



Research report

Less food for thought. Impact of attentional instructions on intrusive thoughts about snack foods[☆]

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ABSTRACT

Intrusive thoughts about food may play a role in unhealthy eating behaviours. Food-related thoughts that capture attention can lead to craving and further intrusive thoughts (Kavanagh, Andrade, & May, 2005). We tested whether diverting attention to mental images or bodily sensations would reduce the incidence of intrusive thoughts about snack foods. In two experiments, participants reported their thoughts in response to probes during three 10 min periods. In the Baseline and Post-task period, participants were asked to let their mind wander. In the middle, Experimental, period, participants followed mind wandering (Control), thought diversion, or Thought Suppression instructions. Self-directed or Guided Imagery, Mindfulness-based Body Scanning, and Thought Suppression all reduced the proportion of thoughts about food, compared to Baseline. Following Body Scanning and Thought Suppression, food thoughts returned to Baseline frequencies Post-task, rather than rebounding. There were no effects of the interventions upon craving, although overall, craving and thought frequency were correlated. Thought control tasks may help people to ignore thoughts about food and thereby reduce their temptation to snack.

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Introduction

Intrusive thoughts about food have an important role in maintaining dysfunctional eating behaviours, primarily by triggering craving (McManus & Waller, 1995), and act as a proximal trigger for lapses when people are trying to restrict intake (Loewenstein, 1996). Food cravings have been shown to lead to episodes of binge-eating (Gendall, Joyce, Sullivan, & Bulik, 1998), to predict dropout from weight-loss programs (Sitton, 1991), and have been linked to obesity (Schlundt, Virts, Sbrocco, & Pope-Cordle, 1993). Even if intense desires to eat are resisted, they induce discomfort and distress, and divert attention from other cognitive tasks (Green, Rogers, & Elliman, 2000). Self-report data suggest that the phenomenology of craving for food is similar to craving for addictive drugs; craving across a range of addictive and everyday substances involves intrusive thoughts and mental images of consumption (Kavanagh, May, & Andrade, 2009; May, Andrade, Kavanagh, & Penfound, 2008; May, Andrade, Panabokke, & Kavanagh, 2004).

Understanding the cognitive and emotional processes that generate these craving thoughts and images should allow more effective techniques to be developed to attenuate cravings, helping people to refrain from consuming substances they are trying to avoid.

The Elaborated Intrusion theory of desire (EI theory; Kavanagh, Andrade, & May, 2005) describes craving as an episode of imagery-based cognitive elaboration that follows an intrusive thought about a target. Physiological deficit, negative affect, external cues, other cognitive activity, and anticipatory responses to the target can all trigger associative processes that occur beneath awareness and that result in an apparently spontaneous target-related thought, where the 'target' is the desired substance or activity. This intrusive thought marks the beginning of the craving episode for the individual, since it is the first thought that they are aware of. In EI theory, intrusions can prompt elaboration: conscious, controlled processing that involves the internal and external search for target-related information, and the retention and elaboration of this information in working memory, which serves to further maintain the craving episode.

Self-report data from questionnaire studies support the idea that sudden, intrusive thoughts and vivid sensory images are important features of craving (Kavanagh et al., 2009; May et al., 2004, 2008). Recent research suggests that disrupting craving imagery, with competing neutral imagery tasks, reduces subjective craving levels in abstaining smokers (Panabokke, 2004; Versland & Rosenberg, 2007), dieters (Kemps, Tiggemann, Woods, & Soekov, 2004) and

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undergraduates induced to crave food or chocolate (Kemps & Tiggemann, 2007). However, little research has specifically focused on intrusive thoughts in craving. According to EI theory, intrusive thoughts do not automatically trigger elaborative craving. Rather, the subsequent elaboration depends upon the salience of the intrusion relative to competing task demands and goals. Even in a sample of people seeking treatment for alcohol dependency, 87% of respondents sometimes experienced momentary intrusive thoughts about alcohol that vanished spontaneously without elaboration (Kavanagh et al., 2009). Interventions that focus on preventing an elaborative response to the initial target-related intrusion, therefore, offer the potential to prevent full-blown craving episodes developing. The present study explores such interventions, some based upon mindfulness, or acceptance-based, approaches.

Mindfulness-based therapies, which incorporate thought control techniques such as Breath Focus and Body Scanning, teach individuals to notice and accept unwanted thoughts as just thoughts, without entering into cycles of negative appraisal or rumination (Kabat-Zinn, 2003). Mindfulness to the person's continually changing sensory experience is also likely to increase the salience of other thoughts which may compete with the negative thoughts (e.g., cognitive associations or sensory awareness of other events or internal states). Beneficial effects have been claimed for mindfulness-based therapies in a wide range of conditions in which intrusive thoughts are typical, including depression, generalized anxiety disorder, psychosis, and grieving (Teasdale et al., 2000; Orsillo, Roemer, & Barlow, 2003; Sagula & Rice, 2004; Watkins & Teasdale, 2004). In substance misuse, mindfulness-based interventions have been shown to reduce relapse, possibly by allowing people to alter the relationship that they have with the difficult cognitions that act as triggers to their cravings, and by enabling people to recognize and monitor cravings as they occur (Breslin, Zack, & McMinn, 2002; Marlatt, 2002). Recently, Ussher, Cropley, Playle, Mohidin, and West (2009) found that listening to a Body Scanning or an isometric exercise instruction tape reduced desire to smoke, compared to a control group who had listened to a reading about natural history.

In contrast to mindful acceptance, a common alternative way to deal with unwanted intrusive thoughts is to try to suppress them: the intent of Thought Suppression is to prevent unwanted thoughts from occurring at all rather than on one's response to them. Evidence is mixed on whether this exacerbates the problem or is an effective strategy. Some studies suggest that suppression has the ironic effect of increasing intrusive thoughts, either when undertaking the suppression (Lavy & van den Hout, 1990) or afterwards (Wegner, Schneider, Carter, & White, 1987), because in order to check that one is not thinking of something, one has to think about it—this has been called the 'ironic effect' of Thought Suppression (Wegner, Erber, & Zanakos, 1993). Indeed, it has been argued that repeated suppression of unwanted thoughts can have such a negative effect as to be a causal and maintenance factor in much mental illness (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996): for example, promoting depressive rumination (Wenzlaff & Luxton, 2003) and exacerbating symptoms in anxiety and obsessive-compulsive disorder (Becker, Rinck, Roth, & Margraf, 1998; Purdon, 2004). Negative effects of suppression can also be seen in some studies on craving. In Kavanagh et al. (2009), the more frequently participants had tried to suppress alcohol-related thoughts, the more alcohol thoughts they had. Greater attempts to suppress alcohol-related thoughts were associated with stronger craving and a more extended craving episode. In Salkovskis and Reynolds (1994), participants who were in a Thought Suppression condition had more intrusive thoughts during and after the task, than did those in a thought-monitoring condition.

However, suppression of thoughts is not always counter-productive. Suppression often has no effect on personally relevant or emotional thoughts (Kelly & Kahn, 1994; Muris, Merckelbach, van

den Hout, & de Jong, 1992; Wegner & Gold, 1995) and can result in short-term reductions in thoughts, provided there is no concurrent task to capture attentional resources (Wegner, 1989). Nosen and Woody (2009) found that a tendency to suppress unwanted thoughts was not a factor in predicting the success of quit smoking attempts. Furthermore, if the person responds to suppression instructions by ignoring the thought and thinking about other things, or relinquishes efforts to monitor the occurrence of the target thought, there is no theoretical reason why suppression should not work. Using a specific, unrelated thought for distraction reduces the rebound effect (Wegner et al., 1987) and instructing people to ignore, rather than suppress, thoughts about snack foods reduces consumption (Achtziger, Peter, Gollwitzer, & Sheeran, 2008).

We therefore included a Thought Suppression condition in which participants were asked to divert their thoughts to imagery of a particular self-relevant activity. We focused on the use of imagery, since as already noted, competing imagery reduces craving for a range of appetitive targets (Kemps & Tiggemann, 2007; Kemps et al., 2004; Pannabokke, 2004; Versland & Rosenberg, 2007). Interfering with food imagery through competing imagery tasks should break the cycle of cognitive elaboration of the desire, which otherwise leads to further thoughts about the appetitive target.

Experiment 1

Experiment 1 compared a mindfulness-based approach to unwanted food thoughts (Breath Focus) against two natural responses which either emphasise not having the thoughts at all (Thought Suppression) or diverting attention away from them when they do occur (Imagery Diversion). We also included a Control condition with no requirement to suppress or avoid thoughts about food, to serve as a Baseline measure of food thought occurrence in the absence of control instructions. The instructions are given in Appendix A, and it should be noted that all conditions mention that 'your mind may wander to think about snack foods', and that the Imagery Diversion and Thought Suppression instructions include an explicit requirement to stop thinking such thoughts, whereas the Breath Focus and control instructions do not. Snack foods were mentioned in all of the instructions to equate the conditions in terms of cueing (Wenzlaff & Wegner, 2000). While mentioning the thought topic does lead to the possibility of a spurious increase above natural rates of occurrence, it is consistent across conditions.

Breath Focus was selected as a technique that should be readily understood and employed by participants in the short timeframe of the experiment. A 15-min dose of Breath Focus has been shown to reduce emotional responses to negative stimuli (Arch & Craske, 2006), and the 'Body Scan' tape shown to reduce desire to smoke in Ussher et al. (2009) consisted mainly of breath and abdominal focus instructions. Effects were tested over three 10-min periods: at Baseline, during or immediately after the tasks (Experimental), and in a Post-task period (Post). We predicted that the Breath Focus and Imagery Diversion instructions would result in fewer food-related thoughts during the task than the control instruction. Given the mixed literature on attempts to replicate the ironic effect of Thought Suppression increasing personally relevant thoughts, we tentatively predicted that the Thought Suppression instruction would increase intrusive thoughts during or after the task. We also expected that a reduction in intrusive thoughts would be associated with a less intense craving.

Method

48 Undergraduates (39 female, 9 male; mean age 21 years 10 months) at The University of Sheffield who were attempting to cut down on snack foods, took part in the experiment in exchange for £10 payment. The experiment was governed by the ethical

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