child have any serious delay in sitting, standing or walking? | * | | |
| 187. Compared to other children, does your first child have difficult seeing, either in day time or at night? | * | | |
| 188. Does your first child have any difficulty hearing? | * | | |
| 189. When you tell your first child to do something, do they seem to understand what you are saying? | | | |
| 190. Does your first child have any difficulty walking or moving their arms or do they have weakness or stiffness? | * | | |
| 191. Does your first child sometimes have fits, become rigid, or lose consciousness? | * | | |
| 192. Does your first child learn to do things like other children their age? | | | |
| 193. Does your first child speak at all (can they make themselves understood in works; can they say recognisable words)? | | | |
| 194. Is your first child's speak in any way different from normal (not clear enough to be understood by people other than the immediate family)? | * | | |
| 195. Compared to other children of their age, does your first child appear in any way slower to understand you or slower at learning new things? | * | | |

HEY BABY

**If you did NOT select 'Yes' on Q189, Q192 or Q193, skip to Q198**

196. CODE M (Child 1)

Please Acknowledge ☐



197. CODE MEERKAT (Child 1)

Guidance questions:
The participant has answered 'Yes' to one or more of the comparison questions above. Please speak to the participant about their child's difficulties:

E.g.
- When did you notice that your child is having this/these difficulties?
- Did you ask anyone for help?
- Would you like us to help you connect with a clinic or a social worker?

Please Acknowledge ☐

Lindiwe has two children: a 3-year old boy – Zuko – and a 5-year old girl – Andiswa. When Andiswa was little she was shy, struggled to go to sleep and cried a lot. Zuko, on the other hand, is very relaxed and happy. Think about your child in the last two months.

To what extent do the following statements apply to your child's behaviour during the last two months?

| | Very Typical | Quite Typical | Neither/ Nor | Not so typical | Not at all typical |
|---|---|---|---|---|---|
| 198. Your child cries easily | | | | | |
| 199. Your child is always moving around/busy | | | | | |
| 200. Your child prefers playing with others rather than alone | | | | | |

HEY BABY

| | Very Typical | Quite Typical | Neither/ Nor | Not so typical | Not at all typical |
|---|---|---|---|---|---|
| 201. Your child is very active/ physical as soon as they wake up in the morning | | | | | |
| 202. Your child is very friendly and outgoing | | | | | |
| 203. Your child takes a long time to warm up to strangers | | | | | |
| 204. Your child gets upset or sad easily | | | | | |
| 205. Your child prefers quiet, inactive games to more active ones | | | | | |
| 206. Your child likes to be with people | | | | | |
| 207. Your child reacts intensely when upset | | | | | |
| 208. Your child is very friendly with strangers | | | | | |
| 209. Your child finds other people more fun than anything else | | | | | |



HEY BABY



# SECTION 5:
# CHILD 1 FOOD & NUTRITION

Think about the first 6 months of your first child's life.

210. How was your first child fed in the first six months of their life?

- ☐ Breastfeeding mixed with some baby formula
- ☐ Baby formula only (**Skip to Q214**)
- ☐ Breastfeeding only
- ☐ Other milk or water (**Skip to Q214**)

211. Did your first child ever take someone else's breastmilk (other than their biological mother)?

- ☐ Yes
- ☐ No

212. How long was your first child breastfed?

- ☐ They are still being breastfed
- ☐ Breastfeeding has gradually stopped and combined with other milk/foods
- ☐ Breastfeeding has gradually stopped and been replaced with other milk/foods



213. How old was your first child when they stopped being breastfed?

- ☐ This child was never breastfed
- ☐ Less than 6 months
- ☐ 6-12 months
- ☐ 1 year or older

Questions 214 to 303 should only be answered if the participant answered 'Yes' to the PC Gateway question (Q17). Skip to question 304 if the participant answered 'No' to the PC Gateway question (Q17)"

Now we will ask you about your child's eating now. Sometimes children eat what we offer them. Other times they have no appetite. Sometimes they throw their food EVERYWHERE! Think about your first child.

214. Are they eating solids, such as butternut, potato, porridge, etc.?

☐ Yes ☐ No

215. How many days in the past week, was there not enough food or milk for your first child at home?
*Note: You cannot enter more than 7 days.*



**If you put 0 on Q215, skip to Q218**

216. CODE F (Child 1)

Please Acknowledge ☐

217. CODE FOOD (Child 1)

Guidance questions:

- What do you do when there is not enough food or milk in your home?

Please Acknowledge ☐

218. Did your child eat any fruit or vegetables yesterday?

☐ Yes ☐ No

HEY BABY

# SECTION 6: CHILD 1 HEALTH

Kids get sick all the time. Sometimes they get better by themselves and other times they need to see a nurse or doctor.



219. How many days in the last month was your first child sick?

- ☐ Not at all
- ☐ Less than a week
- ☐ 2 or 3 weeks
- ☐ All the time

220. How many times last year has this child been in hospital overnight?
*Note: If you don't know, please enter 999. You can only enter up to 365 days or 999.*



221. Has your child received any of these tests for tuberculosis (TB) in the last 12 months?
*Note: Choose as many as apply. You cannot select 'My child has never received one of these tests for TB' with any other choices.*

- ☐ The health worker pricked my child's skin with a needle, and then my child had to come back to the clinic so that they could see if there was a reaction
- ☐ My child coughed sputum into a little bottle or container
- ☐ My child had a chest x-ray
- ☐ My child received one of these tests, but it was more than a year ago
- ☐ My child has never received one of these tests for TB (**Skip to Q224**)

HEY BABY

222. What were the results of your child's last TB test?

- ☐ It was negative (**Skip to Q221**)
- ☐ It was positive, and my child is still sick
- ☐ It was positive, but my child took medication and is better now (**Skip to Q221**)
- ☐ I don't know the results (**Skip to Q221**)

223. CODE TB (Child 1)

Please Acknowledge ☐

224. How many times has your first child had TB?
*Note: If you don't know, please enter 999. You cannot enter more than 20 times.*

| | Yes | No | I don't know |
|---|---|---|---|
| 225. Have any of the adults or children living with your first child had TB in the last 12 months? | | | |
| 226. Has any of the adults or children living with your first child had a cough that lasted more than two weeks in the last 12 months? | | | |

227. Which of the following illnesses/health issues has your doctor told you your first child had in the last year?
*Note: Choose as many as apply. You cannot select 'I don't know' or 'None' with any other choices.*

- ☐ None
- ☐ Pneumonia
- ☐ Meningitis
- ☐ TB
- ☐ Measles
- ☐ Pertussis (whooping cough)
- ☐ I don't know



Now think about your child's health in the last year. Children get sick often, especially when they are little.

Which of the following symptoms/illnesses has your first child had in the past 12 months?

| | I don't know | Never | Sometimes | Often |
|---|---|---|---|---|
| 228. Asthma, lung problems and trouble breathing for more than two days | | | | |
| 229. Ear problems: pains and infections | | | | |
| 230. Fits or epilepsy | | | | |
| 231. Shingles or itchy rash in the skin | | | | |
| 232. Dry skin or eczema | | | | |
| 233. Sores on the hands, mouth, feet or other parts of the body | | | | |
| 234. A cough where they spit up green or yellow stuff | | | | |
| 235. A bad cough lasting three weeks or longer | | | | |
| 236. Night sweats | | | | |
| 237. Coughing up blood | | | | |
| 238. Ulcers, white patches on their mouth or problems swallowing food | | | | |
| 239. Diarrhoea or a runny tummy for more than two days | | | | |
| 240. Nausea or vomiting (not just babies spitting up milk) | | | | |
| 241. Fever | | | | |
| 242. Lost a lot of weight, or could not put on weight | | | | |
| 243. Injuries/falls | | | | |
| 244. Sleepy and more tired than usual (not as playful as usual) | | | | |

245. Where do you take your first child when they are sick?

- ☐ Berlin Clinic
- ☐ Bhisho Hospital - ARV Clinic
- ☐ Bhisho Hospital - ANC Clinic
- ☐ Cecilia Makiwane Hospital - ARV/ adult Clinic
- ☐ Cecilia Makiwane Hospital - PMTCT/ ANC Clinic
- ☐ Cecilia Makiwane Hospital - Pediatric Clinic
- ☐ Central Clinic
- ☐ Duncan Village Day Hospital
- ☐ Dimbaza Community Healthcare Centre
- ☐ Empilweni Gompo Healthcare Centre
- ☐ Frankfort Clinic Frere Hospital - ARV/ adult Clinic
- ☐ Frere Hospital - PMTCT/ ANC Clinic
- ☐ Frere Hospital – Pediatrics
- ☐ Grey Hospital ARV Clinic
- ☐ Grey Gateway Clinic
- ☐ Ilitha Clinic
- ☐ Imidange Clinic
- ☐ John Dube Clinic
- ☐ Mt. Coke Community Healthcare Centre
- ☐ Ncerha Clinic
- ☐ Needs Camp Clinic - Phumlani Clinic
- ☐ NU2 Nontyatyambo Clinic
- ☐ NU8 Nobuhle Clinic
- ☐ NU9 Clinic
- ☐ NU12 Eluxolweni Clinic
- ☐ NU13 Siyaphilisa Clinic
- ☐ NU17 Clinic
- ☐ Nonkcampa Clinic
- ☐ Sweetwaters Clinic
- ☐ Qurhu Clinic
- ☐ Tshatshu Clinic
- ☐ Zikhova Clinic
- ☐ Zwelitsha Clinic zone 5
- ☐ Zwelitsha Clinic zone 8
- ☐ Beacon Bay Clinic - Nompulelo Clinic - Chris
- ☐ Hani Clinic
- ☐ Ginsberg Clinic
- ☐ Ndevana Clinic
- ☐ Breidbach Clinic
- ☐ Tyutyu Clinic
- ☐ Braelyn Clinic
- ☐ Bhisho Gateway Clinic
- ☐ Cata Clinic
- ☐ Ethembeni Clinic
- ☐ Frere Gateway Clinic
- ☐ NU3 Fezeka Clinic
- ☐ NU5 Clinic
- ☐ NU1 Philani Clinic
- ☐ Tyutyu Village Clinic
- ☐ Zanempilo Clinic - Gonubie Clinic
- ☐ NU 7 Thembisa Clinic
- ☐ Bulembu Clinic
- ☐ Alphendale
- ☐ Aspiranza
- ☐ Greenfields
- ☐ Jama
- ☐ Jobane
- ☐ Kei mouth
- ☐ Kwelerha
- ☐ Mncotsho
- ☐ Newlands
- ☐ NU16
- ☐ Openshaw
- ☐ Pefferville
- ☐ Phakamisa
- ☐ Potsdam
- ☐ Sotho
- ☐ Twecu
- ☐ Other (incl. unknown areas)

246. You selected 'Other'. Which other clinic do you take your first child to when they are sick?

247. Does your first child go to a different facility for health care services (immunizations, check-ups, collecting medication, etc.)?

☐ Yes ☐ No (**Skip to Q250**)

248. Which facility does your first child go to for health care services (immunizations, check-ups, collecting medication, etc.)?

- ☐ Berlin Clinic
- ☐ Bhisho Hospital - ARV Clinic
- ☐ Bhisho Hospital - ANC Clinic
- ☐ Cecilia Makiwane Hospital - ARV/adult Clinic
- ☐ Cecilia Makiwane Hospital - PMTCT/ ANC Clinic
- ☐ Cecilia Makiwane Hospital - Pediatric Clinic
- ☐ Central Clinic
- ☐ Duncan Village Day Hospital
- ☐ Dimbaza Community Healthcare Centre
- ☐ Empilweni Gompo Healthcare Centre
- ☐ Frankfort Clinic
- ☐ Frere Hospital - ARV/ adult Clinic
- ☐ Frere Hospital - PMTCT/ ANC Clinic
- ☐ Frere Hospital – Pediatrics
- ☐ Grey Hospital ARV Clinic
- ☐ Grey Gateway Clinic
- ☐ Ilitha Clinic
- ☐ Imidange Clinic
- ☐ John Dube Clinic
- ☐ Mt. Coke Community Healthcare centre
- ☐ Ncerha Clinic
- ☐ Needs Camp Clinic - Phumlani Clinic
- ☐ NU2 Nontyatyambo Clinic
- ☐ NU8 Nobuhle Clinic
- ☐ NU9 Clinic
- ☐ NU12 Eluxolweni Clinic
- ☐ NU13 Siyaphilisa Clinic
- ☐ NU17 Clinic
- ☐ Nonkcampa Clinic
- ☐ Sweetwaters Clinic
- ☐ Qurhu Clinic
- ☐ Tshatshu Clinic
- ☐ Zikhova Clinic
- ☐ Zwelitsha Clinic zone 5
- ☐ Zwelitsha Clinic zone 8
- ☐ Beacon Bay Clinic - Nompulelo Clinic - Chris Hani Clinic
- ☐ Ginsberg Clinic
- ☐ Ndevana Clinic
- ☐ Breidbach Clinic
- ☐ Tyutyu Clinic
- ☐ Braelyn Clinic
- ☐ Bhisho Gateway Clinic
- ☐ Cata Clinic
- ☐ Ethembeni Clinic
- ☐ Frere Gateway Clinic
- ☐ NU3 Fezeka Clinic
- ☐ NU5 Clinic
- ☐ NU1 Philani Clinic
- ☐ Tyutyu Village Clinic
- ☐ Zanempilo Clinic - Gonubie Clinic
- ☐ NU 7 Thembisa Clinic
- ☐ Bulembu Clinic
- ☐ Alphendale
- ☐ Aspiranza
- ☐ Greenfields
- ☐ Jama
- ☐ Jobane
- ☐ Kei mouth
- ☐ Kwelerha
- ☐ Mncotsho
- ☐ Newlands
- ☐ NU16
- ☐ Openshaw
- ☐ Pefferville
- ☐ Phakamisa
- ☐ Potsdam
- ☐ Sotho
- ☐ Twecu
- ☐ Other (incl. unknown areas)

249. You selected 'Other'. Please specify which other clinic your first child goes to for health care services (immunizations, check-ups, collecting medication, etc.)?




How long does it usually take to get to the CLINIC?

250. Hours:
*Note: If less than an hour, put 0. If you don't know, put 999. If commute really takes 9 or more hours, enter 9.*

251. Minutes:
*Note: If exactly an hour(s), put 0. If you don't know, put 999. There are not more than 59 minutes in an hour. You cannot put 0 for hours and 0 for minutes at the same time.*

In the last year, how long did you usually wait to see the nurse/doctor at the CLINIC?

252. Hours:
*Note: If less than an hour, put 0. If you don't know, put 999. If commute really takes 9 or more hours, enter 9.*

253. Minutes:
*Note: If exactly an hour(s), put 0. If you don't know, put 999. There are not more than 59 minutes in an hour. You cannot put 0 for hours and 0 for minutes at the same time.*

How long does it usually take to get to the HOSPITAL?

254. Hours:
*Note: If less than an hour, put 0. If you don't know, put 999. If commute really takes 9 or more hours, enter 9.*

255. Minutes:
*Note: If exactly an hour(s), put 0. If you don't know, put 999. There are not more than 59 minutes in an hour. You cannot put 0 for hours and 0 for minutes at the same time.*

In the last year, how long did you usually wait to see the nurse/doctor at the HOSPITAL?

256. Hours:
*Note: If less than an hour, put 0. If you don't know, put 999. If commute really takes 9 or more hours, enter 9.*

257. Minutes:
*Note: If exactly an hour(s), put 0. If you don't know, put 999. There are not more than 59 minutes in an hour. You cannot put 0 for hours and 0 for minutes at the same time.*

HEY BABY

258. In the last year, did you ever take your child to the clinic or hospital and NOT get help?

☐ Yes ☐ No (**Skip to Q261**)

259. CODE C (Child 1)

Please Acknowledge ☐




260. CODE CLINIC (Child 1)

Guidance questions:

- What happened at the clinic?
- Who did that when you were at clinic?
- What made them not help you at the first time you were there?
- Who did you tell about that / Who did you ask for help?
- Did you receive any help after you reported that?

Please Acknowledge ☐

261. Sometimes it is not possible to take our children to the hospital or clinic when they need to go.

In the last year, were there any times that you could not get your first child to the clinic or hospital when she/he was sick?

☐ Yes ☐ No (**Skip to Q263**)

262. Why did that happen?

*Note: Choose as many as apply. You cannot select 'I don't know' with any other options.*

- ☐ It is too far to walk
- ☐ I have not had enough transport money
- ☐ I have been embarrassed to go by myself
- ☐ The nurses treated me badly the last time I went
- ☐ I had to go to school
- ☐ I had a job
- ☐ No one was available to take the child
- ☐ I don't know

HEY BABY



# CHILD HIV TEST, STATUS & ART

Little children often get injections: vaccines, immunizations, etc. Sometimes, they also have to have their bloods taken to check on their health. Think about your first child.

263. Has your child had any blood tests in the last year?

☐ Yes ☐ No (**Skip to Q301**) ☐ I don't know (**Skip to Q301**)

264. Which tests did they have?
*Note: Choose as many as apply. You cannot select 'They have not had any blood tests' with any other choices.*

- ☐ Diabetes
- ☐ HIV test
- ☐ Viral Load
- ☐ CD4 count
- ☐ Other
- ☐ They have had blood tests, but I don't know for what
- ☐ They have not had any blood tests
- ☐ I don't know



265. You selected 'Other'. Please specify which other tests you child had in the last year:

HEY BABY

| If you selected that your child had a diabetes test: | If you selected that your child had a viral load test: | If you selected that your child had a CD4 count: |
|---|---|---|
| 266. What were the results of your first child's diabetes test?<br>☐ My child has diabetes<br>☐ My child does not have diabetes<br>☐ I don't know the results | 267. What were the results of your first child's viral load test?<br>*Note: If you don't know, please enter 999.*<br>☐ | 268. What were the results of your first child's CD4 count test?<br>*Note: If you don't know, please enter 999.*<br>☐ |

How old was your first child when she/he had their most recent HIV test?
*Note: If they have never had a HIV test, please enter 999 in all boxes.*

269. Year(s):
*Note: You cannot enter more than 15.* ☐

270. Months:
*Note: You cannot enter more than 11 months in a year.* ☐

271. Weeks:
*Note: You cannot enter more than 4 weeks in a month.* ☐

272. What were the results of your first child's most recent HIV test?

☐ My child is HIV-positive
☐ My child is HIV-negative (**Skip to Q274**)
☐ I don't know the results (**Skip to Q274**)

273. Did someone (nurse, doctor, counsellor, social worker) give you any advice on how to look after a child who is HIV+?

☐ Yes
☐ No



HEY BABY

274. Has your first child ever taken ARV or medication to treat HIV or prevent them from getting HIV (this could have been a syrup or a tablet)?

- ☐ Yes (**Skip to Q277**)
- ☐ No
- ☐ I don't know




**If the child is HIV-positive (Q272) and does not take ARV or the parent doesn't know (Q274):**

275. CODE CD (Child 1) (ever)

Please Acknowledge ☐



276. CODE CHILD DEFAULTER (Child 1) (ever)

Guidance questions:

- We'd like to ask you a few questions about how your first child's treatment is going.
- You've indicated that they are HIV-positive but they haven't ever taken medication to treat HIV or that you don't know if they have.
- Why do you think your first child has never taken ARVs?
- Would like us to assist you in finding help? (e.g. Talk to a nurse, social worker)

Please Acknowledge ☐

**If the child does not take ARVs or parent doesn't know – Skip to Q295.**

HEY BABY

## FOR CHILDREN WHO HAVE EVER TAKEN ARVs OR MEDICATION TO TREAT HIV

277. Do you know the name of this medicine?
*Note: Please enter 'No' if you do not know the name of this medicine.*

_____

_____

278. Please take a photo, if you have a bottle or box of what the baby had to take:

Please Acknowledge ☐

How old was your first child when they started taking ARVs?
*Note: If they have never had a HIV test, please enter 999 in all boxes.*

279. Year(s):
*Note: You cannot enter more than 15.* ☐

280. Months:
*Note: You cannot enter more than 11 months in a year.* ☐

281. Weeks:
*Note: You cannot enter more than 4 weeks in a month.* ☐

282. How long did your first child take HIV medication/ARVs for?

- ☐ For a few days after birth but not now
- ☐ Since birth (**Skip to Q289**)
- ☐ Child stopped taking HIV medication
- ☐ They are still taking them (**Skip to Q289**)
- ☐ Never/Not at all
- ☐ I don't know

283. CODE CD (Child 1) (now)

Please Acknowledge ☐



284. CODE CHILD DEFAULTER (Child 1) (now)

Guidance questions:

- Why do you think your first child stopped taking ARVs
- Would you like us to assist in finding help? (e.g. talk to a nurse, social worker)

Please Acknowledge ☐

HEY BABY

**If the child stopped taking ARVs (Options 'For a few days after birth but not now', 'Child stopped taking HIB medicine', 'Never/Not At All' or 'I don't know'. Other options – Skip to Q287**

When did the child stop taking their HIV medicine/ARVs?
*Note: If they have never had a HIV test, please enter 999 in all boxes.*

285. Year(s):
*Note: You cannot enter more than 15.*

286. Months:
*Note: You cannot enter more than 11 months in a year.*

287. Weeks:
*Note: You cannot enter more than 4 weeks in a month.*

288. Why did your first child stop taking HIV medications?
*Note: You cannot select 'I don't know with any other options.*

- ☐ The doctor/nurse said I should stop giving them
- ☐ Child does not want to take the medication
- ☐ It was very hard to give the child the medication
- ☐ Child looks healthy
- ☐ Ran out of medication
- ☐ Child kept spitting out or throwing up their medication
- ☐ Afraid that others would see the medication
- ☐ The medication makes child ill
- ☐ Found other ways to keep child healthy
- ☐ Other
- ☐ I don't know



**If the child is still taking ARVs (Option 2 or 4 on Q280).**
**Other options - Skip to Q293.**

# CHILD ARV ADHERENCE

It is very hard for children to take meds. Sometimes they taste nasty or are hard to swallow. At other times the baby vomits the medicine with their food. We will now ask you some questions about your child if they are taking medications now:

289. How many days DID they take, eat/drink all of their ARVs or HIV medicine at the right time last week?
*Note: If you don't know, please enter 999. You cannot enter more than 7 days.*

290. Think of the last time that your first child did NOT have their ARVs/HIV medicine. When was it?

- ☐ In the last week
- ☐ In the last month
- ☐ In the last year
- ☐ More than a year ago
- ☐ Never, they have never missed their medicine
- ☐ I don't know

291. Think of the last time that your first child vomited after taking their ARVs/HIV medicine. When was it?

- ☐ In the last week
- ☐ In the last month
- ☐ In the last year
- ☐ More than a year ago
- ☐ Never, they have never thrown up
- ☐ I don't know

292. Think of the last weekend. How many times did your first child NOT take their medicine last weekend (Friday night, Saturday and Sunday?
*Note: If you don't know, please enter 999. You cannot enter more than 20 times.*

293. In the past year, has your child ever not been able to take medicine for more than a week in a row?

☐ Yes ☐ No ☐ I don't know

294. And last, how many days in the last month was your first child NOT able to take their ARVs or HIV medicine?
*Note: If you don't know, please enter 999. You cannot enter more than 31 days per month.*

HEY BABY

**If the child is HIV-positive ('My child is HIV-positive on Q272). Other options - Skip to Q301.**

295. Has your first child been told they are HIV-positive?

☐ Yes ☐ No (**Skip to Q300**) ☐ I don't know (**Skip to Q300**)

296. Who told your first child they were HIV-positive?

- ☐ Child's mother
- ☐ Child's father
- ☐ My caregiver
- ☐ Someone else in child's family (e.g. grandmother/grandfather, aunt/uncle
- ☐ Other

298. You selected 'Other'. Please specify who told your first child they are HIV-positive:

297. What was your first child's reaction?

*Note: Choose as many as apply.*

- ☐ They understood
- ☐ They did not understand
- ☐ They were relieved
- ☐ They were sad
- ☐ They were angry
- ☐ They accepted



299. How old was the child when you first told them?

*Note: You cannot enter more than 15 years*

300. At what age (of your child) do you plan to tell your child about their HIV status?

*Note: If you don't know, please enter 999. If you've already told them, please enter 777. You cannot enter more than 100 years.*

HEY BABY

## FOR ALL CHILDREN



We will now ask some questions about your child, if they are taking medications:

301. What treatment is your first child currently taking?
*Note: Choose as many as apply. You cannot select 'Not taking any' with any other choices.*

- ☐ Not taking any (**Skip to Q304**)
- ☐ Panado
- ☐ Antiretrovirals/medicine for HIV
- ☐ Medication for TB: Co-trimoxazole or IPT (Isoniazid Prevention Treatment)
- ☐ Other antibiotics
- ☐ Vitamins
- ☐ Immune boosters
- ☐ Traditional medicine
- ☐ Supplements
- ☐ Other
- ☐ I don't know



302. Could you please take a photo of the medicine that your first child is having now? Remember this information will be kept confidential.
Please Acknowledge ☐



303. Who was the main person who gave your first child their medicine in the last month?

- ☐ Child's mother
- ☐ Child's father
- ☐ My caregiver
- ☐ Caregiver (not biological mother or father)
- ☐ Other family member
- ☐ Health care worker
- ☐ Someone else
- ☐ Child hasn't taken any medication in the last month

HEY BABY

# SECTION 7: PARENTING EXPERIENCES

Now we'd like to ask you a little bit about your experiences as a parent. Remember, you will not be judged.

Being a parent is a fun and messy experience. Children are playful and have lots of energy. They can also get sick, dirty, and have strong feelings. Taking care of them is hard work. We would like to better understand what it is like to be a young parent. We will keep your answers confidential and anonymous, unless you ask us for help.



The following statements describe feelings about being a parent. Think of each of the items in terms of how your relationship with your child(ren) typically has been in the last month:

| | Disagree | Not sure | Agree |
|---|---|---|---|
| 304. I sometimes worry whether I am doing enough for my child(ren). | | | |
| 305. The major source of stress in my life is my child(ren). | | | |
| 306. I am very busy and have little free time because of my child(ren). | | | |
| 307. I enjoy spending time with my child(ren). | | | |
| 308. Having child(ren) is too expensive. | | | |
| 309. It is difficult to balance different responsibilities because of my child(ren). | | | |
| 310. Having child(ren) has meant having too few choices and too little control over my life. | | | |
| 311. I find my child(ren) enjoyable. | | | |

HEY BABY

# SECTION 8:
# ACTIVITIES IN THE LAST MONTH



The next set of questions is about what you do with your child(ren). There are no right and wrong answers, so please give your answers about the last month. Think about how often you have done the following with the child you spend the most time with in the last month.

| | My child is too young | Never | Once or twice | Weekly | Almost daily |
|---|---|---|---|---|---|
| 312. Been able to play with your child in a way that was fun for both of you? | | | | | |
| 313. Invited your child to play a game with you or share an enjoyable experience? | | | | | |
| 314. Taught your child new skills? | | | | | |
| 315. Rewarded your child when she/he did something well or showed a new skill? | | | | | |
| 316. Stuck to your rules and not changed your mind? | | | | | |
| 317. Spoken calmly with your child when you are upset with him or her? | | | | | |
| 318. Explained what you wanted your child to do in clear and simple ways? | | | | | |
| 319. Told your child how you expect him or her to behave? | | | | | |
| 320. Made rules for your child which you could stick to, when your child was naughty? | | | | | |

HEY BABY



| | My child is too young | Never | Once or twice | Weekly | Almost daily |
|---|---|---|---|---|---|
| 321. Made sure your child followed the rules you set all or most of the time? | | | | | |
| 322. Avoided struggles with your child by giving them clear choices? | | | | | |
| 323. Warned your child before a change of activity was required? | | | | | |
| 324. Planned ways to prevent problem behaviour? | | | | | |
| 325. Gave reasons for your requests? | | | | | |
| 326. Made a game out of everyday tasks so your child followed through? | | | | | |



HEY BABY

# SECTION 9: DISCLOSURE

**This section is for HIV-positive parents ('I am HIV-positive' on Q121), and those who selected 'Giraffe' on Q16. Other participants skip to Q335.**

Now we want to ask you some more questions about all of your children.

Sharing information about our health can be easy but sometimes we want to keep health information confidential. Some illnesses are easy to explain, while others are very difficult and it is better to wait till children are a bit older.



We would like to ask you about how you share information about your HIV status with your child(ren). Which of the following is true for you and your child(ren):

| | Yes | No | I don't know |
|---|---|---|---|
| 327. We talk openly about HIV and the child knows about the virus. | | | |
| 328. We talk about this illness openly, but we have not talked about the name of the virus. | | | |
| 329. We are very careful, this is a sensitive topic, and the child knows nothing. | | | |
| 330. We plan to tell the child later. | | | |
| 331. This is an adult disease and we want to keep this confidential. | | | |
| 332. I don't know how to talk to my child about HIV/AIDS. | | | |
| 333. I want help to talk to my child about HIV/AIDS. | | | |

334. How old do you want your child(ren) to be when you tell them about YOUR OWN HIV status?
*Note: If you don't know, please enter 999. Enter 0 if you plan not to tell them. You cannot enter more than 100 years.*



HEY BABY

# FINAL QUESTIONS & THANK YOU



335. When was the last time your child did something that made you laugh? What was it?

336. Is there anything you'd like to say to support other young mothers/fathers like yourself?

337. What are you most proud of about yourself as a mother/father?

**FOR GIRLS:**

THANK YOU very much for your time. We appreciate your time and honesty. We will use this information to tell government and organizations how to help young parents and their children, like you. We will try to come back to visit you in the next three years and see how you and your child(ren) are doing.

Remember that you are an amazing young woman. Being a mother is not easy, but it is such an important job to do. And we are proud of you for all the care and love you give.

**FOR BOYS:**

THANK YOU very much for your time. We appreciate your time and honesty. We will use this information to tell government and organizations how to help young parents and their children, like you. We will try to come back to visit you in the next three years and see how you and your child(ren) are doing.

Remember that you are an amazing young man. Being a father is not easy, but it is such an important job to do. And we are proud of you for all the care and love you give.




| | | Please acknowledge |
|---|---|---|
| 338) CODE GRANT | Q35 | |
| 339) CODE NEGLECT | Q41 | |
| 340) CODE BEATEN | Q91 | |
| 341) CODE ADOLESCENT DEFAULTER | Q134 | |
| 342) CODE PREGNANCY SUPPORT | Q143 | |
| 343) CODE MAINTENANCE ORDER | Q180 | |
| 344) CODE MEERKAT | Q197 | |
| 345) CODE FOOD | Q217 | |
| 346) CODE TB | Q223 | |
| 347) CODE CLINIC | Q260 | |
| 348) CODE CHILD DEFAULTER (EVER) | Q276 | |
| 349) CODE CHILD DEFAULTER (NOW) | Q284 | |

**2. Mzantsi Wakho Questionnaire**

During each wave of the Mzantsi Wakho data collection, adolescent participants completed a quantitative questionnaire about their lifestyles which took about 60 minutes to complete (shorter for HIV-negative teenagers as they did not answer questions on adherence to antiretroviral treatment etc.). The questionnaire administered at the third wave of data collection included 12 sections, gathering information on 1. Personal details, 2. Schooling, 3. Health and wellbeing, 4. Medicine taking, 5. Mental health, 6. Spare time and friends,

7. Experience living with HIV (only HIV-positive teenagers), 8. Experiences of caregiver abuse and intimate partner violence 9. Home/family and social security, 10. Mental health (continued) and future prospects, 11. Sexual experiences, 12. Relationship with parents.

### 3. Mullen Scales of Early Learning

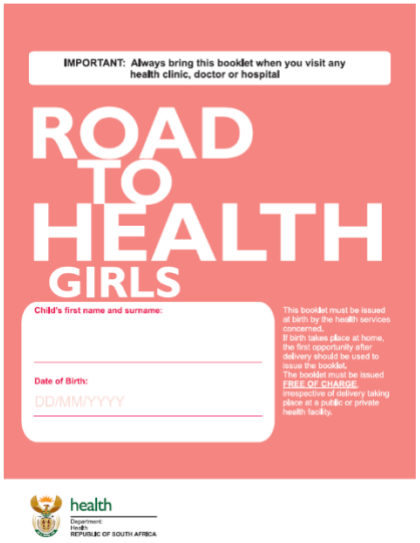
Trained research assistants administered the Mullen Scales of Early Learning (Mullen, 1995) which can be administered to infants and children between the age of 3 and 68 months. The assessment encompasses tasks that measure the gross motor, visual reception, fine motor, expressive language, and receptive language. Depending on the child's age, the duration of the assessment is typically between 15 and 60 minutes.

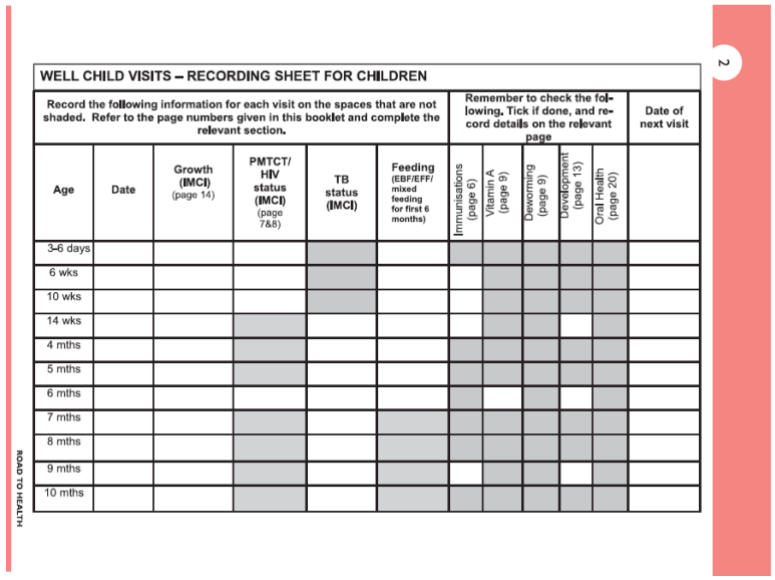


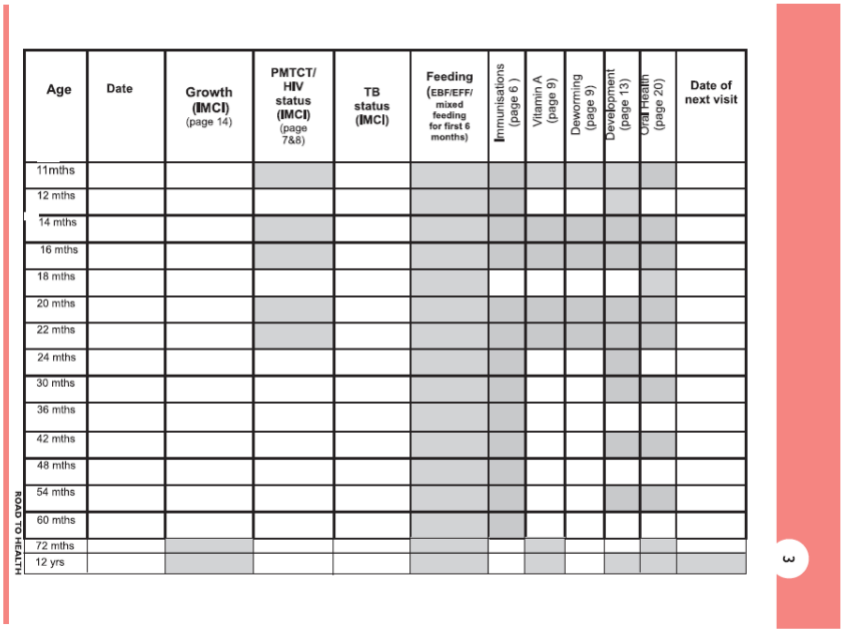
**Figure 1.** Training for the Mullen Scales of Early Learning. (Photo taken by HEY BABY staff)

4. **Road to Health booklet**

The Road to Health booklet is an initiative of the South African Department of Health to track vital information on a child's medical history (e.g., immunisations) and development (e.g., growth) easily. The booklet is given to the parents of each newborn child and should be taken to key medical appointments so that a professional can complete the necessary medical information.



# Appendix 3.1: Recruitment protocol for clinics

In an eligible clinic, a research assistant introduced the study to the sister (i.e., a nurse) in charge. Aims of the HEY BABY study were outlined and contextualised by also providing information on the Mzantsi Wakho study. The nurses were informed about study's inclusion criteria and were presented with letters of authorisation from administrative authorities (i.e., the Department of Health, see Appendix B3). The recruitment process was outlined to the staff, explaining the types of records we would like to access in order to be able to extract potential participant information. On occasion, a project manager would accompany the research assistants to the clinic because the hospital or clinic staff wanted to speak to a manager before proceeding. If the research assistants were faced with refusal or non-compliance by the facility, a more senior manager would visit the site to address any concerns or queries that the facility may have.

When access to the records was permitted, the research assistants sought to compile lists with potential recruits including the following information: The department within each facility where the information was extracted from (if applicable), name of the research assistant that gathered information, HIV status information, and details of point person or contact within facility. This potential participant information was passed on to the office-based staff for processing. In addition, the research assistants enquired about the typical number of potential participants that would pass through the facility, whether there are any peak times or days in a week, and when would be best to come back to carry out in-clinic recruitment. Where possible, the team tried to secure suitable, private space to be able to conduct an interview on the spot.

During the work in the hospital or clinic, staff was also asked if they would be interested in receiving a presentation on the research findings after study completion.

## Appendix 3.2: Recruitment protocol for schools

The research project was introduced to the respective principals or vice-principal in each school who then referred the research assistants to a Life Orientation teacher or Learner Support Agent. Just like in clinic recruitment, the aims of the HEY BABY study were outlined and contextualised by providing information on the Mzantsi Wakho study. The Life Orientation teacher and Learner Support Agent were informed about the inclusion criteria and were presented with letters of authorisation from administrative authorities (i.e., the Department of Education, see Appendix 1.4). Principals, Life Orientation teachers, or Learner Support Agents were requested to assist us by compiling a list with details (name, contact information, phone number, and age) of female learners between the ages of 10 – 19 who were parents. In addition, we also requested a list of female learners who dropped out of school in the past year. These lists of potential participants were passed on to the office-based staff for processing. Typically, each school was visited a maximum number of three times. There were exceptions in cases where one of the visits did not lead to any progress. This included times when we were unable to introduce the study during the first visit because the principal was unavailable or the school was unable to cooperate at all during particularly busy times, such as an upcoming holiday or during exam periods. During the work in the school, staff were also asked if they would be interested in receiving a presentation on the research findings after study completion.

# Appendix 4.1: Certificate of participation



# Appendix 5.1: Chapter IV – Supplementary analyses

Chapter IV of this thesis (*DPhil Paper 1*), examined the relationship between hypothesised variables and adolescent mothers' withdrawal from school during pregnancy. The presented regression analyses included several variables which were retrospectively assessed to capture girls' experience during pregnancy. However, some sociodemographic variables (i.e., place of residency, access to necessities, living with a caregiver, and grant access) were assessed with reference to the time of the interview. In other words, these covariates have not been assessed before or at the same time of mothers' school withdrawal (nor were they enquired retrospectively to capture the pregnancy period), and it is possible that they have changed over time. This is particularly likely for mothers' whose pregnancy occurred several years ago. Even though Chapter IV outlines these limitations and provides the rationale for assuming that it does not cause large biases, a re-analysis which focusses on adolescent mothers whose pregnancy occurred relatively recently is presented here. That is, these analyses exclude 537 adolescent mothers whose children were older than one year at the time of the study, therefore reducing the period of time that has passed between the pregnancy and their interview.

**Statistical analysis**

All analyses were completed in Stata 15.1., applying the same exclusion criteria as presented in Chapter IV. In addition, all participants with children younger than one year were excluded ($n$ = 537) in order to create a more coherent sample in which the assessment of all covariates better aligns. Table 1 presents the descriptive statistics for the outcome, associated factors, and socioeconomic background variables which were calculated for the sub-sample, disaggregated by school discontinuation-status. In addition, the associations between independent variables with any

school discontinuation during pregnancy were tested with a hierarchical logistic regression approach. Model 1 included only relevant socioeconomic and demographic variables; Model 2 added information on grade delay at the onset of the pregnancy; Model 3 added information on reaction towards the pregnancy; Model 4 added information on mothers' medical problems; Model 5 included information on sources of support and the provision of pregnancy-related information.

**Results**

Tables 1 shows that the results for the covariates assessed at the time of the interview are similar for the place of residency and grant access whilst the analyses show reduced significance for participants' access to necessities and living with a caregiver. In addition, Table 2 illustrates the regression analyses of pre-pregnancy and post-pregnancy factors on school withdrawal within this sub-sample of adolescent mothers. Aligned with the analyses presented in Chapter IV, increased odds to withdraw from school during pregnancy were also associated with being grade delayed at the onset of the pregnancy (OR 2.37, 95% CI [1.33, 4.22]). However, the results for this reduced subsample indicated that increased odds to withdraw from school during pregnancy were *not* associated with an unplanned and unwanted pregnancy (OR 1.36, 95% CI [0.36, 5.09]), nor greater lack of information received from the caregiver during pregnancy (OR 1.47, 95% CI [0.89, 2.42]).

As previously mentioned in the limitations of Chapter IV, it is likely that the results for girls' pregnancy intentions on schooling were affected by the low frequency of mothers who planned or wanted the pregnancy which could have overestimated the effect in the original analyses in Chapter IV. In addition, it is possible that the larger sample overestimated the association between the lack of information received from the caregiver and schooling which, as previously highlighted, also requires further exploration to fully understand the present results.

**Table 1.** Descriptive statistics for the sample of adolescent mothers, Eastern Cape, South Africa (*n* = 378). Sample characteristics are presented disaggregated by discontinuation during pregnancy.

| | **Total (*n* = 378)** | **Withdrawal group (*n* = 94)** | **Continuation group (*n* = 284)** | |
|---|---|---|---|---|
| Characteristic | *n* (%); *M (SD)* | *n* (%); *M (SD)* | *n* (%); *M (SD)* | *p* |
| **Socio-demographics** | | | | |
| Adolescent mothers' age | 17.22 (1.49) | 17.57 (1.64) | 17.10 (1.43) | .01 |
| Adolescent mothers' age at the begin of the pregnancy | 16.65 (1.53) | 16.90 (1.67) | 16.57 (1.48) | .07 |
| Necessities afforded in household | 5.54 (2.16) | 5.15 (2.37) | 5.67 (2.07) | .04 |
| Rural residency | 119 (30.4%) | 33 (35.1%) | 86 (30.3%) | .442 |
| Lives with caregiver | 365 (96.6%) | 88 (93.6%) | 277 (97.5%) | .098 |
| Government grant receipt | 344 (91%) | 82 (87.2%) | 262 (92.3%) | .148 |
| **Educational characteristics** | | | | |
| Grade delay at pregnancy onset | 207 (54.8%) | 67 (71.3%) | 140 (49.3%) | < .001 |
| Highest grade completed | 9.54 (1.51) | 8.82 (1.81) | 9.78 (1.81) | < .001 |
| **Pregnancy intention** | | | | |
| Unplanned and unwanted pregnancy | 361 (95.5%) | 91 (96.8%) | 270 (95.1%) | .579 |
| Intentions to terminate the pregnancy | 38 (10.1%) | 14 (14.9%) | 24 (8.5%) | .078 |
| **Health characteristics** | | | | |
| Any medical problems during pregnancy | 43 (11.4%) | 13 (13.8%) | 30 (10.6%) | .453 |
| **Pregnancy support** | | | | |
| Child's father supportive reaction to pregnancy | 44 (11.6%) | 7 (7.4%) | 37 (13.0%) | .270 |
| Lack of information from caregiver | 140 (37%) | 42 (44.7%) | 98 (34.5%) | .09 |
| Lack of information from school | 373 (98.7%) | 93 (98.9%) | 280 (98.6%) | .63 |

*Note.* **p* < .05. ***p* < .01. ****p* < .001.

**Table 2.** Hierarchical logistic regression showing odds ratios for adolescent mothers' school withdrawal during pregnancy (*n* = 378).

| | **OR [95% CI]** |
|---|---|
| **Socio-demographic characteristics** | |
| Necessities afforded in household | 0.93 [0.83, 1.04] |
| Lives with caregiver | 0.37 [0.10, 1.28] |
| Rural residency | 1.16 [0.68, 1.96] |
| Age at pregnancy onset | 1.00 [0.84, 1.21] |
| **School delay at the time of pregnancy** | |
| Grade delay at pregnancy onset | 2.37 [1.33, 4.22]** |
| **Pregnancy intention** | |
| Unplanned and unwanted pregnancy | 1.36 [0.36, 5.09] |
| Intentions to terminate the pregnancy | 1.75 [0.83, 3.68] |
| **Medical problems** | |
| Any medical problems during pregnancy | 1.32 [0.62, 2.78] |
| **Pregnancy support** | |
| Boyfriend supportive reaction | 0.55 [0.23, 1.31] |
| Lack of information from caregiver | 1.47 [0.89, 2.42] |
| Lack of information from school | 1.00 [0.09, 10.01] |
| | $X^2$ = 27.52 |
| | Prob > $chi^2$ = 0.004 |
| | Pseudo $R^2$ = 0.06 |
| | Count $R^2$ = 0.77 |

# Appendix 5.2: Chapter V – Supplementary analyses

## Introduction

Chapter V of this thesis (*DPhil Paper 2*), examined the relationship between hypothesised variables and adolescent mothers' return to school after birth. One potential criticism of the analyses presented in Chapter V is that categorising adolescent mothers into 'returners' and 'no-returners' does not sufficiently account for *all* possible educational pathways that mothers have taken after the onset of their pregnancy, even if school enrolment during pregnancy was controlled for in the presented analyses. That is, the group of returners includes two potentially distinct group of girls: 1) Mothers who returned to school who were also enrolled in school throughout their pregnancy (i.e., 'always takers') and 2) Mothers who returned to school who discontinued school during pregnancy (i.e., 'temporary leavers'). Similarly, the group of no-returners includes participants who 1) Did not return to school but were enrolled in school throughout their pregnancy (i.e., 'no-returners') and 2) Did not return to school after pregnancy but they had already discontinued school during pregnancy (i.e., 'never takers'). It is possible that each of these four groups of adolescent mothers is distinct from the other groups, including a unique set of correlates that is associated with their return to school.

Here, the candidate presents supplementary analyses from multinomial regression analyses, using the four different pathways as an outcome and the associations with hypothesised predictors of withdrawal from school during pregnancy (*DPhil Paper 1*) and the return to school (*DPhil Paper 2*). These analyses are compared against the results from the empirical chapters, particularly Chapter V, with a focus on significant differences between the separate pathways of returners and

no-returners. Where differences are identified across the sets of analyses, these are discussed in light of their meaning for future studies.

All analyses were completed in Stata 15.1. For these analyses, the exclusion criteria from Chapter V were applied. In addition, all participants who were not enrolled in school at the onset of their pregnancy were excluded ($n$ = 55). These participants represent an entirely different pathway and, due to their non-enrolment in school at the onset of the pregnancy, they cannot be categorised based on their enrolment *during* pregnancy. Subsequently, multinomial logistic regression was used to examine the pathways towards school return which were regressed onto all hypothesised variable presented in Chapter IV and Chapter V. In these analyses always takers (i.e., participants who were enrolled in school throughout their pregnancy and returned to school postpartum) functioned as the reference category against which all other groups were compared. Analyses were corrected for multiple comparisons using Bonferroni correction (i.e., Bonferroni-corrected p-value < .003).

**Results**

Tables 1-21 below indicate that the results largely support our findings from empirical Chapter IV and Chapter V. First, tables 1-6 investigate the variables which were hypothesised to be associated with adolescent mothers' school withdrawal during pregnancy (see Chapter IV) and show no significant differences between the four outcome categories and the previously analysed variables which were hypothesised to correlate with school withdrawal during pregnancy. In addition, Tables 7-21 show re-analyses of the variables which were hypothsised to be associated with adolescent mothers' return to school after birth (see Chapter V). Whilst the analyses largely

support the previous findings, there are four exceptions:

1. First, Table 11 shows difference across the groups for *exclusive breastfeeding*. Namely, participants who indicated exclusive breastfeeding after birth are more likely to be no-returners than always takers (b = 1.11, SE 0.24, p < .001). These results complement the findings from Chapter V by showing that the differences between returners and no-returners were predominantly driven by adolescent mothers who remained in school throughout the pregnancy but had not returned to school after birth.

2. Second, Table 12 shows difference across the groups for girls' *grade delay at pregnancy onset*. Here, participants who indicated a grade delay at the beginning of the pregnancy are more likely to be temporary leavers than always takers (b = 1.02, SE 0.26, p < .001). These results complement the findings from Chapter V by pointing to further differences in grade delay within the group of returners, reinforcing out findings from Chapter IV which showed that girls' who were more grade delayed at the onset of the pregnancy were more likely to discontinue schooling during pregnancy.

3. Third, Table 16 shows difference across the groups for *family support with childcare*. Namely, participants who indicated receiving childcare are less likely to be no-returners than always takers (b = -1.04, SE 0.27, p < .001). These results complement the findings from Chapter V by showing that the differences between returners and no-returners were predominantly driven by adolescent mothers who remained in school throughout the pregnancy but had not returned to school after birth.

4. Fourth, Table 21 shows difference across the groups for *government child support grant receipt*. Namely, participants who indicated receiving the child support grant are less likely to be temporary leavers than always takers (b = -1.06, SE 0.26, p < .001). These results add to the findings from Chapter V which did not show differences between returners and no-returners in terms of receiving the child support grant. That is, these analyses suggest that people who are always takers are more likely to be recipients of the child support grant than mothers who have returned to school but withdrew during their pregnancy.

**Summary of results**

The analyses on adolescent mothers' schooling which were presented in Chapter IV indicated that pregnant girls' school withdrawal during pregnancy was associated with being able to afford fewer necessities, grade delay at the onset of the pregnancy, an unplanned and unwanted pregnancy, and greater lack of information about the pregnancy from their caregiver. The complementary analyses which were presented in this section did not show any significant associations between the previously analysed variables which were hypothesised to correlate with school withdrawal during pregnancy. These results suggest that this set of variables is uniquely relevant for the pregnancy period with potentially little or no association with girls' return to school after the pregnancy.

Chapter V indicated that girls' return to school after birth was associated with more access to basic necessities, fewer repeated grades before the pregnancy, continued schooling during pregnancy, the use of formal childcare, familial childcare, and not exclusively breastfeeding. The complementary analyses presented here are largely aligned with the original analyses, confirming that the groups of no-returners and returners do not show significant differences on several variables (e.g., rural residency, being the primary caregiver of the child, household size,

maintenance payment receipt from the child's father, and any experienced medical problems during birth). In addition, the analyses presented here also underscore previously identified significant differences between no-returners and returners (e.g., adolescent mothers' age at the onset of the pregnancy, afforded necessities, and daycare use). The results for two variables (i.e., exclusive breastfeeding after birth and family support with childcare) reinforce the previous findings of significant differences on these variables between no-returners and returners but the present analyses suggest that these differences are mostly driven by those mothers' who returned to school despite temporarily leaving school during their pregnancy (i.e., not the never takers), indicating that these variables do not cause significant differences for those who had already discontinued school during the pregnancy.

Lastly, the results for four variables point to differences across the four studied groups which were not identified before. First, there was a trend suggesting that participants with older children may be slightly more likely to be temporary leavers than always takers. Second, the results for respondent's co-residency with a caregiver indicated a trend to confirm the previously identified differences between returners and no-returners, although they did not reach significance in these supplementary analyses. Third, these supplementary analyses also identified a trend suggesting that participants who indicated having a continued relationship with the father were less likely to be never takers than always takers. Fourth, these analyses identified an additional significant difference for receiving the child support grant, suggesting that grant receipt is less likely in temporary leavers than always takers. Finally, one of the presented result – which replicates findings from *DPhil Paper 1* – is that participants who indicated a grade delay at the beginning of the pregnancy were more likely to have left school during pregnancy and returned to school (temporary leavers) and less likely to have remained in school throughout pregnancy before

returning to school (always takers). This highlights the value for future studies focussing on postpartum school return to investigate all potential separate pathways (as was done here). Alternatively, future analyses can build on this finding by adding an interaction term (of the variables capturing grade delay and continued schooling) to the original analyses presented in Chapter V.

In summary, the present findings underline the usefulness to separately investigate the factors that affect adolescent mothers' withdrawal from schooling during pregnancy and school return, respectively. At the same time, these supplementary analyses raised several interesting points which highlight the value of further analysing the four separate school-pathways. For instance, the present analyses suggest that girls who report exclusively breastfeeding and not receiving help with childcare from their families, respectively, are less likely to return to school, even if they have been in school during the pregnancy (i.e., no-returners). This suggests that these two variables may not affect the return to school among girls who already discontinued school during the pregnancy. By contrast, the use of formal daycare remain important for all adolescent mothers, independent of their engagement in school during pregnancy. Hence, future (longitudinal) analyses and qualitative studies aiming to investigate the four distinct pathways of school enrolment will benefit from analyses that capture the breadth of factors that affect the trajectories of these pathways in order to disentangle the present results.

**Table 1.** Multinominal regression results showing independent associations between 'unwanted and unplanned pregnancy' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf. Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | 1.42 | 1.03 | 1.39 | .17 | -0.59 – 3.44 |
| 2 No returners | -0.60 | 0.45 | -1.33 | .18 | -1.49 – 0.29 |
| 3 Never takers | 1/04 | 0.75 | 1.40 | .16 | -0.42 – 2.51 |

**Table 2.** Multinominal regression results showing independent associations between 'intentions to terminate the pregnancy' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf. Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | 0.34 | 0.39 | 0.87 | .38 | [-0.42 – 1.11] |
| 2 No returners | 0.38 | 0.38 | 1.00 | .32 | [-0.37 – 1.13] |
| 3 Never takers | 0.51 | 0.33 | 1.53 | .13 | [-0.14 – 1.17] |

**Table 3.** Multinominal regression results showing independent associations between 'any medical problems during pregnancy' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf. Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | 0.44 | 0.29 | 1.50 | .13 | -0.14 – 1.01 |
| 2 No returners | -0.19 | 0.37 | -0.52 | .60 | -0.91 – 0.52 |
| 3 Never takers | -0.32 | 0.28 | 1.14 | .26 | -0.23 – 0.86 |

**Table 4.** Multinominal regression results showing independent associations between 'boyfriend supportive reactions to the pregnancy vs. no reaction' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf. Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | -0.28 | 0.39 | -0.72 | .47 | [-1.06 – 0.49] |
| 2 No returners | -0.16 | 0.38 | -0.41 | .68 | [-0.90 – 0.59] |
| 3 Never takers | -0.02 | 0.32 | -0.08 | .94 | [-0.65 – 0.60] |

**Table 5.** Multinominal regression results showing independent associations between 'lack of information from caregiver' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf. Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | 0.48 | 0.23 | 2.08 | .04 | [0.03 – 0.92] |
| 2 No returners | -0.34 | 0.26 | -1.32 | .19 | [-0.84 – 0.17] |
| 3 Never takers | 0.34 | 0.21 | 1.68 | .09 | [-0.06 – 0.75] |

**Table 6.** Multinominal regression results showing independent associations between 'lack of information from school' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf. Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | -0.23 | 0.65 | -0.36 | .72 | [-1.51 – 1.05] |
| 2 No returners | 0.64 | 1.05 | 0.62 | .54 | [-1.41 – 2.70] |
| 3 Never takers | 14.14 | 699.04 | 0.02 | .98 | [-1355 – 1384] |

**Table 7.** Multinominal regression results showing independent associations between 'age at the onset of the pregnancy' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf. Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | 0.18 | 0.08 | 2.27 | .02 | [0.02 – 0.33] |
| 2 No returners | 0.31 | 0.80 | 3.86 | .00 | [0.15 – 0.47] |
| 3 Never takers | 0.37 | 0.71 | 5.10 | .00 | [0.23 – 0.51] |

**Table 8.** Multinominal regression results showing independent associations between 'infant/ child age' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf. Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | 0.18 | 0.07 | 2.70 | .01 | [0.05 – 0.31] |
| 2 No returners | -0.12 | 0.09 | -1.39 | .17 | [-0.29 – 0.05] |
| 3 Never takers | 0.07 | 0.07 | 1.09 | .28 | [- 0.06 – 0.20] |

**Table 9.** Multinominal regression results showing independent associations between 'rural residency' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf. Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | 0.24 | 0.24 | 1.01 | .31 | [-0.23 – 0.71] |
| 2 No returners | 0.37 | 0.24 | 1.53 | .13 | [-0.10 – 0.84] |
| 3 Never takers | -0.05 | 0.23 | -0.23 | .82 | [-0.49 – 0.39] |

**Table 10.** Multinominal regression results showing independent associations between 'respondent is the primary caregiver of the child' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf.Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | 0.63 | 0.54 | 1.17 | .24 | [-0.42 – 1.69] |
| 2 No returners | 1.95 | 1.02 | 1.91 | .05 | [-0.05 – 3.95] |
| 3 Never takers | 0.62 | 0.49 | 1.28 | .20 | [-0.33 – 1.59] |

**Table 11.** Multinominal regression results showing independent associations between 'exclusive breastfeeding after birth' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf. Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | 0.32 | 0.26 | 1.22 | .22 | [-0.19 – 0.83] |
| 2 No returners | 1.11 | 0.24 | 4.58 | < .001 | [0.64 – 1.59] |
| 3 Never takers | 0.39 | 0.23 | 1.66 | .09 | [-0.07 – 0.84] |

**Table 12.** Multinominal regression results showing independent associations between 'grade delay at the onset of the pregnancy' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf. Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | 1.02 | 0.26 | 3.88 | < .001 | [0.51 – 1.54] |
| 2 No returners | 0.87 | 0.27 | 3.24 | < .001 | [0.34 – 1.39] |
| 3 Never takers | 1.31 | 0.25 | 5.14 | < .001 | [0.81 – 1.80] |

**Table 13.** Multinominal regression results showing independent associations between 'afforded necessities' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf. Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | -0.11 | 0.05 | -2.07 | .04 | [-0.21 – -0.01] |
| 2 No returners | -0.24 | 0.05 | -4.56 | < .001 | [-0.34 – -0.13] |
| 3 Never takers | -0.22 | 0.05 | -4.93 | < .001 | [-0.31 – -0.14] |

**Table 14.** Multinominal regression results showing independent associations between 'respondent co-residency with a caregiver' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf. Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | -0.83 | 0.40 | -2.03 | .04 | [-1.63 – -0.03] |
| 2 No returners | -1.12 | 0.41 | -2.74 | .006 | [-1.93 – -0.92] |
| 3 Never takers | -1.01 | 0.36 | -2.83 | .005 | [-1.72 – -0.31] |

**Table 15.** Multinominal regression results showing independent associations between 'household size' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf. Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | 0.02 | 0.04 | 0.45 | .65 | [-0.06 – 0.10] |
| 2 No returners | 0.03 | 0.04 | 0.65 | .52 | [-0.06 – 0.11] |
| 3 Never takers | 0.03 | 0.04 | 0.89 | .37 | [-0.04 – 0.10] |

**Table 16.** Multinominal regression results showing independent associations between 'family support with childcare' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf. Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | 0.08 | 0.27 | 0.30 | .76 | [-0.45 – 0.61] |
| 2 No returners | -1.04 | 0.27 | -3.89 | < .001 | [-1.57 – -0.52] |
| 3 Never takers | -0.39 | 0.24 | -1.64 | .10 | [-0.86 – 0.08] |

**Table 17.** Multinominal regression results showing independent associations between 'continued relationship with child's father' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf. Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | -0.29 | 0.24 | -1.26 | .21 | [-0.76 – 0.17] |
| 2 No returners | 0.34 | 0.24 | 1.42 | .15 | [-0.13 – 0.81] |
| 3 Never takers | -0.60 | 0.21 | -2.85 | .004 | [-1.02 – -0.19] |

**Table 18.** Multinominal regression results showing independent associations between 'maintenance payment receipt from the child's father'' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf.Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | -1.95 | 1.03 | -1.89 | .06 | [-3.96 – 0.07] |
| 2 No returners | -0.37 | 0.55 | -0.67 | .51 | [-1.44 – 0.71] |
| 3 Never takers | -0.99 | 0.62 | -1.60 | .11 | [-2.2 – 0.22] |

**Table 19.** Multinominal regression results showing independent associations between 'daycare use' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf. Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | -0.07 | 0.28 | -0.27 | .78 | [-0.60 – 0.46] |
| 2 No returners | -1.61 | 0.39 | -4.07 | < .001 | [-2.39 – -0.84] |
| 3 Never takers | -1.39 | 0.30 | -4.59 | < .001 | [-1.99 – 0.80] |

**Table 20.** Multinominal regression results showing independent associations between 'any birth problems' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf. Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | 0.66 | 0.49 | 1.33 | 0.18 | [-0.31 – 1.62] |
| 2 No returners | -0.56 | 0.76 | -0.73 | 0.46 | [-2.06 – 0.94] |
| 3 Never takers | -0.17 | 0.57 | -0.29 | 0.77 | [-1.29 – 0.95] |

**Table 21.** Multinominal regression results showing independent associations between 'government child support grant receipt' and school pathways.

| Enrolment pathway | Coefficient | SE | z | P > \|z\| | [95% Conf. Interval] |
|---|---|---|---|---|---|
| 0 Always takers | (base outcome) | | | | |
| 1 Temporary leavers | -1.06 | 0.26 | -4.01 | < .001 | [-1.57 – - 0.54] |
| 2 No returners | 0.00 | 0.00 | 1.37 | .17 | [-0.00 – 0.00] |
| 3 Never takers | -0.43 | 0.25 | -1.72 | .09 | [-0.91 – 0.06] |

# Appendix 5.3: Chapter VII – Supplementary analyses

## Introduction

Chapter VII of this thesis (*DPhil Paper 4*), examined subgroups of adolescent mothers based on their similarities in family and household-, school-, and community-level variables. Three distinct subgroups of adolescent mothers emerged from our analyses, showing a group of 'Most disadvantaged', 'Less disadvantaged', and 'Least disadvantaged' adolescent mothers. Here, the candidate presents the statistical significance tests for each of the individual comparisons of the three latent classes.

**Table 1.** Descriptive statistics for the sample of adolescent mothers from the Eastern Cape, South Africa.

| | **CLASS I (39%) 'Most disadvantaged – Poor home, poor community'** | **CLASS II (43%) 'Less disadvantaged – Good home, poor and violent community'** | |
|---|---|---|---|
| Characteristic | *Probability*; *M* | *Probability*; *M* | *p value* |
| **Structural factors** | | | |
| Food insecurity | 0.5 | 0.07 | <.001 |
| Informal housing | 0.31 | 0.24 | <.001 |
| Rural residency | 0.31 | 0.15 | <.001 |
| Distance from school (> 30 min.) | 0.34 | 0.19 | <.001 |
| Past year community violence exposure | 0.13 | 0.40 | <.001 |
| **Parenting factors** | | | |
| Co-residency with a caregiver | 0.9 | 0.9 | <.001 |
| Positive parenting | 12.45 | 21.54 | < .001 |
| Parental/Caregiver – adolescent communication | 10.41 | 12.39 | < .001 |
| Parental/Caregiver monitoring | 32.00 | 30.33 | < .001 |
| Past year physical abuse | 0.04 | 0.03 | .06 |
| Past year emotional abuse | 0.07 | 0.11 | .002 |
| **Schooling** | | | |
| School enrolment | 0.47 | 0.60 | <.001 |

**Table 2.** Descriptive statistics for the sample of adolescent mothers from the Eastern Cape, South Africa.

| | **CLASS I (39%) 'Most disadvantaged – Poor home, poor community'** | **CLASS III (18%) 'Least disadvantaged – Good home, good community'** | |
|---|---|---|---|
| Characteristic | *Probability*; *M* | *Probability*; *M* | *p value; Wald test* |
| **Structural factors** | | | |
| Food insecurity | 0.5 | 0.05 | N/A |
| Informal housing | 0.31 | 0.01 | N/A |
| Rural residency | 0.31 | 0.59 | < .001 |
| Distance from school (> 30 min.) | 0.34 | 0.31 | < .001 |
| Past year community violence exposure | 0.13 | 0 | N/A |
| **Parenting factors** | | | |
| Co-residency with a caregiver | 0.9 | 0.9 | 0.12 |
| Positive parenting | 12.45 | 16.62 | 0.12 |
| Parental/Caregiver – adolescent communication | 10.41 | 18.43 | < .001 |
| Parental/Caregiver monitoring | 32.00 | 36.95 | < .001 |
| Past year physical abuse | 0.04 | 0 | N/A |
| Past year emotional abuse | 0.07 | 0 | N/A |
| **Schooling** | | | |
| School enrolment | 0.47 | 0.70 | < .001 |

**Table 3.** Descriptive statistics for the sample of adolescent mothers from the Eastern Cape, South Africa.

| | **CLASS II (43%) 'Less disadvantaged – Good home, poor and violent community'** | **CLASS III (18%) 'Least disadvantaged – Good home, good community'** | |
|---|---|---|---|
| Characteristic | *Probability*; *M* | *Probability*; *M* | *p value* |
| **Structural factors** | | | |
| Food insecurity | 0.07 | 0.05 | < .001 |
| Informal housing | 0.24 | 0.01 | N/A |
| Rural residency | 0.15 | 0.59 | < .001 |
| Distance from school (> 30 min.) | 0.19 | 0.31 | < .001 |
| Past year community violence exposure | 0.40 | 0 | N/A |
| **Parenting factors** | | | |
| Co-residency with a caregiver | 0.9 | 0.9 | 0.18 |
| Positive parenting | 21.54 | 16.62 | < .001 |
| Parental/Caregiver – adolescent communication | 12.39 | 18.43 | < .001 |
| Parental/Caregiver monitoring | 30.33 | 36.95 | .002 |
| Past year physical abuse | 0.03 | 0 | N/A |
| Past year emotional abuse | 0.11 | 0 | N/A |
| **Schooling** | | | |
| School enrolment | 0.60 | 0.70 | < .001 |