Maintaining healthy eating behaviour: Experiences and perceptions of young adults

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Structured Abstract:

Purpose: The prevalence of overweight and obesity is increasing, particularly in young adults who recently have been shown to experience more weight gain than other demographics. Research has focused on factors leading to this weight gain, implicating the abundance of unhealthy foods in the direct environment, yet limited research has examined why some individuals are able to successfully regulate their eating behaviour in this 'food-rich environment'. The aim of this research was to explore the perceptions and experiences of successful healthy eaters in order to determine factors that distinguish this group from unhealthy eaters.

Methodology: Thirty-five healthy weight young adults, who considered themselves to be healthy eaters, participated in seven semi-structured focus groups. Key questions examined how these individuals regulated their eating behaviour and their perceptions regarding such self-control processes.

Findings: Thematic analysis revealed that individuals who are successful at maintaining healthy eating behaviour perceive the same barriers as non-successful individuals, yet are able to employ self-control techniques to overcome these barriers. Additionally, continually exerting self-control appeared to facilitate the formation of healthy eating habits.

Implications: Future research may benefit from attempting to modify self-control ability and develop healthy habits.

Originality: While factors leading to obesity and the cognitions of those who are overweight have been extensively examined, limited research has focused on those who are able to regulate their eating behaviour. Additionally, limited qualitative research has examined implicit theories of self-control in an eating context.

Schion

Keywords: healthy eating, weight maintenance, focus groups, self-control, young adult

Article Classification: Research paper

Introduction

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2 Overweight and obesity are major health problems in many countries, with 61% of the 3 Australian population (Australian Bureau of Statistics, 2009) and 69% of the United 4 States population (Allender et al., 2006) being either overweight or obese. Young adults 5 are of particular concern as recent research has indicated that this group experience 6 more weight gain than any other (Barr et al., 2006; Gordon-Larsen et al., 2004). 7 Importantly, this weight gain in young adults has been shown to contribute to the 8 incidence of obesity in later life (i.e. by the mid-30s; Guo et al., 2000). Given the health 9 risks associated with obesity including cardiovascular diseases, hypertension, cancer 10 and diabetes (Visscher and Seidell, 2001), many individuals have become increasingly 11 concerned with their eating behaviour. However, the current food-rich environment, in 12 which unhealthy choices are readily available, makes achieving and maintaining the 13 goal of eating healthily difficult. 14 The accessibility of food and the presence of cues in the environment, such as 15 the sight, smell and palatability of food has been found to powerfully influence eating 16 behaviour (Wansink, 2004; Maas et al., 2012). For example, Harris et al. (2009) 17 demonstrated that viewing television advertisements increased consumption of food 18 products, regardless of hunger level. While this provides insight into how people are 19 influenced by cues in the environment, it is not clear how successful healthy eaters 20 navigate this environment, or what strategies they engage in to lessen the negative 21 impact of these cues. 22 Recent research examining food-related cognitions and behaviours of non-23 clinical populations has suggested that self-control; the ability to regulate immediate 24 desires in order to reach long term goals, plays an important role in healthy eating 25 (Allom and Mullan, 2012; Houben and Jansen, 2011). However, while the role of selfcontrol has been assessed using self-report scales of related facets such as impulsivity

(Grubbs and Carter, 2002) and/or cognitive tasks said to objectively measure such facets

(Hofmann et al., 2009), little is known about individuals' perceptions of self-control and
how this might influence behaviour.

Given that previous research has tended to focus on those who are unable to regulate their eating behaviour, the aim of the present study was to qualitatively explore the perceptions and experiences of a population of healthy weight individuals to provide insight into how these individuals are able to successfully maintain healthy eating behaviour. Specifically, the aim of this research was to determine whether the success of healthy eaters is due to different barriers faced by these individuals, compared to those faced by unhealthy eaters, or if healthy eaters are better able to cope with the same barriers. These factors have the potential to inform future quantitative research and develop alternatives to current interventions in young people which are generally not successful at supporting healthy eating maintenance (Hebden et al., 2012).

Methods

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41 **Participants**

- Forty-one participants enrolled in the study and provided weight status information.
- One participant who was classed as underweight (BMI = 17.78) was excluded,
- 44 debriefed and provided with information regarding healthy weight and counselling
- services. Five participants did not attend, leaving 35 participants (4-6 in each group; 7
- 46 groups in total). The mean BMI of the remaining sample was 21.47 (SD = 1.53). No
- 47 participant indicated having an eating disorder in the past or present. The mean age of
- participants was 19.46 years (SD = 2.31), identified as being either Australian (68.6%; n
- 49 = 24) or Asian (31.4%; n = 11) and the majority of the sample was female (71.4%; n = 11)
- 50 25).

Procedure

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53 Participants enrolled in an undergraduate psychology course at an Australian university 54 were recruited using an online registration system and participated for course credit. All

The study was approved by the University Human Research Ethics Committee.

56 information. Those who were 18 years or older, considered themselves to be healthy

eaters, had maintained a healthy weight (BMI between 18.50 and 24.99; since they were

participants gave their informed consent before providing self-reported demographic

18) and indicated no current or prior eating disorders were then invited to join a focus

group. Sessions lasted approximately one hour and took place from 2pm to 3pm

weekdays on the university campus.

Sessions were audio-taped and transcribed verbatim. The transcripts were entered into NVivo 9 (QSR International, 2010) and reviewed line-by-line for concepts, themes and ideas. A coding scheme was developed based on the previously described literature and included: facilitators of healthy eating, barriers to maintaining healthy eating and perspectives on self-control and the role of environment. A thematic framework was then created which involved determining the primary and secondary themes. Themes were discussed and agreed upon by the authors. 70%

Measures

69 Focus group questions

> Focus groups were guided by a semi-structured interview schedule based on the five categories of questions and probes developed by Krueger and Casey (2009). Firstly, a warm-up question, designed to acquaint participants, was asked ("Tell us your name and your favourite food."). An introductory question followed which began discussion of the topic ("Describe a healthy diet."). Transition questions were used to move into and between key questions and to help participants grasp the central issues ("Describe

76	your eating behaviour). Key questions addressed the primary concerns of the study
77	("What enables/impedes the maintenance of your healthy eating behaviour? Prompt:
78	Routine, internal states, particular situations. Describe particular successes or
79	struggles you've encountered while trying to eat healthily. Prompt: maintaining focus
80	on healthy eating goal, self-control"). Finally, a concluding question closed the
81	discussion and helped researchers determine where to place emphasis ("We are
82	interested in how healthy eaters differ from unhealthy eaters, what advice do you have
83	for us?").
84	A pilot focus group was conducted to determine the appropriateness of questions
85	for eliciting responses to the target issues, and for the optimal length of focus groups.
86	Data from the pilot focus group were not included in the analysis.
87	Results
88	Four themes were identified that represented the healthy eating experiences and
89	perceptions of healthy weight young adults. Table 1 provides a summary of themes.
90	Primary and secondary themes are reported below and representative quotes are
91	presented in Tables 2-5.
92	INSERT TABLE 1 NEAR HERE
	INSERT TABLE 1 NEAR HERE
93	Healthy eating enablers and barriers
94	Self-control
95	Self-control, described as 'willpower' and 'dedication', was consistently noted as a
96	necessary determinant of healthy eating (see Table 2). Participants clearly attributed
97	their success at maintaining healthy eating behaviour, to higher order cognitive
98	processes. Particularly, focusing on the long-term goal of achieving a healthy lifestyle
99	rather than the short-term goal of seeking gratification from the consumption of high-

calorie foods was described as an enabler to healthy eating. Participants speculated that unhealthy eaters find this task more difficult than they did, and are thus more likely to abandon their healthy eating goals. Success as a facilitator or inhibitor A factor that was seen to be both a facilitator and an inhibitor of healthy eating was perceived success. Success could refer to either losing/maintaining weight or adhering to a healthy diet. Participants described that experiencing success facilitated healthy eating behaviour as the goal became achievable and salient, whereas not perceiving any result was discouraging and led to abandonment of healthy eating behaviour. Participants also discussed how experiencing success may be detrimental in that it provided a license to return to previous unhealthily eating behaviours. This was sometimes associated with cycling between dieting and over-indulging. However, healthy eaters in this sample appeared be somewhat resilient to these setbacks and expressed optimism in the face of these challenges. Cognitive framing The ability to maintain healthy eating behaviour was attributed to the way in which this goal was cognitively framed. Participants described their healthy eating behaviour as part of an ongoing healthy lifestyle rather than a temporary diet, improving the likelihood of maintenance. Correspondingly, participants held negative opinions towards dieting and all agreed that such short term measures inevitably led to failure. **INSERT TABLE 2 NEAR HERE** Coping with environment barriers Availability of high-calorie foods It was agreed that the environment provides multiple sources of inexpensive, high caloric foods, which results in overeating and contributes to poor dietary choices (see

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Table 3). Participants commented on how the availability of food encourages individuals to eat regardless of whether they are hungry or not. However, participants believed that to some extent, this was a misinterpretation. Particularly, the notion that fast food is convenient and inexpensive was challenged. Participants discussed how people often choose fast-foods as they believe they do not have enough time to prepare healthy meals, when in actuality preparing healthy meals is not always a timeconsuming event. Cues to action External factors such as advertisements and internal factors such as sensory and biological cues were seen as influencers of eating behaviour. While participants described their awareness of these cues, they described being less responsive and better able to resist the temptations stimulated by these cues in comparison to their peers. Yet, it was noted that it was not always possible to ignore external cues, particularly when participants had consumed alcohol, were stressed or bored. In order to combat the influence of such cues, participants physically altered their environments. For example, during a lunch break rather than exposing themselves to unhealthy options, they would walk to locations that offered healthy options. Additionally, they would make unhealthy

INSERT TABLE 3 NEAR HERE

food less accessible by removing tempting items from their pantry or fridge.

Nature of self-control

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145 Limited versus non-limited resource

While participants credited their success to their ability to exert self-control, it was consistently noted that this ability was a limited resource where repeated exertion led to unhealthy eating (see Table 4). This reflects previous comments which suggested that at times participants were more susceptible to environmental cues. However, in order to

combat the limited nature of self-control participants exercised self-control in moderation and allowed a few occasions of unhealthy eating. Participants also noted that with multiple successful healthy eating attempts, the process of exerting selfcontrol became easier. *Carry-over effects* Participants found that exerting self-control in one area of their life carried over to successful regulation of another behaviour such as exercise or studying. However, some individuals described how when they consistently denied themselves snack foods they experienced poorer self-control in another area, such as binge drinking. Planning and monitoring Participants described specific abilities that they regarded as responsible for their success, including planning. It was noted that the ability to plan allowed these individuals to better navigate their environment, as unhealthy options did not distract them from their healthy eating goal. Further, planning enabled participants to eat regularly which offset the chance of engaging in unhealthy eating. Participants also described engaging in self-monitoring, whereby they were consistently aware of what they were eating rather than engaging in mindless snacking or overindulgence. 70x **INSERT TABLE 4 NEAR HERE** Habit *Increasing automaticity* Participants also described how after a period of successfully maintaining their behaviour, this process, and healthy eating itself, had become somewhat automatic (see Table 5). It was suggested that developing healthy habits would be key in helping others to maintain healthy eating behaviour. Participants described their behaviour as a transition from being initially intention based and under cognitive control to a less

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effortful process. Once behaviour had become habitual, external cues seemed to have less of an influence.

177 Breaking routine

However, when routine was broken, for example due to a social event, participants noted that they were likely to eat unhealthily and experience some difficulty resuming their previous eating behaviour and recruiting self-control resources. Others noted that planning was an important self-control technique to utilise in these situations.

INSERT TABLE 5 NEAR HERE

Discussion

This is the first study to investigate the factors that influence the maintenance of healthy eating behaviour within a healthy weight population of young adults. The primary themes that emerged indicated that while healthy eaters face the same barriers to healthy eating as others, they tend to respond differently by employing techniques to overcome these barriers including altering their environment and engaging in self-control.

The first theme in which participants discussed how a 'diet' is inherently temporary and leads to failure has been supported by previous literature (Mann et al., 2007). This sample differed in that participants made dietary choices with the mindset of fulfilling a healthy lifestyle, inherent in which is the goal of maintenance. Framing in this way may establish an intention to maintain this behaviour and if plans are made to carry out this intention, temptations should be easier to overcome (Gollwitzer, 1999).

The perception that the experience of success may lead to setbacks in those with short term dieting goals is consistent with the restrained eating literature where it has been found that individuals who attempt to strictly control their intake cycle back and forth between restricting and indulging (Amigo and Fernández, 2007; Hawks et al., 2008). Participants in this sample highlighted the importance of setting and reaching

realistic goals as this increased the salience and achievability of long term healthy eating. This reflects findings that implicate perceived behavioural control and self-efficacy in the execution of health behaviours (Conner et al., 2002).

Participants discussed the role that the external environment plays on eating behaviour, reflecting the finding that the salience of food can initiate unplanned consumption or increase consumption in general (Remick et al., 2009). Importantly, participants described techniques that they either consciously or automatically engaged in to avoid the influence of environmental cues. Namely, participants either reinterpreted their environment or manipulated the availability of potential triggers to unhealthy eating. Previous research has found that if the salience of these cues is reduced, their influence on consumption is reduced (Coelho et al., 2009). Additionally, exposing individuals to a healthy eating goal has been shown to outweigh the influence of the cue to eat unhealthily (Papies and Hamstra, 2010). The current results suggest that those who maintain healthy eating behaviours may do so as a result of efforts to reduce the salience of cues in the environment.

The mechanism which enables healthy eaters to cope with temptations from their environment appears to be self-control. Participants explicitly described self-control techniques such as self-monitoring (Baumeister et al., 2006), planning (Wong and Mullan, 2009) and delay of gratification (Daugherty and Brase, 2010), to which they attributed their success. Specifically, healthy eaters seem to be able to maintain their healthy eating goal even when faced with challenges or distraction, perhaps implicating the role of working memory. Working memory can be described as the ability to keep information in an active, quickly retrievable state and shield this information from distraction (Kane et al., 2001). Indeed, research has shown that presenting the goal to eat healthily guided the eating behaviour of those with a superior

working memory capacity but not those with a low capacity (Hofmann et al., 2008). Additionally, participants seemed to be less reactive to cues, perhaps implicating the role of inhibitory control. It has been shown that those who are better able to withhold a pre-potent response are also less likely to engage in unhealthy eating behaviour (Veling et al., 2011).

Some participants in the current sample described how they experienced a lack of self-control in other areas when they resisted the temptation of unhealthy foods, implicating a depletion effect; however, others also experienced the generalisation of self-control whereby success in one domain led to another. The strength model of self-control (Baumeister et al., 2007) also predicts that exercising self-control will leave one depleted and less able to exert self-control in other contexts (Hagger et al., 2009). But it has also been found that exercising self-control in one area leads to better self-control in other areas (Oaten and Cheng, 2006). Thus, it is likely that while individuals become exhausted in the short term, after a period of recovery and repeated exercising of self-control, this resource strengthened, accounting for the carry-over effects and the perceived improvement in self-control exertion described by the current sample.

Experimental research to improve self-control has demonstrated that participants trained on a cognitive task related to inhibitory control not only improved their inhibitory control, as measured by another task, but also consumed less chocolate than those who had not been trained (Houben and Jansen, 2011). While more research is required to replicate these results, healthy eating within young adults may be facilitated through cognitive training. Furthermore, participants in the current sample indicated that as their self-control improved, the need to consciously engage these resources declined, and exerting self-control, and thus healthy eating itself, came to reflect habitual processes. Research has suggested that habits are formed when a specific

behaviour is performed frequently and consistently in the same situation for the same purpose (Lally et al., 2010; Lally et al., 2011). It is likely that the stable goal to eat healthily and the repeated enactment of self-control techniques to achieve this goal, facilitated habit formation.

Limitations

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As several of the participants described behaviours similar to that of restrained eaters, the current study may have benefited from the inclusion of a measure of dietary restraint to determine the level of restrained eating within this sample. However, the majority of participants indicated that restricting their intake did not lead to successful maintenance of healthy eating, therefore, while some of the participants may have been classed as restrained eaters in the past, it is unlikely that these participants remained restrained eaters. Additionally, the sample was primarily comprised of women with low BMI and of high socioeconomic status which may not be representative of the Australian population and thus impacts on the generalisability of these findings. Specifically, while male participants agreed with female participants on most themes, including environmental influences, fewer males described experiences with dieting. Further, university students may have different economic influences on food and therefore describe and experience different food environments to those less educated and living in less affluent areas, limiting the applicability of these findings to other groups of young adults. Finally, perceptions and practices regarding young adults' exercise behaviour may provide further insight into weight maintenance, however exercise behaviour was beyond the scope of the current research which focused specifically on healthy eating, and has been qualitatively examined previously (Grubbs and Carter, 2002; Allender et al., 2006).

Conclusion

These findings reveal the processes underlying healthy eating, and specifically highlight the factors to which healthy eaters attribute their success. Healthy eaters provided insight into the nature of these processes including self-control and the manner by which healthy eating behaviours become habitual. Qualitative research addressing the factors that enable healthier eaters to maintain this behaviour is important as overweight and obesity are significant problems within young adults, for whom current weight Ve C status is predictive of future overweight and obesity and current interventions are unsuccessful.

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Table 1 Themes by focus group session

	Focu	ıs grou	ıp ses	sion			
	1	2	3	4	5	6	7
Demographics							
N	5	5	4	6	5	6	7
Gender (F, M)	3, 2	4, 1	3,1	3,3	5,0	5,1	2,2
Theme							
Healthy eating enablers and barriers							
Self-control	Y	Y	Y	Y	Y	Y	Y
Success as a facilitator and inhibitor		Y	Y	Y	_	Y	—
Cognitive framing	Y	Y	Y	Y	_		Y
Coping with environmental barriers							
Availability of high-calorie foods	Y	Y	Y	Y	Y	Y	Y
Cues to action	Y		Y	Y	Y	Y	Y
Nature of self-control							
Limited versus non-limited resource	Y	Y	—	—	Y	Y	Y
Carry-over effects	_	Y	Y	Y	Y	—	_
Planning and monitoring	Y	Y	Y	Y	Y	Y	Y
Habit							
Increasing automaticity	Y	Y	Y	Y	Y	Y	Y
Breaking routine	Y		Y			Y	Y
<i>Note</i> . Y = discussed in focus group.),				

Table 2
Representative quotes for Theme 1: Healthy eating enablers and barriers, with focus group indicated

"You have to be really committed" "Sticking to your goals. So if you see chocolate you just think well not having this is good for me in the long term" "It benefits you in the long run but it takes so long so you have to be willing to wait" "Yeah if it's not immediate a lot of the time people are like 'oh screw it'" "Success as facilitator or inhibitor "By seeing results you feel more motivated to keep going but I think someone who wasn't seeing immediate results or results after a while may be a bit discouraged to keep on going and think 'what's the point?'" "Yeah, that happens to everyone, I guess you just have to keep going or, like, be realistic about it [healthy eating]" "On the other hand some people see results and think they're doing well so they say oh I can have some chocolate" "People eating healthily for a while start to feel good but then they start to think they can indulge more and they're stuck in this cycle" "I do tend to think like that but I just keep reminding myself how good I'd feel if I kept at it [eating healthily]" Cognitive framing "It [healthy eating] should be a lifestyle" "I think it's a mindset that they need to keep in their minds and integrate it into their lifestyle not just during the period of time of their diet" "Restriction" "Boring" "Starvation" "Starvation" "diets don't work because they are like a temporary thing. You need to actually	group indicated	
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Table 3
Representative quotes for Theme 2: Coping with environmental barriers, with focus group indicated

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Table 4
Representative quotes for Theme 3: Nature of self-control, with focus group indicated

Representative quotes for Theme 3. Ivature of sety-control, with focus group thatcar	eu
Limited versus non-limited resource	
"If you deprive yourself from something for long enough you want it"	7
"I don't think it [sustained self-control] is possible it just depends like how	5
extreme the restrictions are"	
"It's better to only withhold to a limit. Maybe like over a week have a snack"	6
"It's definitely easier to maintain than an overall restriction, you wouldn't be able	6
to keep that up for very long"	
"I don't think anyone can maintain it long term"	2
"It's not something you can have forever"	1
"Just practicing saying 'no'. If someone offered me something I'd always say	5
'yeah' but I found when I kept saying 'no, I'm okay' it got easier"	
"I think you know watching what you put in your mouth it does help to an extent	5
like if you don't eat chocolate for a week, you'll find that you get better"	
Carry-over effects	
"Yeah it helps with everything, you'll find that if you're able to stick to an	3
exercise plan you'll be able to study better and all kinds of things"	
"Completely matches what's going on in the rest of my life so if I'm having a crap	4
time I'll probably eat whatever I want"	
"Also if you're like substituting or anything like that yeah so like if you stop	5
eating sweets you substitute it with something else that's bad like drinking	
[alcohol]"	
Planning and monitoring	
"I set it all out for myself- what I'm eating and when"	4
"So yeah I'm pretty good at planning I guess"	3
"Like having a plan really helps, so not like you eat whatever you want but know	4
what good things you can eat and where they're available"	
"I would eat regularly; I would eat at the same time every day"	7
"I do make sure I'm aware of what I'm eating, make sure it's not mindless"	4
"I always pull myself up like; 'No you can't eat that.' I'm always monitoring, I	7
guess it's like a constant thing"	

Table 5
Representative quotes for Theme 4: Habit, with focus group indicated

Representative quotes for Theme 7. Traoti, with Joeus group indicated	
Increasing automaticity	
"I don't think it's a conscious thing for me anymore that's just how it happened	5
for so long and it's become routine"	
"Sometimes you get into the routine and eating healthy just keeps kind of going,	5
you don't think about it"	
"Maybe it needs to be a more subconscious thing because people are very aware of	7
their diets but it just comes naturally to me"	
"You contemplate and you think about it but yeah as soon as you get it over and	5
done with its easier from there it's like you have to force yourself to do that"	
"I guess like getting over the initial hump of watching what you're eating and once	7
you've gotten use it you don't tend to be affected by cravings so much"	
Breaking routine	
"It's sometimes difficult on the weekend when you're doing different things and	3
it's hard to keep in routine"	
"I guess that's where planning comes in"	3