



Eating to live or living to eat: The meaning of hunger following gastric surgery

Nina Hallowell^{a,*}, Shirlene Badger^{b,1}, Julia Lawton^c

^a The Ethox Centre and the Wellcome Centre for Ethics and Humanities, Nuffield Department of Population Health, University of Oxford, Oxford, UK

^b PHG Foundation, Cambridge, UK

^c Usher Institute, University of Edinburgh, Edinburgh, UK

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ABSTRACT

This paper is based upon interviews with twenty-seven women and men who have an inherited risk of developing gastric cancer and have had their stomach removed as a preventative measure. We describe what happens when bodily processes – digestion – are disrupted by the removal of the stomach. Interviewees' who had undergone prophylactic total gastrectomy experienced changes to the lived experience of hunger and appetite. The interviewees' accounts of life post-surgery suggested that private sensations of hunger (i.e. internalised feelings of hunger) disappeared following gastrectomy and in most cases never reappeared. The majority of interviewees described an alternative sense of hunger as developing over time. This externalised or disembodied hunger was described as triggered by a range of extracorporeal or external bodily criteria rather than internal sensations. We argue that this externally motivated desire for food, generated from without rather than within, serves the same purpose as internally generated feelings of hunger – it encourages eating, which sustains the body. Interviewees reported not only having to learn when to consume food following PTG, but also what to eat by adapting to what they perceived as their body's food tolerances and changing tastes. We argue that these changes in the lived experience of hunger and appetite may affect individuals' ability to participate in commensal relationships following gastrectomy, and that this may have negative consequences for identity.

1. Introduction

1.1. An anatomy of hunger

Hunger has many contrasting meanings, amongst other things, it has been described as: a biological drive, a physical need, a psychological desire, an indicator of taste, a reflection of cultural taboos, cultural preferences and social mores and a symbol, or mark, of poverty and suffering. Even the most cursory look at the literature suggests *hunger* spans a number of tried and trusted binary oppositions: biological-social, nature-culture, individual-society and mind-body.

Following Durkheim (Fischler, 2011) and Simmel (1997, [1910]), Garrido (2012) outlines a “traditional” biomechanistic account in which the satiation of hunger, or the satisfaction of personal and bodily appetites (Simmel, 1997), is seen as a necessary condition for survival. In Garrido's account, hunger is constructed as an innate or biological drive, an individualised and objectified need, the satisfaction of which

constrains or structures human activity. A very different but similarly biomechanistic view of hunger is adopted by the World Food Programme (www.wfp.org), and the United Nations Food and Agricultural Organisation (<http://www.fao.org/about/en/>) who link hunger with malnutrition and, thus, the undernourishment of individuals and populations. While these agencies acknowledge the individualised nature of hunger and its effects on individual bodies, they regard its eradication as contingent upon the abolition of social inequality coupled with the responsible development of the global commons. In other words, while it is recognised that hunger affects individuals, it is argued that the prevention of hunger (on a global scale) is dependent upon political, socio-economic or structural solutions.

These differing but primarily biological accounts contrast with the sociocultural view of hunger, appetite and consumption outlined by anthropologists (Ochs & Shohet, 2006; Vogel, 2014), sociologists (Falk, 1994; Simmel, 1997) and social theorists (Bourdieu, 1986). Within this perspective, global and local sociocultural forces (e.g., food advertising,

* Corresponding author.

E-mail address: nina.hallowell@ethox.ox.ac.uk (N. Hallowell).

¹ Current address Illumina Ltd, Cambridge UK.

farming practices, social norms) are seen as not only shaping food preferences and eating practices – appetites and desires (Freund & McGuire, 1995) – but also reactions to, and relationships with, food (cultural taboos/prohibitions) (Fischler, 2011; Simmel, 1997 [1910]). While we accept that patterns of consumption (including the consumption of food) and perceived desires, are underpinned by sociocultural factors (Bissell et al., 2016) and reflect individuals' cultural capital (Bourdieu, 1986), in this paper we will be less concerned with the cultural determination of appetite than with focussing upon the embodiment or realization of individuals' desire for food, or appetite, following the removal of their stomach due to their genetic risk of developing stomach cancer.

1.2. A phenomenological account of hunger

Drew Leder (1990a,b) has observed that most of the time our material body and bodily processes are not the focus of our attention, they *dis-appear* from awareness as we get on with our daily life. He notes that our body intermittently (re)enters awareness, for example, when it is damaged – we experience pain – or when it requires sustenance – we feel hunger or thirst. These bodily *dys-appearances* are, for the most part, unwanted or negative (Leder, 1990a), and actions are taken to return our body to a state in which it dis-appears or recedes from awareness; we treat the source of pain and satisfy our hunger by consuming food. Leder (1990b, 2018) distinguishes *interoception* – perception of the viscera – from *exteroception* – perception of the surface body or external world – arguing that the former is by definition, causally ambiguous, intermittent, private and personal, while the latter, which is “outer-directed”, may be shared. He argues that the inner body, in contrast to the surface body, eludes our control, and thus, is perceived as impersonal other.

“... my visceral organs re-cede, fall back ... [w]hat perception I do have of my visceral processes is limited, discontinuous, ambiguous. While sustaining the life of the conscious “I”, the visceral perpetually eludes its grasp.” (Leder, 1990b: 217)

Consequently, internal bodily processes, such as digestion, are accomplished within us (within our body), but are not accomplished by us (they are not intentional or conscious processes); we cannot summon hunger or satiation nor control our internal digestive processes (Leder, 1990b, 2018). This account suggests a form of self-body dualism, however, Leder (2018) argues that drawing simplistic boundaries between: self and body, interception and exteroception and the inner and exterior world, overlooks the ways in which we understand or interpret inner bodily sensations, such as hunger. According to Leder, just as our perception of the external world is subject to interpretation so are our inner sensations; we learn to interpret our intermittent and “qualitatively and spatially indistinct” internal sensations as signs of pain, hunger, satiety and so on (Leder, 2018). He argues that the external world – cultural forces or social contexts – shapes these interpretations, or meanings, demonstrating that the external and internal life-worlds coexist and are mutually reinforcing. Our bodily sensations are not only meaningful, but also generate emotional responses and actions, in this sense they are purposive, but not intentional. For example, the bodily sensation of craving sustenance – which we interpret as meaning we are hungry – results in action – consuming food. Leder observes that those points at which our visceral sensations enter awareness, are interpreted and acted upon are the points at which the inner and outer world of experience – intero- and exteroception – come to coexist.

“The lived body is not simply a collection of discrete regions and organs but operates in an unified fashion vis-à-vis the life-world. Interoceptive experience is shaped by that world, and helps determine how we perceive and respond to our surroundings.” (2018, p. 13)

In this paper we describe what happens when internal bodily processes are disrupted by the removal of part of the viscera – the stomach.

We will show how undergoing total gastrectomy affects interoception of the digestive process, which in turn affects the phenomenology of hunger, and will argue that these changes may have far reaching impacts upon identity.

1.3. A clinical note

This qualitative interview study involved a group of individuals who had undergone surgical resection of the stomach to eradicate their risks of developing gastric cancer. Inherited genetic mutations are responsible for 1–3% of stomach cancers (van der Post et al., 2015) and mutations in the *E-cadherin* gene cause between 25 and 30% of these malignancies (Gayther et al., 1998; Guilford et al., 1999). Carrying an *E-cadherin* mutation greatly increases an individual's risks of developing stomach cancer in early adulthood (in their twenties and thirties) (Hansford et al., 2015). Because of the poor prognosis of invasive stomach cancer, at-risk individuals are advised to undergo prophylactic total gastrectomy (PTG) (Blair et al., 2020; van der Post et al., 2015).

In contrast to bariatric surgery, which aims to reduce the surface area of the stomach, PTG involves the removal of the entire stomach; this means that the digestive processes that take place within the stomach cease and the biochemical feedback loops between the stomach and brain, which are involved in regulating eating behaviour are permanently disrupted. Following the removal of the stomach ingested food passes down the oesophagus and straight into small intestine, which maybe fashioned into a small pouch where it meets the oesophagus. While this pouch can hold a small amount of food, it neither has the stomach's capacity, nor plays the same role in digestion, consequently, those who undergo surgery have to avoid eating too much too quickly as this could lead to food backing up into the oesophagus. This means that individuals need to change the ways in which they eat after surgery; they are advised to consume smaller amounts more frequently (Fitzgerald et al., 2010) and to ensure they chew their food more thoroughly. They also need to change the types of foods they eat, namely, those that are easier to digest, particularly, during their convalescence when patients are encouraged to consume energy dense, pureed or soft foods and to reintroduce foods into their diet slowly to determine which foods they can tolerate. There appears to be no stereotypical post-gastrectomy diet, as what individuals can, and do, eat and drink after undergoing PTG is very variable (Hallowell et al., 2017). What is clear is that post-surgical dietary changes can be experienced negatively (Carey et al., 2013; Fitzgerald et al., 2010; Garland et al., 2011; Worster et al., 2014) and some individuals never manage to resume their normal eating habits (Hallowell et al., 2017). Thus, it has been observed that surgical resection of the stomach has a major and on-going nutritional impact (van der Post, 2015; Fitzgerald et al., 2010) and a high level of postoperative morbidity, including: hormonal dumping syndrome (often following the consumption of sweet and/or fatty foods), permanent and extensive weight loss, disrupted eating and on-going severe fatigue, all of which may last in perpetuity (Fitzgerald et al., 2010) and are associated with severe emotional and social effects which may negatively impact identity (Carey, 2013; Clarke, 2011; Hallowell et al., 2017; Ollson, Bergbom, & Bosaeus, 2002).

2. Methods

Women and men from the Familial Gastric Cancer Study in Cambridge, UK who had undergone total gastrectomy to manage their risk of stomach cancer were sent an invitation to participate in an interview about their experiences of being at increased risk of gastric cancer and managing that risk. If the recipient failed to opt-out within three weeks, researchers contacted them to arrange an interview. Qualitative data were collected during in-depth face-face interviews (conducted by NH and SB), which were carried out in interviewee's homes or at a location of their choice, for example, parental home. Interviews lasted between 1 and 3.5 half hours (mode 100 min). The interviews focussed on: views

about surveillance and surgery (PTG), surgical decision-making and the psychosocial impacts of gastrectomy.

The study involved simultaneous data collection and analysis; this meant that the initial analysis informed targeted questioning in later interviews. For example, although hunger was not a topic of interest in the initial interview topic guide it became apparent during early interviews that individuals' lived experiences of hunger, satiation and commensality had been deeply affected by gastrectomy and thus, the effects of PTG on eating, hunger, appetite and commensality were explored in greater depth in subsequent interviews. Interviewing ceased once it became apparent that theoretical saturation was achieved in the dataset.

The interviews were audio-recorded, transcribed, (pseudo)anonymised and each interview was read through a number of times prior to analysis. The analysis was influenced by a grounded theory approach (Charmaz, 1991). NH developed an initial list of codes, based on topic guide, interviews and previous research for indexing the interview data this was modified using the method of constant comparison (Strauss & Corbin, 1990). This method demonstrates the fit between codes and data and leads to the development of new codes on the basis of readings of the data and testing them against new data in an iterative manner. Constant comparison also enables the identification of recurring themes within and between interviews and subsequent readings allow for the development of conceptual themes. In this case, the list of codes went through a number of iterations as data collection and analysis progressed; for example, data concerning experiences of hunger were initially coded as descriptions of eating post surgery and, as analysis progressed, were subsequently recoded as lack of internalised feelings (disembodied hunger), external manifestations of need for food (reembodying hunger).

NH initially coded all the interviews and a subset was read and coded by JL; these two authors then discussed alternative interpretations of the data and adapted the coding list where appropriate, the new codes were applied to the full dataset. The final coding list and analysis was discussed at length with SB, who had had also undertaken some of the interviews. Including different team members at different stages of data collection, analysis and reporting, ensured the trustworthiness of the data interpretation presented below. The dataset was also examined for negative evidence (interviewees reporting alternative experiences) to counteract the possibility of researcher reporting bias, if appropriate, these are highlighted in the analysis below. The analysis that follows focuses upon individuals' lived experience of hunger and experiences of changing patterns of consumption following surgery.

3. Participants

Twenty-nine individuals who had undergone PTG because of their inherited risk of stomach cancer were approached, two declined participation. Thirteen women and 14 men consented to be interviewed, between April 2012 and July 2013, about their experiences of surgery and living without a stomach. The mean age at which individuals had undergone gastrectomy was just over 35 years (range: 19–64 years) and the median time since surgery was three years, (range: 0.5–9 years), time since surgery is indicated in the data below.

4. Findings

What is life like following total gastrectomy? One of the most frequently reported effects of surgery in our study was the way it had transformed the lived experience of hunger or the desire to consume some, or particular, foodstuffs.

"I don't really get a sensation of feeling hungry [INT: OK. So if you didn't eat?] I think I wouldn't miss it! [INT: could you just go for days?] Probably. Lara (4 years [post-surgery])

In what follows we present an account of the aftermath of gastric surgery, of the ways in which surgery appeared to alter individuals' experiences of hunger and appetite for certain foods and the impact that this transformation had upon eating and commensality and suggest that this may have profound effects on individuals' sense of identity. However, before we go any further it is necessary to address some conceptual matters and clarify some of the terms we are using in this paper.

4.1. Foreword: defining hunger

As noted above, the term "hunger" has multifarious meanings it is used by different people in different contexts to mean different things. It is, therefore, important for us to nail our colours to the mast from the offset, and define how we, the authors, are using "hunger" in this paper. We have found this difficult because our paper does not attempt conceptual clarification of hunger *per se*, in the sense that it takes one definition and tries to improve upon it, but rather the paper is a conceptual exploration of a term that has many different uses or meanings. What we mean by this is that by looking at how people use the term hunger (and satiation), i.e. talk about hunger following surgery we may gain insight into what hunger means in this context, and this may throw light on the meaning of this term in other contexts. On the other hand, on rereading earlier drafts we realised that we make implicit assumptions about the meaning of "hunger" and are using "hunger" in a particular way in our analysis, and it is time to come clean.

We start by reflecting on how and why this paper came to pass. Two of us went into the field a number of years ago to interview persons who had undergone PGT. One of us, SB, was specifically interested in the sociology of eating and appetite and the other, NH, in the management of embodied risks. From the very first interviews we did, we were struck by the ways our interviewees described the impact of surgery on their lives, specifically how it had changed their experiences of the world. In a nutshell, they said they no longer felt any desire for food and, moreover, once they started eating they had to be careful, as they no longer "knew" when they should stop. So we set out to explore a) whether most people in our study felt the same way and b) what these changed experiences meant for them?

The implicit starting point of this paper is that ordinary language users frequently describe themselves as experiencing hunger (and satiation) as an internalised desire or subjective feeling. "Hunger" is constructed as a private mental state; we describe ourselves as hungry, as feeling hungry or wanting to eat. In contrast to this ordinary language use of "hunger", the majority of our interviewees said following surgery that they no longer experienced these desires, feelings or sensations; they had stopped feeling hungry/wanting food. This paper set out to explore what this meant for our interviewees. To be honest we are not really sure whether this provides enough clarification for you, the reader, but what we would like you to bear in mind is that the goal of this paper is to explain the impact of radical surgery on people's lives, and it does this by interrogating the changing meanings of "hunger" following gastric surgery.

4.2. Living without a stomach

"I remember saying after my operation that hunger had gone, that I did not have hunger any more. And now maybe I've learned something else that I call hungry, but I can't remember if it's the same or not. It was particularly difficult to eat at first because you do lose, you don't have hunger any more. I didn't want any food. I didn't have that urge that you normally have." Ella (6 years)

As Lara's and Ella's accounts illustrate, hunger is no longer characterised as a subjective desire, or internal feeling, following surgery, but is reported as absent, or disconnected from self. Although most interviewees no longer described themselves as "feeling hungry" or as

desiring, or “wanting”, food after their surgery, all were very aware that their bodies have a biological need for sustenance, as Boyd said:

“I don't feel hunger as such any more, I don't think I do. People have asked me that, ‘Do you feel hungry?’ and I said, ‘Do you know something, it's been gone so many years now, I don't know if I am.’ I am aware of the need to eat sometimes, I've gone out and think, oh Christ I've been out on this golf course for four hours and I haven't had a banana, I haven't brought any bananas with me, I need something to eat. But am I hungry? I do feel thirst, I'm aware of thirst. I'm not so aware of hunger.” (8 years)

Not only are internal feelings of hunger reported as disappearing (Leder, 1990a) from one's awareness post-gastrectomy, but the majority of our interviewees also commented that feeling full or satiated was no longer experienced in the same way either. Leo, who had very recently undergone surgery, described the problems he had had in determining he was satiated and, therefore, whether he should continue or stop eating.

“The problem it's when you're eating, you don't know when you're full up properly. You can eat past the point of being full up and then realise you've eaten too much. You've eaten too much before you realise you've eaten too much”. Leo (0.5 years)

Like many interviewees, Leo explained that eating past the “point of being full up” resulted in feelings of sickness or induced vomiting, primarily because having no stomach meant that food was directly hitting his small intestine and would literally back up if he ate too much or too quickly.

Interviewees reported that their inability to “feel hungry” or “full up”, to sense whether you desire some, or more, food, had changed over time. Marion, for example, described how feelings of hunger, or the “desire to eat” had slowly returned following her surgery, however, she also said she was no longer able to control these desires and now experienced continuous hunger, which means she eats “continuously” throughout the day.

“In the beginning [post-surgery] you haven't got an appetite at all. It's strange because you've got no desire to eat at all and no appetite and there are hunger pains. But then after a while because you're eating so much it goes the other way, you're hungry all the time. And you've got no control you seem to be finishing eating and then say an hour later you're hungry again for another meal you're continuously eating” Marion (4 Years)

However, Marion was in the minority, for most interviewees reflected that they no longer felt “hungry” or “full” since undergoing PTG (eg. Anna, 7 years since surgery), instead they reported that their appetite or hunger (namely, the desire to start or stop eating) was now controlled by external cues.

In summary, all the interviewees said hunger (and satiation) were experienced as irrevocably altered since they had undergone gastrectomy. With a couple of exceptions, this meant that they no longer experienced internalised feelings of hunger or satiation. However, that does not mean interviewees' lived experience of hunger had remained unchanged in the months and years since surgery, for, as Marion and Ella (above) suggest, the phenomenology of hunger changes with time. Thus, most interviewees described the lived experience of hunger (and satiation) as passing through two distinct phenomenological phases following surgery. In the first, hunger is experienced as totally disembodied, and eating as triggered by external (non-bodily) cues. In the second phase, hunger becomes partially re-embodied as individuals adapt to their post surgical body and learn to read the (external) bodily cues that indicate the body's need for sustenance; hunger is read off the surface of the body.

4.3. Disembodied hunger: a phantom need or just a habit?

Many interviewees talked about eating, particularly in the immediate post-surgical period, as being triggered by a range of objective or external

criteria, such as, “force of habit”, the time of day or the presence of food, rather than subjective mental states. i.e internalised feelings of hunger, or other bodily cues.

Larry ‘For the first sort of six months I never really felt hungry-hungry, like I normally would, like when I had a stomach. I suppose I always sort of knew there was that need to eat, just force of habit I think, more than anything.’ (3 years)

Anna commented on her reliance on external reminders to prompt her to eat. She described still having to carry food with her at all times to encourage her to stop and eat because she no longer spontaneously “feels hungry”:

“I could easily go a day without eating, if I didn't remember. I do have to remember to eat. So if I'm out for the day I have to take like a bag of snacks with me, because I could easily forget. If I'm that busy and I just don't feel hungry anymore.” Anna (7 years)

Likewise, Colleen explained that she often sets an alarm to remind herself to eat. She also described how she consumes extra food in advance if she was going to deviate from her daily routine to compensate for a potential lack of feeding opportunities and cues.

“You more or less like kind of have to set an alarm sort of thing to eat every hour because you do need to eat. I'll always like eat like before I go out, I'll make sure I've had something to eat, hoping it will last me a bit longer. When I'm at home and I'm like in my routine, or at mum's or anything I'm quite regimented in, it's like routine sort of thing.” Colleen (5 years)

It could be argued hunger is constructed as a phantom need in these accounts of post-surgical life; a disembodied need that has become disassociated from internalised desires or visceral cues, and is now tied to extracorporeal cues (time or other visual cues, e.g., food) and is fuelled by the knowledge that bodies habitually require food.

“A true understanding of the feeling of hunger I think has probably gone from me. But I'm not left with sort of a complete lack of understanding of how to eat, I do know, I do get up in the morning and think, right yes ... because I don't feel hungry doesn't mean to say I go out and I spend all day and never eat anything, oh no. I do eat. I eat a lot of food.” Boyd (8 years)

Like Boyd, Keira commented that although, three years after surgery, she no longer feels hungry still eats routinely. She explained that her post-surgical experience of “hunger” is determined by her pre-surgical eating habits, observing that her daily activities are structured by the knowledge that bodily needs must be satisfied, (Garrido, 2012), even though she no longer experiences hunger as an internalised desire:

NH: Do you actually feel hunger?

Keira ... I think I feel hungry because I know that I need something to eat and I get a bit kind of like, need something to eat, in my mood rather than the actual feeling. I think having eaten at kind of breakfast, lunch and dinner for X years of your life, I don't think I could ever forget for five days, not to eat, because it's an instinctive part of your life, whether you're hungry or not I think you're aware of how the day is structured around those times. At work, you know, you go for your dinner break, you go for your lunch break, it's a way of structuring the day and ... I guess whether you feel hungry or not, that's human instinct, to eat to survive. (3 years)

Satiation or the satisfaction of hunger post-surgery was similarly described as governed by a range of extracorporeal cues rather than subjective experiences. Many said that their inability to sense when they had eaten enough – that they were full or satiated – had meant that learning the exact amounts of food that could be tolerated by their digestive system had been a priority during their convalescence. They

described having to monitor their food intake constantly, using portion control to avoid overfilling their body and making themselves ill. Thus, satiation, like hunger, was portrayed as governed by objective, extra-corporeal criteria post-surgery; and interviewees described having to (re) learn the exact quantities of different foodstuffs they could put into, or contain within, their body. As Nico reflected:

“When I start eating I've got to stop. So you still have that, your head's trained around this huge amount of calorie intake and obviously it's not going to happen any more! (Laughs) And so as soon as you start eating then you've got to stop, and often you don't really stop quite in time, but the more you train yourself the more you might stop in time ... It's not full. You don't get full, you get ill.” Nico (8 years)

Taken together these data suggest that eating becomes a mindful, rather than an automatic or mindless activity following PTG (see also Hillersdal et al., 2016); with interviewees commenting that they now have to pay attention when eating and drinking to ensure they consume enough to satisfy the body's physical requirements, while at the same time avoid ingesting too much in case they overload their digestive system. In other words, eating post-surgery becomes an act of conscious consumption, in the sense that individuals must always take care to consume the right amount of food at the right time.

“I just have to pay more attention when I'm eating. I guess like, you might just sit and eat and you'd be talking to your friends, but I have to actually think at the same time, “I'm eating too much”. I think “right, I have to stop”, because I might just be not paying attention and just eating too much, and the next thing I know I've got the most awful tummy cramps. I have to go and lie down.” Anna (7 years)

Arguably, these accounts of eating following gastrectomy bear some resemblance to those of individuals who have undergone bariatric surgery who also have to consciously control the amounts they consume (Hillersdal et al., 2016). In both of these cases, there is an emphasis on the need to monitor, control and be conscious of food intake. However, in contrast to those who have undergone bariatric surgery (Lynch, 2016; Natvik et al., 2014), or, indeed, anyone on a weight-reduction diet, who describe themselves as still needing to control their bodily drives and satisfy internalised feelings of hunger, those who undergo PTG must attend to the nutritional requirements of the body without recourse to internal prompts. In other words, eating post-gastrectomy is less about learning to control seemingly immaterial subjective desires than learning how, and when, to refuel the material body.

While extracorporeal cues alone triggered eating in the immediate aftermath of PTG and fullness or satiety following surgery continues to remain tied to extracorporeal cues, such as portion size, the interviewees' accounts of recovery suggest that hunger does not remain completely disembodied following surgery; suggesting the phenomenology of post-surgical hunger is dynamic and evolving.

4.4. Re-embodiment hunger

“It's funny now because initially after the operation I didn't feel hungry, but now my body, I think it's completely adapted because it knows when it needs something to eat, and it knows, it kind of tells, I can feel it when I know.” Rosa (6 years)

While only a couple of interviewees, like Rosa and Marion above, reported that they were able to “feel hungry” again, i.e. experienced hunger as an internalised desire, most reported that over time they had become aware of a range of external bodily or physical manifestations of hunger, such as: shaking, dizziness, paleness, mood changes, and physical twitches or bodily tics, which they interpreted as meaning they were “hungry” and needed to consume food. Joel reflected:

“I never feel hungry. I know I need to eat. My body tells me I need to eat, because my body starts shaking. I go a bit dizzy. I feel I need to

eat, I know I need to eat, I know my body's telling me I need to eat, so I don't feel hungry, I don't get hunger pangs or anything like that, but I know I need to eat, my body does tell me to give it, to give it food.” (4 years)

Thus, for many of our interviewees post-surgical hunger is inscribed upon, and read off, the surface of their body. Satiation was less frequently reported as tied to external **bodily** cues, although Kenny described how, over time, he had also learnt to read the signs of satiety on his body.

“If I've overeaten you can actually see it. I wonder whether it's where the pouch is or whether it's just part of the piping, but I get a wee lump. And you wouldn't look at me and say, ‘He's got a strange shape sticking out,’ but if you were to rub your hand over here, there's a wee raised bit here if I'm really really full.” (4 years)

Recognising externalised bodily manifestations of hunger and, to a lesser extent, satiation post-surgery appeared to be dependent upon individuals learning the personalised (bodily) signs that signify hunger/satiation and being able to read their “body language”.

“When you first come out [of the hospital] you don't want to eat because you're not hungry. Now I'm, you still don't get the hunger or anything, but I get the funny turns and everything where I know I need to eat, and you learn to deal with your body, you learn different triggers, different things that go on with your body. So you do learn, or re-learn your body language, so to speak and you know when you need to eat.” Colleen (5 years)

In her study of self-injury, Chandler (2013) extended Leder's (1990a) concept of bodily dys-appearance (i.e. heightened bodily awareness) by arguing that in some cases, for example, self harm, dys-appearance may be desirable and explicitly sought. She observes that these *invited dys-appearances*, (self-inflicted) pain in the case of her participants, are instigated to bring the body into awareness with the goal of re-embodiment of the self. Similarly, we argue that hunger, post-gastrectomy, is no longer conceived as a subjective state in which bodily needs *dys-appear* or enter awareness demanding appeasement or eradication, but rather, with the removal of the stomach, hunger becomes dislocated and is intentionally inscribed upon the body's surface or other aspects of the physical world. The external signification of post-surgical hunger means that hunger is intentionally brought into awareness; it is invited back in through these external (bodily) cues. These “invited dysappearances” are initiated by the self and force attention to (learnt) bodily needs that are no longer experienced as internal states. Moreover, it can be argued that the intentional alignment of hunger with external criteria results in the reembodiment of the self, insofar as the self who is hungry is one and the same as the self who shakes, goes pale, and is watching the clock or the plate.

In summary, these accounts suggest that gastrectomy permanently affects the interoception of the digestive process, such that post-surgical eating is no longer governed by internal visceral sensations - subjective feelings of hunger and satiation - but by objective criteria - bodily or other extracorporeal signs - which come to be associated with the need to begin or to stop eating. Gastric surgery affects the phenomenology of hunger and satiation, and the types and amounts of food individuals can, or do eat. In the following sections we will demonstrate that these changes in patterns of consumption may have a profound impact on an individual's identity, because they are perceived as affecting their ability to form and maintain social bonds through commensality (Fischler, 2011; Simmel, 1997).

4.5. Changing patterns of consumption: becoming naïve consumers

The above analysis suggests that changes in the lived experience of hunger transforms individuals into inexperienced eaters following PTG. As Anna commented: “It was like learning how to eat again. Like a quarter of a piece of toast and I'd be full, and just learning what I can and can't eat.” Like

Hillersdal et al.'s (2016) bariatric surgery patients, many of our interviewees said that in the immediate post-operative period they had only been able to eat very small portions of easy to consume foodstuffs. Some interviewees said that eating at this time was so arduous that they were eating infant-sized portions and had considered trying pre-prepared baby food.

"When I did start eating everything was in tiny portions, almost like baby portions. It was like being a baby and learning how to eat again. And I did consider trying baby food, because I was trying to eat like normal person's food and I was struggling with it a bit, and then I was thinking, should I try baby food?" Maya (2 years)

All interviewees likened their eating habits in the immediate post-surgical period to those of infants or small children-surgery had rendered them naïve consumers. Ella said that she had refused to eat when she first came out of hospital and had been so fussy about food that her mother had said: "*It's like having a baby!*". Anna, disclosed that during her convalescence she had been eating foodstuffs marketed at children: "... *the little tiny Munch Bunch yoghurts, I'd have one of those and be full*". Others explicitly compared their experience of learning what foods they could tolerate post-surgery to the weaning of infants.

"It's almost like you had to teach yourself to, I mean I can eat foods now that I could never eat before when I first had the surgery done. And you learn ways of coping and what have you. Yeah, it's just a huge, massive, massive learning curve. It's almost like growing up again, it's like you've got a brand new baby and you've got to teach it, and it's got to learn how to make its way in life, and you do that without a stomach." Nico (8 years).

As Nico's comment suggest, it is not only the amount food that can be consumed that needs to be (re)learnt following gastrectomy, but also what types of food one can tolerate. Many interviewees described having to acclimatise to changing tastes and food preferences. Some, like Alec, described how their food preferences had regressed, commenting that their post-surgical preferences were more childlike (and conservative) because the taste of food was experienced differently following surgery.

"You know how as children, their taste buds are more acute than adults', their taste buds are more sensitive than ours. So to a certain extent I went back to my childhood as far as taste was concerned." Alec (9 years)

Many commented that they no longer regarded some of their previously preferred foods as "appetising", and others explained that they had worked hard to get their post-surgical body to tolerate their favourite foodstuffs. Kay reported how her food preferences had switched from sweet to savoury following PTG.

"I've worked quite hard to like chocolate, at first my body didn't like it very much but gradually over time. I suppose the way my eating habits have changed, I won't have so much sweet food now and I actually had a very sweet tooth whereas I now tend to go more for savoury snacks" Kay (8 years)

As far taste and food preferences were concerned, some interviewees described these aspects of consumption as resisting personal control since undergoing surgery.

"You can eat one day what is healthy for you, the next day you just don't, it [your body] just doesn't want you to have it. It's as though like you're doing liquid lead ... Your body won't tell you to do something that it doesn't want you to do. So [you] learn to listen to your body." Patrick (3 years)

Lara commented that she had had to learn what types of foods she could eat following her surgery and, like Patrick above, she repeatedly

referred to her body, specifically her refashioned digestive system, as other; as an entity with agency, whose dietary "likes and dislikes" she had learnt to accommodate over the past four years.

"The first couple of years I was very conscious of what I was eating and stuff like that. Well, it was all a learning curve to see what was, going to stay and what wasn't. And just sort of getting to know it [digestive system] – (laughs) there you go, using it [digestive system] as a separate entity again – just getting to know what it wanted, what its likes and dislikes were, and going with that, it was pretty much kind of trial and error really, more than anything. Just to see, again, what it liked (laughs). So you just kind of got to know what to avoid. I seem to eat a lot of cheese so I don't know whether it craves the dairy. It seems to know what it wants (laughs) and when it wants it, so I just go with the flow. Lara (4 years)

While initially this meant she had to learn what foodstuffs her body could tolerate, Lara admitted that she tends to eat the types of foods her body "craves" or "likes", rather than what she (her self) might want. Her awareness that she has little control over dietary preferences, was emphasised when she explained that on occasion she had refused to be "ruled by" her body and had taken control of what she consumed, often with disastrous consequences.

If I maybe have a fried egg piece [sandwich] or something, I get halfway through it and I just goes "no, I don't want it" and I've got to just leave it. But other days I could eat the whole thing and it doesn't make any difference. I'll still keep trying though, I'll not be ruled by it (laughs) If I want a piece and egg, I'm having it.

The idea that tastes and food preferences exist independently of self following surgery was voiced by a number of interviewees, who, like Lara, Patrick and Rosa (below), appear to fall into the Cartesian trap of regarding body and self as separate entities.

"It's really so inconsistent. That's the frustrating thing with it. It's just like I ate that yesterday, why is it not agreeing with me today? There's no rhyme or reason to it. I suppose it's just your body, isn't it? I don't think it really understands. It doesn't care where you are, if you're at work! You can't say, 'Leave me alone!'" Rosa (6 years)

While Leder (2018) would argue that for most of the time we view digestion and the workings of the viscera as existing independently of self, our interviewees' accounts suggested that there are significant changes in interoception following surgery, not least because their taste for particular foods changes. As illustrated above, some interviewees experienced changes to their food preferences as alienating (see also, Hillersdal et al., 2016). These feelings of alienation may arise because what one eats and how one eats is the public manifestation of taste; one's embodied cultural capital (Bourdieu, 1986). As Bourdieu (1984) observes, taste is long-lasting disposition of the mind and body and reflects one's social position.

"Taste classifies, and it classifies the classifier. Social subjects classified by their classifications, distinguish themselves by the distinctions they make Oppositions similar in structure to those found in cultural practices also appear in eating habits between the taste of necessity, which favours the most 'filling' and economical foods, and the taste of liberty or luxury - which shifts the emphasis to the manner (of presenting serving eating etc)" (Bourdieu, 1984 6ff)

Consequently, the depersonalisation of taste, or the perception that food preferences are no longer under personal control following surgery may be experienced as alienating and as undermining one's identity. For some, however, symbolic taste, or what food preferences might reveal about one's cultural capital, was less of an issue than the actual taste of the food they consumed. Many commented on the importance of the flavour post-surgery. As Kay said:

I personally found that flavour ... I just am obsessed about [it] ... I want every single piece of food to taste nice, I don't want anything bland anymore. I'm not interested in eating just for eating's sake. You want everything to taste nice because you have to chew it so much. (8 years)

So while some felt that food preferences eluded their control, others reported that subjective food preferences always dictated their food intake. Similar to patients who have undergone bariatric surgery (Natvik et al., 2014), this group talked at length about the importance of the flavour of food and the pleasure to be gained from eating, observing that their inability to eat large portions since their surgery had meant that all acts of consumption had a greater salience than previously. Because they could only consume small amounts, some interviewees reflected that every mouthful must be made to count, as Nico pointed out, his goal when eating is to ensure that everything he consumes is enjoyable:

... when I eat now, I want to eat what's really good and what tastes really nice because I don't want to be shoving something into my mouth that I don't really enjoy, and I'm not really liking. And it might be that I want a MacDonald's cheeseburger. But it's got to be what you want, rather than just eating something because you're a bit hungry and you're going to eat it. Food's become more important to me, not less. How it tastes and what have you is much, much more important. Nico (8 years)

4.6. Eating to live or living to eat?

"I don't miss feeling hungry. I miss the flexibility of how I used to be able to eat, and it's something you kind of take for granted until it's taken away from you. I don't think I miss hunger pains, I think it's more that I miss being able to do what I like in terms of food ". Maya (2 years)

Does it really matter how these people eat and experience hunger as long as they continue to feed themselves and remain physically nourished? Well arguably yes, because changes in the phenomenology of hunger and the related patterns of consumption, like those described above, may have far-reaching influences upon people's lives, primarily because how, and what, we eat are integral aspects of culture and our identity (Bourdieu, 1986; Fischler, 2011; Simmel, 1997). All of our interviewees commented upon their inability to eat "normally" following PGT, in other words, like other people or like they used to eat before they underwent surgery. As Erica reflected: *"I can't remember what it's like to eat normally now, ... And don't get me wrong, some days it does get to you, you think, oh God why? Why can't I just eat?"*. (1 year).

Many interviewees bemoaned the fact that they no longer had a normal relationship with food - a relationship that entails and involves others. They described how PTG, and the associated changes to the lived experience of hunger and appetite, had negatively affected their ability to share food and experiences with others: to go out for meals or drinking with their friends and to socialize their children into the eating practices of the group (Ochs & Shohet, 2006).

"Even now, I'm still a wee bit paranoid if I go out somewhere for a meal because I still can't - and never will - be able to eat an adult's portion of anything ... I go to McDonald's and I get a Happy Meal because I know I can eat that! It's not cool, a 40-year-old going in and getting a Happy Meal." Lara (4 years)

What became clear as the interviews progressed is that the ability to eat with, and like, others, was an integral part of these peoples' lives and their identity (Fischler, 2011; Simmel, 1997), which, for many, was irrevocably changed following PTG. So although surgery may help to manage the risk of cancer, a benefit all acknowledged (Hallowell et al., 2017), it was also described as having unanticipated social costs, which some experienced as life-changing. As Rosa said about gastrectomy:

"I think I walked into it thinking it was going to be easy and it isn't easy whatsoever. Especially if you're not ill before. I don't think you can understand how hard it is, as well because eating's just such a normal thing, you just take it for [granted] it's just something you do. You eat, you go out for a meal, it's just part of life and I don't think you really. It was like learning how to eat again. Like before [surgery] I was, you engulf your food and now you just can't do that, you have to take your time. It was like teaching yourself all over again. I don't think I'll ever feel normal now, to be honest, because it's always something that's there." Rosa (6 years)

The sharing of food - "gathering for the common meal" (Simmel, 1997, p. 130) transforms individualised acts of eating into a social practice - commensality. As Fischler (2011:532) notes, acts of commensality have great social import because they "meld[s] the public and private spheres". Eating together increases within-group bonds and cements group norms, by increasing feelings of likeness between group members. Arguably, privatised feelings of hunger play an important role in greasing these social bonds by promoting awareness of a desire for food, which is satisfied by (communal) eating. As Fischler notes, sharing and, by implication liking, the same food increases feelings of likeness or identification with others. The social impact of gastrectomy, which is associated with changes in the phenomenology of hunger and, as a result, disrupts "normal eating" (Rosa and others above) means that individuals who have undergone surgery are less able to eat alongside or in the same way as others - they may eat child-like portions (happy meals) and/or have to eat different types of food - and this decreases feelings of likeness, which may have negative impacts on identity.

5. Conclusions: Rehabilitating hunger

Hunger is a multifaceted phenomenon; it is biologised as an objective drive or bodily need, politicised as an indicator of suffering or poverty and socialised as marker of cultural capital or taste. We tend to think of hunger as a negative state, an existential threat that must be satisfied or eradicated at both the individual and societal level. Even those who embrace hunger by fasting for religious or political reasons, regard it as a state that must be overcome, contained or controlled. However, it can be argued that hunger also has a positive role to play in our lives. At an individual level, feeling hungry - experiencing a desire for food - signals the need for sustenance, which in turn ensures we physically flourish (Garrido, 2012). At a social level, hunger, or an individual's desire to eat, paves the way for commensality, eating with others, which forms and reinforces social bonds (Fischler, 2011; Ochs & Shohet, 2006). Thus, our interviewees' inability to "feel hungry" following PTG was perceived by some as a potential existential and social threat.

Although the majority of our interviewees reported that they no longer experience hunger as an internalised desire following surgery, our interview data suggest that an alternative sense of hunger develops over a period time; an externalised hunger, which is triggered by a range of extracorporeal or external bodily criteria. This more objective form of hunger, generated from without rather than within, could be understood as serving the same purpose as subjective feelings of hunger for our interviewees, insofar as it encourages eating, which not only sustains the body, but also enables them to identify as normal consumers and continue to participate in commensal relationships. Like Chandler's (2013) participants who described self-injury as allowing them to feel more "normal", it could be argued that relying upon external criteria to signify hunger enabled our interviewees to appear more "normal", despite the fact that most no longer "feel normal" following this surgical procedure. However, while our interviewees were eventually able to partake in commensal relationships following surgery, many could no longer eat in the same way, some reported they no longer liked or preferred certain types of food - they had become alienated from their taste (Bourdieu, 1986) - others could no longer consume the same amounts at the same pace - and so they felt alienated from their social

group. In this sense, gastric surgery was experienced as a disruptive event, as a threat to social identity.

The goal of this paper was to describe individuals' lived experience of hunger and their changing patterns of consumption following PTG. In exploring the changing phenomenology of hunger post-surgery, we suggested hunger is a dynamic phenomenon with changing meanings, and that the desire for food in general, and certain types of foods in particular, is important for individuals' sense of self. In the latter half of this paper we observed that how one eats and what one is able to consume post surgery impacts on an individual's ability to engage in commensal relationships. Our interviewees craved the ability to eat normally, to eat like they ate before; to eat like others. In this paper we have attempted to give voice to our interviewees, to detail what they experienced as a profound shock to their sense of self. A shock that, despite all the counselling they had undergone, they were unprepared for. Yes, like bariatric patients (Hillersdal et al., 2016; Natvik et al., 2014), they knew that how they ate would be affected by surgery, but what they were not prepared for was that the ways they felt about eating and food would be irrevocably changed and that these changes would be experienced as an existential threat to self.

6. Post script: redefining hunger?

In this paper we have suggested that following gastrectomy, the meaning of hunger and satiation rest upon extracorporeal or external bodily signs rather than private criteria or mental states. It could be argued that such observations are neither new nor particularly insightful, for it is clear that nearly all human beings, as naïve psychologists or anthropologists, are capable of reading the external signs of hunger and satiety from their own and others' bodies and/or behaviour, for example, we recognise hunger in the face of the malnourished child and the "hangriness" of friends and colleagues if they have not eaten for a while. Indeed, supermarkets and advertisers remorselessly exploit extracorporeal cues (for example, the placement of certain types of food items in stores/virtual marketplaces) to promote the desire for certain foods. Thus, it could be argued that the data described in this paper merely reemphasise the fact that at least one meaning of "hunger" rests on a set of external (public) or social criteria and we are seduced into thinking it is determined by, and/or solely exists in, a set of private mental states (Wittgenstein, 1953).

Ethics approval

The study was approved by Cambridge East Research Ethics Committee March 14th 2012 (Ref: 12/EE/0066).

Ethical statement

I confirm that I have read and abided by the Ethical guidelines for publishing.

The study was approved by Cambridge East Research Ethics Committee March 14, 2012 (Ref: 12/EE/0066).

Affiliations

SB was working as a Research Fellow at the PHG Foundation in Cambridge when this research was carried out.

Declarations of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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