

Metacognitions in Desire Thinking: A Preliminary Investigation

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Background: Desire thinking is defined as a voluntary thinking process orienting to prefigure images, information and memories about positive target-related experience. Recent research has highlighted the role of desire thinking in the maintenance of addictive, eating and impulse control disorders. Currently little is known about metacognitions in desire thinking. **Aim:** To investigate: (1) the presence and content of desire thinking during a desire experience; (2) the presence of metacognitive beliefs in desire thinking; (3) the goal of desire thinking; (4) attentional focus during desire thinking; and (5) the impact of desire thinking on craving. **Method:** Twenty-four individuals with a diagnosis of either alcohol abuse, bulimia nervosa, pathological gambling or smoking dependence were assessed using a semi-structured interview. **Results:** Findings indicated that participants engaged in desire thinking and endorsed both positive and negative metacognitive beliefs about this process. The goal of desire thinking was to regulate internal states. Participants also reported that during a desire experience their attentional focus was continuously shifting between internal state and external context and that engaging in desire thinking increased craving. **Conclusions:** These findings provide preliminary evidence that metacognitions play a role in desire thinking.

Keywords: Desire thinking, metacognitions, metacognitive beliefs.

Introduction

Over the last decade interest in craving and desire thinking as core processes in addictive, eating and impulse control disorders has been growing. This is because these disorders, though associated with different desire targets, share similar (transdiagnostic) features, including the compulsion/urge to obtain a given target, the perception of low control over behaviour, and the recurrence of maladaptive behaviours despite awareness of the negative consequences they engender (DSM-IV, APA, 2000). In support of this view, several studies have highlighted the homogeneity of craving processes across appetitive behaviours (e.g. Castellani and Rugle,

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1995; Field, Schoenmakers and Wiers, 2008; Moreno, Warren, Rodriguez, Fernandez and Cepeda-Benito, 2009)

Recent research has suggested that desire thinking may contribute to the escalation of craving. Desire thinking describes a voluntary thinking process orienting to prefigure images, information and memories about positive target-related experience (Kavanagh, Andrade and May, 2005). This style of thinking could be described as a preference (Zajonc, 1980) or as a reaction to preference awareness. The target may be an activity, an object, or a state (Salkovskis and Reynolds, 1994). Desire thinking appears to be transdiagnostic, with subjective reports indicating that this experience is qualitatively similar across a range of targets, including alcohol, food, soft drinks and tobacco (May, Andrade, Panabokke and Kavanagh, 2004).

This definition of desire thinking has at least three implications. First, desire thinking can be considered as a strategy that may be activated to regulate internal experiences of discrepancy between actual and ideal individual state. Second, desire thinking is a conscious cognitive process even if it may be triggered by automatic or implicit processes. Third, desire thinking and its consequences (e.g. incapacity to delay gratification), as well as the mechanisms that activate and control it, may help in further understanding addictive, eating and impulse control disorders (Kavanagh, Andrade and May, 2004, 2005).

The central aim of this study was to explore the mechanisms by which beliefs affect and control desire thinking in individuals with the aforementioned disorders. As a framework for undertaking this we used the Self-Regulatory Executive Function theory (S-REF; Wells and Matthews, 1994) which conceptualizes multiple metacognitive factors as control components of information processing that affect the development and persistence of psychological disorders. Central to this theory is the idea that a set of metacognitive beliefs are responsible for psychological disturbance by maintaining maladaptive attentional (threat monitoring), behavioural (e.g. avoidance), and cognitive (e.g. worry and rumination) coping strategies. This array of factors constitutes a cognitive-attentional syndrome (CAS; Wells, 2000). Metacognitive beliefs refer to the information individuals hold about their own cognition and about coping strategies that impact on it (Wells, 2000). Examples of metacognitive beliefs may include: "Worrying will help me cope" or "My thoughts are out of control". The S-REF theory has led to the development of disorder-specific models of depression, generalized anxiety disorder, obsessive-compulsive disorder, post-traumatic stress disorder, and social phobia (Wells, 2008).

In line with a metacognitive conceptualization we hypothesized that desire thinking may be a maladaptive coping strategy similar to rumination and worry and thus a central part of the CAS. We thus predicted that participants would possess both positive and negative metacognitive beliefs about desire thinking. Our aim, in the current study, was to identify the presence and content of such beliefs, examine the nature of the goal of desire thinking, investigate the focus of attention during desire thinking and the impact of desire thinking on craving.

Method

Participants

The sample comprised 24 participants (10 men and 14 women) seeking treatment for desire related problems from the local Mental Health Service of Modena, Italy. Participants

were selected from those who had a primary diagnosis of alcohol abuse, bulimia nervosa, pathological gambling or smoking dependence, in accordance with the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.) (DSM-IV; APA, 1994). Other inclusion criteria were: (1) 18 years of age or above; (2) consenting to the study; (3) understanding spoken and written Italian; (4) absence of co-morbidity diagnosis of either Axis 1 or Axis 2 disorders; (5) no history of having received CBT treatment. The mean age of the sample was 35.4 years ($SD = 8.4$ years) and ranged from 21 to 52 years. The entirety of the sample was Caucasian.

Materials

Perseveration is the cardinal feature of psychological disorder in the S-REF theory and desire thinking has a perseverative quality. In the S-REF theory metacognitive beliefs and plans for regulating thinking in line with a goal are hypothesized. These factors can be explored using the metacognitive profiling interview (Wells and Matthews, 1994) as presented below.

Procedure

Following diagnostic screening, participants who met inclusion criteria were asked to consider taking part in the study investigating the experience of desire and associated thinking processes. All participants were interviewed using the metacognitive profiling interview (Wells, 2000) adapted to focus specifically on cognitive experiences associated with desire thinking. The interview lasted approximately 30 minutes and was conducted and transcribed by the first author. The tape recordings were independently evaluated by two psychologists on adherence to the interview structure and content of reported responses. The interview attempted to elicit data from the following five areas:

Presence and content of desire thinking. In order to elicit and examine the presence of desire thinking participants were asked to describe a recent episode of desire for the indicated target, by identifying images and thoughts they had when they began to experience desire and how these were actively elaborated. Participants were also asked to identify the trigger of the desire thinking episode.

Metacognitive beliefs about desire thinking. In order to examine positive metacognitive beliefs participants were asked to identify the perceived advantages of desire thinking on their thoughts and sensations, and whether they viewed any disadvantages of giving up the process. Negative metacognitive beliefs were elicited by asking participants about the possible disadvantages of desire thinking on thoughts and sensations, and to consider any advantages of giving up desire thinking.

Goal of desire thinking. Participants were asked questions that sought to identify what was the goal of desire thinking, how they knew when this goal had been achieved, and how the process was interrupted.

Attentional focus during desire thinking. In this section of the interview, participants were asked what the focus of their attention was while they were engaging in desire thinking, and what the advantages and disadvantages were of using their attention in this manner.

Impact of desire thinking on craving. Participants were asked to identify the impact of desire thinking on their craving to achieve the target.

Results

All participants were able to recollect a recent episode of desire thinking. The content of desire thinking included mental images regarding the act of achieving the target and its positive consequences. Verbal content was also present in the form of self-talk regarding the need to achieve the target and self-motivated statements. Participants identified two types of triggers of desire thinking: negative emotions and thoughts (14 participants) and an external target related cue (9 participants).

Twenty-three participants identified positive and negative metacognitive beliefs about desire thinking. Positive metacognitive beliefs concerned the usefulness of desire thinking in: (1) controlling negative thoughts and emotion (17 participants); (2) increasing positive sensations in the form of excitement and motivation (11 participants); (3) increasing executive control over behaviour (6 participants); (4) helping to plan how to reach goals (4 participants). Negative metacognitive beliefs concerned: (1) the damage to executive control over behaviour that may be caused by engaging in desire thinking (16 participants); (2) the uncontrollability of desire thinking (10 participants); (3) the negative impact of desire thinking on self-image (4 participants); (4) the negative impact on cognitive performance (6 participants). The images and thoughts that make up the content of desire thinking and metacognitive beliefs about desire thinking are presented in Table 1.

In response to the question concerning the goal of desire thinking, 14 participants reported using desire thinking to reduce negative emotions and thoughts and 9 to achieve gratification and positive sensations. In response to the question concerning how they knew if their goal of desire thinking had been achieved, all participants reported they did not know. In response to the question on how the desire thinking process was interrupted, 18 participants reported that this occurred only by achieving the desired target and 5 participants reported it was interrupted by some external distracting event.

Participants reported that their attentional focus during the desire thinking episode was continuously shifting between their emotional state and external context. All participants described perceived disadvantages of their attentional strategy, while 11 participants described perceived advantages. Disadvantages concerned the perseveration of desire thinking and craving for maladaptive behaviours, whilst the advantages often seemed directly contradictory to the disadvantages, insofar as they were associated with a reduction of negative emotions and thoughts.

In response to the question about the consequences of desire thinking on craving, all participants reported an increase in the latter.

Discussion

The findings of this study suggest that metacognitions may indeed play a role in desire thinking. The results are consistent with Wells and Matthews' (1994) S-REF theory and align themselves to previous findings identifying positive and negative metacognitive beliefs in other disorders (Wells, 2008).

Positive metacognitive beliefs concerned the usefulness of desire thinking in controlling negative thoughts and emotion, in increasing positive sensations, in improving executive control over behaviour and in planning how to reach goals. Such beliefs may be involved in the initiation of desire thinking. Negative metacognitive beliefs concerned the uncontrollability of

Table 1. Participants' positive and negative metacognitive beliefs about desire thinking ($n = 24$)

	Target	Desire thinking images/thoughts	Positive metacognitive beliefs	Negative metacognitive beliefs
1	Alcohol	Imagining stopping the car to order a drink at the local bar; the act of drinking	"It helps me to modify my thoughts" "I would lose my motivation by abandoning these thoughts"	"I would lose control over my drinking" "I feel like a bad person because I think in this way"
2	Alcohol	Imagining what I would do and feel when I am a bit drunk	"These thoughts give me a goal to pursue" "They help me not to think about my problems"	"These thoughts are uncontrollable" "They make my craving more intense"
3	Alcohol	Imagining a cabinet full of bottles and the taste of wine in my mouth	"I need to detach from reality and from my worries by thinking about something that gives me pleasure"	"It means I have no power over my mind" "If I begin to think of an alcoholic beverage, I will drink"
4	Alcohol	Thinking about the need for pleasure; visual memories of the taste and past experience of drinking	"I can feel my problems less strongly" "It gives me pleasure"	"It brings me to drink"
5	Alcohol	Imagining myself whilst laughing and having a drink with my friends	"It allows me to escape from my mind"	"It risks making me lose control" "This type of thinking makes my craving worse"
6	Alcohol	Imagining the taste of alcohol	"It gives me hope just for a while to distract myself" "It helps me to understand how I can easily reach my goals"	"All negative thoughts become even stronger till I have to drink"
7	Food	Mentally planning and imagining preparing to eat	–	–
8	Food	Looking at food and trying to imagine its taste and myself while I eat it	"I think it helps me feel free, for a while, from bad emotions"	"It will condemn me to binge" "I cannot think of anything else at work while I am engaging in desire thinking"
9	Food	Imagining my excursus through the market	"It may help me to avoid a binge by delaying it" "It is the only moment where I do not think of bad things such as how alone I am"	"I cannot avoid beginning desire thinking"

Table 1. Continued

Target	Desire thinking images/thoughts	Positive metacognitive beliefs	Negative metacognitive beliefs
10 Food	Imagining coming back home and all the chocolate bars that I have on my desk	"These imagines gave me pleasure during a stressful day; they distract me"	"It makes me so hungry that I would probably overeat once started" "It is pleasant but also stressful at the same time"
11 Food	Continuously thinking about the content in the freezer, its door and the action of opening it	"It helps me to flee from my anguish"	"It's automatic, I know I could behave in a different way but I cannot think of anything else" "It is difficult to resist the urge once this thinking has started"
12 Food	Thinking that I need to go away and go back home; imagining what I have to do to free myself	"It helps me to find a fast way to relieve my anxiety"	"I cannot think or concentrate on anything else"
13 Gambling	Thinking about the type of machine I would use; imagining the sound of the slot machine	"If I think about my desires I will be able to realize only their positive facets" "It may reduce my hunger for gambling and my sense of deprivation"	"I cannot concentrate on anything else when I begin to think in this way" "I cannot control my desire thinking"
14 Gambling	Imagining going to place a bet; visualizing every moment of the race; thinking what I would have to do to win	"It makes me see things positively and increases my motivation"	"I have no control over it" "I feel horrible because I remain for long periods in a state of desiring to gamble"
15 Gambling	Thinking that I deserve to play; remembering the last time I won; imagining the situation in detail	"It makes me feel excited and motivated" "It distracts me from my worries"	"I have no power to control this process" "There is a point at which it makes me lose control over my behaviour"
16 Gambling	Thinking that I need to play to attain pleasure; imagining the act of playing	"It increases my positive feelings"	"It makes me want to gamble"
17 Gambling	Remembering the sound of the slot machine when I won	"It helps me to improve my mood when I cannot play"	"I waste time and at the end it makes me angry and stressed" "My urges increase and become more difficult to tolerate"

Table 1. Continued

Target	Desire thinking images/thoughts	Positive metacognitive beliefs	Negative metacognitive beliefs	
18	Gambling	Imagining playing and winning	“It helps me to keep my goal in mind” “It makes me feel lucky – I will win”	“It increases my stress levels”
19	Smoking	Imagining smoking a cigarette whilst drinking an espresso	“It helps me to concentrate on something positive instead of negative sensations”	“This thinking habit means I have no will power”
20	Smoking	Repeating to myself I need it and imagining the warmth and smell of cigarettes	“When I think in this manner I distract myself from bad thoughts”	“The more I think of it the more I feel I cannot resist smoking”
21	Smoking	Imagining the act of smoking	“For a moment I can mentally separate myself from a problem and feel in control”	“I can stop this desire thinking only doing what I think”
22	Smoking	Imagining how it would feel to smoke	“It helps me not to immediately engage in the behaviour”	“It reminds me that sooner or later I will need a cigarette – I crave more”
23	Smoking	Thinking that I will have to smoke soon and imagining myself saying “sorry” and going out for a cigarette	“It helps me to delay the need”	“It keeps thoughts about smoking in my mind”
24	Smoking	Continuously imagining the first cigarette I would smoke at the end of the commute	“It helps to fill the time I must wait” “It helps me to get control” “It reassures me and helps me to cope with bad sensations”	“It damages my concentration” “It augments my urge”

desire thinking, and its negative impact on executive control over behaviour, self-image and cognitive performance. These beliefs may play a role in propagating negative affect once a desire thinking episode has started that may possibly lead to an escalation of the desire thinking process. This would be consistent with the S-REF theory (Wells and Matthews, 1994), which suggests that psychological disturbance occurs when coping strategies (such as desire thinking) become perseverative.

The main objective in asking questions related to the goal of desire thinking and attentional focus during a desire thinking episode was to elicit information relating to the dynamic of monitoring and controlling this process. The majority of participants engaged in desire thinking as a coping strategy to regulate unpleasant cognitive-emotional states and/or enhance positive ones; they also reported that they did not know if they had achieved their goal. A possible explanation for this is that desire thinking leads to an increase in the sense of deprivation (as the target is imagined but not achieved) and associated lowering mood. This in turn brings to a perseveration in desire thinking because the goal of emotion regulation is

never reached. In this respect, desire thinking shows similarities to the process of rumination in depression.

From a therapeutic perspective these findings suggest that the techniques and principles of metacognitive therapy (Wells, 2008) may be beneficial in helping patients discontinue desire thinking. The adapted metacognitive profiling presented could help elicit useful information about metacognitive beliefs and metacognitive plans involved in both the initiation and maintenance of desire thinking. Metacognitive beliefs could be questioned and modified using re-attributional techniques (Wells, 2008) and the role of desire thinking in internal state and behavioural control could be reviewed. We do not exclude, however, that other metacognitions may be involved in target specific maintenance processes as suggested by previous research in addictive behaviours, for example (Nikčević and Spada, 2010; Spada and Wells, 2009).

The results of this study are clearly preliminary and are based on a small sample of individuals with varied diagnoses. The interview was retrospective and hence participants' responses may merely reflect rationalizations of desire thinking rather than beliefs and cognitive processes contributing to it. In addition, a lack of specific measures for desire thinking means that this construct cannot be reliably differentiated from craving. Future studies investigating the role of desire thinking and related metacognitions will require the use of specific measures of both these variables and a disorder specific focus to address these limitations.

Despite these limitations, we believe the present findings provide preliminary evidence that metacognitions may indeed play a role in desire thinking.

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