Cognitive and emotional influences on eating behaviour
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Cognitive and emotional influences on eating behaviour: A qualitative perspective

Abstract
Considering that individuals who are within a healthy weight range may experience different thoughts about food compared to those with overweight or obesity, triggers the need to understand the nature, challenges and coping strategies of food-related thinking styles in this population in relation to those with overweight or obesity. Analysis of six semi-structured qualitative interviews with individuals who are either at risk of being overweight (BMI = 23 – 24.99), or above a healthy weight (BMI ≥25), revealed three overarching themes: 1) Why am I all about food? 2) Jekyll and Hyde and 3) Emotional attachment to food. These findings highlighted a link between dieting and negative thinking and emotions, which foster unhealthy eating patterns. Intuitive eating may offer a useful alternative to re-establish a healthier, less emotive relationship to food.

Introduction
Excess body weight is directly associated with numerous serious health conditions and despite the general appreciation of the dangerous impact of weight gain, incidence rates have been steadily climbing over the last decades (Thibodeau and Flusberg, 2017). Pioneering work on the aetiology of weight gain has suggested specific anchors, including taste, health, social status and cost, predict particular food patterns (Lewin, 1951), while later investigations have increasingly recognised the role of cognitive and motivational components, which are particularly relevant in light of the access to a wide range of foods in Western societies adding to autonomy in choices (Lau et al., 1984; Michela & Contento, 1986; Rappoport et al., 1993). Moreover, several researchers have recognised the impact of the emotional state on individuals’ eating behaviour. According to Canetti et al. (2002), food choices regarding the quantity and frequency, are not limited to a hunger response. While healthy weight individuals alter their food intake when satiated, people with overweight or obesity will eat regardless of their physiological state. Instead, they are more responsive to internal situational or emotional factors, such as negative mood, fatigue or boredom (Mehrabian 1980; Schlundt 2000). Paradoxically, being on a diet may further intensify the tendency to engage in overeating which is likely to occur as dieters are generally more prone to emotional eating (Cannetti et al, 2002).
Evidence has highlighted the need to explore weight-related differences in food-related cognitive processes, as individuals at a healthy weight may engage in a different thinking style to those who are above a healthy weight, which is defined as exceeding a BMI of 25. In this context, food thought suppression and preoccupation with food have been associated with a higher body weight (Barnes et al., 2010; Tapper & Pothos, 2010). Furthermore, Beck (2012) has defined the concept of self-sabotaging thinking as a common barrier to weight loss, which includes all-or-nothing thinking, mind-reading, catastrophizing and exaggerated thinking. This also creates a vicious cycle of dysfunctional cognitions triggering further negative, dysfunctional behaviours and emotions and can be detrimental for self-efficacy and motivation to maintain weight loss over time (Beck 2012).

While underlying food-related thinking styles and cognitive processes affecting food choices in people with obesity, people who have lost weight and weight regainers have been explored extensively (e.g. Byrne 2003; Barnes et al., 2010; Beck 2012; Tapper & Pothos 2010), less research has focused on samples with a healthy weight. Existing evidence predominantly documents differences between populations with a healthy weight and with obesity. Accordingly, people with a healthy weight are less likely to experience a rebound effect (i.e. food preoccupation) after previously suppressing food-related thoughts, and generally their food-related thoughts tend to be less emotionally charged or relevant compared to people with obesity. This finding has been explained with a higher focus on food intake in people with obesity due to their actual perceived weight problems and intentions to diet (Soetens 2006). Additionally, people with a healthy weight tend to reduce subjective palatability ratings with increased dietary restraint (defined as “successful restraint”) compared to those with overweight or obesity, which indicates a stronger ability to disengage from their hedonistic goal (i.e. enjoyment of food) in favour of their dietary goal (Hofmann et al., 2015). On the other hand, research investigating the effect of food thought suppression in people with a healthy weight identified subsequent maladaptive eating attitudes and behaviours, such as food cravings, binge eating episodes and body image dissatisfaction, and a stronger presence of intense and unwanted food-related thoughts in general (Ferreira, Palmeira, Trindale & Catarino, 2015).

Overall, however, there is still scarce evidence documenting food-related thoughts in populations with a healthy weight, including healthy weight subgroups, particularly for individuals at the upper healthy weight range who are at increased risk of falling into the overweight category. Understanding more about this specific weight group could increase
understanding of cognitive processes taking place as individuals gain weight which can help inform preventive approaches for overweight and obesity. Based on this limitation, the researchers of this study recommended to explore food-related thoughts in people who still are with a healthy weight range but display an increased risk of transitioning into the overweight category, defined as a BMI between 23 and 24.99 (World Health Organisation, 2015). This could add valuable understanding as to why people gain weight to an unhealthy extent in the first place, and to what extent initial beliefs and thoughts around eating may differ to thinking styles across different weight groups.

The current study aimed to explore thinking styles among people at risk of gaining excess weight and with overweight or obesity.

**Method**

**Participants**

The weight range of the study was defined a priori as either at the upper healthy weight range or above a healthy weight. The only other inclusion criteria was being an adult, and the researchers focussed on including at least one male perspective and an equal balance from the two weight categories. The small number of participants was chosen due to pragmatic reasons being limited resources to conduct this study. As shown in Table 1, a total of 6 participants from two weight categories, including three participants who were at-risk of becoming overweight (n=3 BMI range 23–24.99) and three participants above a healthy weight (BMI ≥25), participated in this study. Participants were recruited via social media platforms and forums with an invitation to participate to the study, asking them to provide their contact email on an anonymous weblink. No incentives or compensation was provided for participation. Consent was obtained prior to participation and participants were debriefed after the interview.

**Procedure**

A semi-structured interview schedule was designed and tailored to the present study to allow in-depth exploration of food-related cognitive patterns and dysfunctional thoughts (Beck, 2012), as well as coping strategies in the context of food-related challenges. Participants
were asked to describe their relationship with food in general, before asking them to discuss
more particular aspects in terms of food related thoughts, such as reoccurring thoughts they
experienced before, during and after eating, and how these thoughts effected their day to day
life and emotions. An additional focus was to explore how participants dealt with more
challenging thoughts, either by applying mental strategies or actions that prevented these
thoughts. Finally, participants were asked about cultural influences on their food intake, such
as religion, upbringing or family circumstances, as well as how their perceived weight status
influenced their self-image and beliefs. Following approval from the University Psychology
Research Ethics Committee, and with obtained permission and written consent from
participants prior to the interview, all conversations were audio-recorded for accuracy of
transcription and analysis. Each interview lasted between 45 and 60 minutes. Confidentiality
was ensured by not mentioning participant names whilst the audio-recorder was operating.
Transcribed data were also de-identified with subject identifiers assigned to each participant.
Thematic Analysis (Braun & Clarke, 2006) guided the identification, analysing and reporting
of thematic patterns. The analysis followed the six phases recommended by Braun & Clark,
including data familiarisation, coding and identification of appropriate labels, searching for
coherent and meaningful patterns that form a theme, reviewing of themes, defining and
naming the themes, and the analytic narrative. The emerging themes were reviewed by an
independent reviewer (EM).

Results

As can be seen in Table 2, a total of three central themes emerged from the interview
narratives: 1) Why am I all about food? 2) Jekyll and Hyde and 3) Emotional attachment to
food.

1) Why am I all about food?

The first distinctive pattern derived from the narratives reveals that food appeared to take on
a disproportionally important and dominant role in life. The essence of this theme is captured
in a statement by Anna: “I think about food pretty much all day. My life, my mind revolves
around food. I don’t think I will ever stop loving food”. The following subthemes were
organised in a way to explore potential sources for this strong preoccupation.
**If I see food, my eyes open**

The experience of overwhelming pleasure and excitement around food was discussed, which was often unconnected to physical hunger. As Anna explained “I don’t even need to be hungry. If I see food in front of me, my eyes absolutely open.” As they were aware of their “obsession” with food, both Louise and Anna consciously tried to replace this with healthier alternative behaviours to “try to get away from using food as something to look forward to”. Louise reported engaging in regular boxing classes, which she found created a comparable pleasurable and rewarding experience to eating. Meanwhile, Anna and Tom researched and prepared healthier food alternatives to her favourite unhealthy treats.

**Feeling in control**

Rigid self-monitoring practices, either in the form of specific diets or calorie counting, were employed to maintain strict control over food choices. Stephanie explained: “I set the goal calories to 1.600, but as soon as I hit 1.200, I start getting really anxious about eating more.” While Anna and Louise were primarily hoping to lose weight, Stephanie additionally used food as a way to structure her life and occupy herself. She explained that doing this helped her achieve positive self-image and provided a sense of “control where there is not much else to control”, and also relieved anxiety over making food-related decisions. For Jane, being in control over her gluten intolerance was her main motivation to monitor her diet. She was only able to control her fears over eating was by consuming liquid shakes, or by eating in the company of others to distract herself. In many instances, the rigidity of pursued eating patterns had a detrimental effect on social life. Louise and Stephanie admitted missing out on social events and outings to avoid deviating from their food schedule as they feared that restaurants were unable to accommodate their dietary requirements. To better cope with the burden of strictly monitoring their diet, Louise, Jane and Anna incorporated “forbidden foods” in moderation, as Anna elaborated: “Being 100% only pure, clean eating … I could do it for a while, but I would go back into the bad old habits.”

**Pursuit of a positive body image**

This subtheme captures an eminent pursuit of achieving a particular body shape by eating healthily or restricting food intake. In many instances external cues appeared to be more
relevant than physical hunger signal (e.g., “healthy” ingredients equal weight loss). Several narratives demonstrate a general sensitivity to the societal perception of their body weight, especially within their closer network. Stephanie elaborated: “Somebody very close to me told me ‘You have enough fat to survive the winter without eating’ and that really hurt my feelings.” The prevalent social pressure was emphasised by a reoccurring for comparisons against others who were seen as slimmer or fitter, which triggered negative self-beliefs and emotions. As Anna explained: “It’s hard when being with people who can eat and eat, and just don’t know the struggles that probably people like me who gain weight quite easily.” She discussed how coming to terms with her body shape was a journey she pursued, however she was unsure of whether she would ever be able to overcome her obsession comparing herself to others.

In alignment with the desire to improve their body shape, some participants reported following certain role models. For example, Louise felt motivated by various people, a celebrity, who had recently lost weight “This inspires me to think ‘If she can do it, then I can do it.”.

2) *Jekyll and Hyde*

This theme describes a constant balancing act between maintaining healthy eating habits and giving in to appetite cues or cravings. Participants tended to experience this as an internal conflict between good and evil.

*It's taking over like an addiction*

Despite constant efforts to practice healthy eating and portion control, some participants admitted struggling with overeating, which tended to be accompanied by lack of control over the amount of food being eaten. Louise elaborated: “That feeling of guilt doesn’t come in before. All the negative things about food don’t seem to… get pushed aside”. She recognised the harmful nature of this behaviour by drawing parallels to substance addiction “I think it’s really quite a dangerous thing (...) because you are using it in a way that basically is drug abuse”. Giving in to overeating was often followed by negative feelings, as it represented a major deviation from participants’ ideals and values of “eating right”, symbolising failure in achieving a personally important goal. The negative impact on their self-image becomes
clear as participants used negative personality traits to describe themselves in this context, for example greed or impulsivity, highlighted in Anna’s narratives: “I am the greediest person in the world. So every food I see – I am like a food monster, I just gobble it down.” Despite repeated efforts some felt that they were unable to control their urge to overeat entirely: “I feel the more times you try to not eat something, the more … it takes practice”. (Louise)

I’m doing this to be healthier

Multiple coping strategies were utilised to control the urge to give in to food cravings. Reported strategies included avoiding triggers and specific ways to deal with the aftermath of a food binge. Mentioned examples of trigger avoidance were preparing healthy meals, abstaining from social events that involved unhealthy foods, and attending exercise classes, as this led to the release of endorphins in a similar way to food. Additionally, Louise imagined positive future outcomes of maintaining healthy eating habits, and on the other hand the consequences of weight gain: “I remember the positive things to why I am doing that, I actually try and lessen the pleasure of it, by trying to think ‘I have eaten it, it was nice, but was it worth it? Probably not.’” Stephanie attempted to distract herself by occupying herself with cognitively engaging activities, for example games on her mobile phone or course work. On the other hand, Anna scheduled a “cheat day”, where she allowed herself to indulge in any food, with the aim of having the willpower to “stay on track” during her diet regimen. To deal with the aftermath of overeating, Tom and Stephanie adopted compensatory measures the following day by eating less than usual and going to the gym to burn of the excess calories.

Food is fuel

Taking on a more rational approach of food serving physical survival served as a coping mechanism for Jane who described how she had internalised “food is fuel” like a mantra with the aim of detaching from her distressing thoughts about food.

3) Emotional attachment to food
The third prominent theme encapsulates how participants attributed eating behaviours to feelings and mood states. A quote by Anna captures the essence of this theme: “I eat although my body doesn’t require it or need it, either for a sense of happiness or whatever emotions it might bring up.”. In contrast to this emotional attachment, Charlie expressed an overly rational approach towards food, and reported only eating as a result of physical hunger and convenience, for example in situations where he was offered food. He elaborated: “At the end of the day your body needs fuel – so just like with a car, if you don’t put gas in, it’s not going to, you know, work for you”.

**I just want the comfort of food**

Anna and Tom described eating more in response to negative emotions, for example when they felt sad or lonely. For Anna, food appeared to offer her emotional support similar to a close friend, suggesting an unusually close bond: “Food can be comforting. It's like a companion almost, especially when you are living alone it is right there”. Her positive sensations outweighed the anticipated negative consequences at that moment (“I don’t want to think, or to know... I just want to eat and have the comfort of food.”).

**Food brings people together**

Tom mentioned a strong internalisation of explicit ceremonies and societal rituals being associated with specific meals, such as cakes for weddings or birthdays, and barbecues on summer parties: “Growing up that was something that I remember enjoying very much, so hopefully that will continue to be passed on from generation to generation”.

**Discussion**

While this study adds valuable insights of providing individual perspectives on food-related cognitions and their influences, there are several limitations to this study. The small number of six participants make exploration using a similar approach in other samples questionable, particularly the presence of one participant with gluten
intolerance (among a total only six participants) leads to the possibility of selection bias.

The insights derived from the interviews revealed meaningful food-related thought patterns. People’s individual relationship with food appeared to be emotionally charged across participants, while other participants expressed a more rational approach in a food-related context. This observation is supported by a robust body of evidence, which has established a heightened tendency for individuals with obesity to overeat in response to emotions compared to lower weight categories (Elfhag et al, 2004; Merhebian 1980; Schlundt 2000). This suggests the importance of emphasising the role of emotions equally to thinking styles to understand people’s relationship with food and underlying processes explaining individual eating behaviours.

Dichotomous thinking and categorising food items into good or bad foods were commonly reported by several study participants, which has been reflected in previous research with women displaying a higher tendency for these thought patterns (Freeland-Graves & Nitzke, 2013). The meal environment appeared to be extremely important in terms of how people thought and felt. Having company particularly served as a pleasant distraction from negative thoughts around food. This link has been documented in a previous study that found that social distraction at food intake can facilitate eating bigger portion sizes as the ability to self-monitor is impaired (Hetherington et al, 2006). Several participants spoke of adopting coping mechanisms in the context of distressing food-related thoughts and emotions, including positive self-talk, adopting a rational approach to food by seeking knowledge about nutrition, avoiding situations that trigger overeating, and reframing negative thoughts into positive ones. Some of these strategies have been previously identified as useful in the context of managing food-related concerns, including seeking nutritional knowledge (Miller & Cassady, 2012), positive self-talk (Puhl & Brownell, 2006), and positive reframing (Faries & Bartholomew, 2015; Slyter 2012).

Food represented a reward for attaining a goal for some participants, which further supports their positive valence of food, and may stem from associative learning mechanisms, as this is known to influence food choices (Furst et al, 1996). For example, positive memories and nostalgic feelings automatically emerged when one
respondent shared particular societal food rituals, which likely stems from the social
bond over sharing food with relevant others. Moreover, some participants reported
occasional episodes of overeating, which were reportedly triggered by availability of
food, stress or boredom, as well as negative and positive emotions and personality
traits, for example impulsivity. Recent evidence, including a systematic review, has
listed these cues as contributors to overeating and higher body weight (Devonport,
Nicholls & Fullerton, 2017; Murphy, Stojek & MacKillop, 2014). Moreover, the
addictive nature of food was discussed in promoting overeating, which has been
documented in a range of studies (e.g. Tapper et al, 2008; Murphy, Stojek &
MacKillop, 2014).

Some of the coping strategies described here to prevent impulsive overeating and
improved self-efficacy for resisting against food cravings provide potential directions
for effective weight loss interventions. Some of these strategies have previously been
identified in the context of maladaptive eating behaviours, including the mental self-
projection to pre-experience future events of current eating styles (Sze et al, 2015). An
example from the current study involves watching documentaries discussing obesity
case studies to envision long-term consequences of severe weight gain. Problem-
solving skills were to be effective in Slyter 2012 and Murphy et al, 2010), and were
described during interviews, for example avoiding eating alone to avoid the presence
of negative thoughts and seeking a social environment for distraction.
Finally, others found alternative rewarding activities helpful to distract themselves
from ruminating about eating, for example distracting themselves with cognitive
demanding and engaging activities such as homework and games or taking part in
enjoyable group exercise classes such as boxing. Baer, Fischer & Huss, 2005
attributed the effectiveness of this strategy due to its mechanism of action of creating
feelings of mastery and pleasure. In terms of practical implication of these findings it
can be concluded that current clinical practice may consider a shift from the general
focus on dietary behaviours to a greater emphasis on psychological cognitive strategies
to reduce maladaptive thought patterns and difficult emotions linked to weight gain.
Mindfulness-based interventions, particularly Acceptance Commitment Therapy
(ACT), have been suggested for people with a problematic relationship and history
with food engaging in chronic dieting, binge eating and body shape concerns (Lillis,
Hayes & Levin, 2011; Slyter 2012). Furthermore, ACT may be helpful for developing
helpful coping strategies to deal with food cravings for people at risk of weight gain, who typically suppress their food-related thoughts in order to escape the experienced intrusion and distress that they evoke (Hooper et al, 2012). Additionally, the concept of intuitive eating may be a promising gateway for women to help normalise the identified maladaptive and self-sabotaging eating patterns triggered by negative body image and dieting attempts, as this practice focusses on dietary intake based on internal cues of hunger and fullness, as well as body acceptance. Such programmes have demonstrated improvements in dietary restraint, restrictive dieting, physical activity, body satisfaction, and drive for thinness. (Schaefer & Magnunson, 2014). Combining Cognitive Behavioural Therapy (CBT) with acceptance-based methods potentially is another desirable way for addressing maladaptive thoughts and emotions around food, as it enables the integration of tools to modulate moods targeting an improved adaptive reactivity to emotional distress.

Overall, findings indicate a high preoccupation with food across people with a healthy weight and overweight. Individuals often experience negative, distressing thoughts and self-beliefs that can affect their self-image as well as social life. Intuitive eating combined with acceptance based CBT methods could help such individuals manage their thoughts to re-establish a healthier relationship with food.

**Author statements**

There are no conflicts of interest to declare

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**References**


