



Profiling Metacognition in Binge Eating Disorder

Sara Palmieri^{1,2,3} · Nicola Gentile⁴ · Annalisa Da Ros^{4,5} ·
Marcantonio M. Spada^{1,6} 

Published online: 4 July 2020
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Abstract

Research has shown that metacognition may play a role in problem eating. In this study we explored whether aspects of metacognition are relevant to the understanding of binge eating in patients with Binge Eating Disorder. We aimed to ascertain: (1) the presence of metacognitive beliefs about binge eating; (2) the goal of, and stop signal for, binge eating; and (3) the impact of binge eating on self-consciousness. Ten Binge Eating Disorder patients took part in the study and were assessed using the metacognitive profiling semi-structured interview. Results suggested that all patients endorsed both positive and negative metacognitive beliefs about binge eating. The goals of binge eating were stop thinking about personal concerns and improve emotional state. All patients reported that they did not know when these goals had been reached. The stop signals for binge eating included physical discomfort, beliefs about binge eating not being the best way to solve problems, and environmental stimuli. All patients also confirmed that a reduction in self-consciousness occurred during a binge eating episode. The results of this study confirm that metacognition may indeed be relevant to the understanding of Binge Eating Disorder.

Keywords Binge Eating Disorder · Binge eating · Metacognition · Metacognitive beliefs · Problem eating

✉ Marcantonio M. Spada
spadam@lsbu.ac.uk

¹ London South Bank University, London, UK

² Studi Cognitivi, Cognitive Psychotherapy School and Research Center, Milan, Italy

³ Department of Psychology, Sigmund Freud University, Milan 20143, Italy

⁴ U.O. SERD - Eating Disorders Outpatient Clinic, Mirano – Dolo (Ve), Italy

⁵ Studi Cognitivi, Cognitive Psychotherapy School and Research Center, Mestre, Italy

⁶ Division of Psychology, School of Applied Sciences, London South Bank University, London, UK

Introduction

Binge Eating Disorder (BED) is characterized by repeated and fast binge eating until feeling uncomfortably full, eating alone because of embarrassment relating to how much one is eating, and feeling guilty and disgusted following a binge eating episode (Diagnostic and Statistical Manual of Mental Disorders 5th Edition, DSM-5; American Psychiatric Association, APA, 2013). Literature indicates that BED is the most common eating disorder with peak onset in adolescence and early adulthood (Erskine and Whiteford 2018; Hilbert et al. 2017).

The treatment of BED has been influenced by the Bulimia Nervosa (BN) treatment literature, as both BED and BN share in common binge eating as well as other psychological and behavioural characteristics (Agras 2019; Marcus and Wing 1987; Smith et al. 1992). Consequently, treatments that have been found to be efficacious for BN, primarily Cognitive Behaviour Therapy (CBT), have been modified and used in the treatment of BED (Wonderlich et al. 2003).

With regards to the CBT in BED, research has shown that both individual and group formats of CBT are linked with higher rates of abstinence compared with no treatment (Brownley et al. 2016; Iacovino et al. 2012). A recent systematic review (Peat et al. 2017) reported abstinence rates from binge eating at the end of CBT ranging from 17.9 to 86.7%. With regards to guided self-help CBT (CBTgsh), this has been found to be associated with a reduction in binge eating episodes and in the associated psychopathology at both post-treatment and follow-up (Wilson and Zandberg 2012) whereas it has less efficacy for severe pre-treatment eating disorder (Iacovino et al. 2012). Although the effectiveness of CBT approaches for BED has been reported, relapse in binge eating after treatment is still common with remission rates at 12-month follow-up ranging from 20.1 to 84.6% (Peat et al. 2017).

The aforementioned literature suggests that the effectiveness of CBT for BED could be improved. A possible way to do this is by exploring and understanding the potential role of metacognition in the genesis, escalation and perseveration of BED. Metacognitive beliefs, which relate to beliefs about our cognitive-affective states and what to do to control them, have been linked to psychopathology in numerous studies (for a review see Sun et al. 2017; Wells 2009, 2013). In the metacognitive model of psychopathology (the Self-Regulatory Executive Function model; S-REF: Wells and Matthews 1994, 1996) psychological distress is postulated to be maintained by a series of maladaptive forms of coping, including attentional focus on threat, repetitive negative thinking (desire thinking rumination and worry), and avoidant behaviours. This set of maladaptive forms of coping is termed the 'Cognitive Attentional Syndrome' (CAS; Wells 2000). The CAS is both activated and maintained by metacognitive beliefs (Wells 2000) and causes negative cognitive-affective states to remain in consciousness rather than spontaneously decay, leading to failures to modify beliefs about the self and the control we have over our mind (Spada et al. 2015). The metacognitive model of psychopathology has underpinned the development of various disorder-specific models including Generalized Anxiety Disorder, Major Depressive Disorder, Obsessive-Compulsive

Disorder, Post-Traumatic Stress Disorder and Alcohol Use Disorder (Caselli et al. 2018; Spada et al. 2015a, b).

In the area of metacognition in psychopathology, metacognitive beliefs and plans for regulating thinking have been explored using the metacognitive profiling interview developed by Adrian Wells (Wells 2000). Studies employing metacognitive profiling have been used to identify the role of metacognition across numerous areas, including desire thinking (Caselli and Spada 2010), pathological procrastination (Ferne and Spada 2008), problem drinking (Spada and Wells 2006), problem gambling (Spada et al. 2015), smoking (Nikčević and Spada 2010), distress in Parkinson's disease (Ferne et al. 2015), rumination (Papageorgiou and Wells 2001), and self-critical rumination (Kolubinski et al. 2016).

Metacognitive beliefs have also been recently explored in eating disorders. Patients with eating disorders have been found to present with more dysfunctional metacognitive beliefs than control groups (Olstad et al. 2015), and both positive and negative metacognitive beliefs have been reported as predictors of eating disorder (Safdari et al. 2013). Other studies have shown that scores on the Metacognitions Questionnaire-30 (Wells and Cartwright-Hatton 2004), which measures generic metacognitive beliefs, are higher in patients with Anorexia Nervosa (AN) than controls (Cooper et al. 2007; McDermott and Rushford 2011) as well as in individuals from general population with problematic eating attitudes than those with normal eating attitudes (Konstantellou and Reynolds 2010). Furthermore, literature suggests that metacognitive beliefs are involved in the maintenance of AN (Woolrich et al. 2008).

Starting from the above findings, the main aim of this study was to explore aspects of metacognition in BED which have not been, as of yet, explored. Consistent with a metacognitive conceptualization the study aimed to profile: (1) the presence of specific metacognitive beliefs about binge eating in BED; (2) the goal of binge eating, and its stop signal; and (3) the impact of binge eating on self-consciousness.

Method

Participants

Ten consecutive patients (three males, mean age 39.40 years, $SD = 13.97$ years, range 19-57 years) were recruited from U.O. SERD - Eating Disorders Outpatient Clinic (Mirano – Dolo, Venice, Italy) and Studi Cognitivi clinical centre (Milan, Italy). Patients were eligible for inclusion if they: (1) met the Diagnostic and Statistical Manual of Mental Disorders 5th Edition (APA 2013) criteria for Binge Eating Disorder; (2) were at least 18 years old; (3) had a good comprehension of the Italian language; and (4) accepted to sign the consent form. Exclusion criteria were: (1) neurological and/or neurocognitive impairment; and (2) disorders that

might compromise the ability to give informed consent. The study was approved by the Research Ethics Committee at London South Bank University and by the Ethics Committee for clinical trials of Venice and IRCCS San Camillo.

Materials and Procedure

Following diagnostic screening undertaken by the second author (medically trained), patients who met inclusion criteria received a hard copy of the information sheet outlined the study and asked to consider taking part in it. Recruitment occurred during 2019 with all patients agreeing to take part in the study.

Patients were interviewed by the first author, a psychotherapist specialised in CBT, supervised by the fourth author, a psychologist and trained Metacognitive Therapy practitioner, in using the metacognitive profiling interview (Wells 2000) adapted to focus specifically on binge eating in BED.

The interview, which was audio recorded, lasted approximately 30 min and was conducted and transcribed by the first author. Positive and negative metacognitive beliefs related to binge eating were then identified by the first and fourth author. The quotes presented were synthetic extracts identified by the evaluators (first and fourth author). No marked discrepancies were observed in the identification and selection of these synthetic extracts.

All patients were asked to recount a recent episode of binge eating. The interview then consisted of three sections: in the first section positive and negative metacognitive beliefs were identified by asking about the advantages and disadvantages of engaging in binge eating. The second section explored the perceived goal of binge eating and how patients could identify when the goal was accomplished, and the signals to stop bingeing. In the third section, patients were asked about their self-consciousness during the binge eating episode.

Results

All patients were able to recollect a recent episode of binge eating which included mental images regarding the act of binge eat and its consequences. Cognitive and emotional state, in terms of concerns for family and work as well as anger—*anxiety—sadness*, has been identified as the prevailing triggers for binge eating.

All patients identified positive and negative metacognitive beliefs about binge eating. Positive metacognitive beliefs concerned the usefulness of engaging in binge eating in order to: (1) interrupt perseverative thinking about concerns; (2) feel well-being and happiness; (3) release tension and relax; and (4) compensate for boredom. Negative metacognitive beliefs concerned the uncontrollability of binge eating and the psychologically negative impact of binge eating on emotions and thoughts. Metacognitive beliefs about binge eating are displayed in Table 1.

In response to the question concerning the goal of binge eating, five patients reported to desire ceasing thinking about concerns, while five patients identified as a goal the achievement of an improved emotional state characterized by well-being

Table 1 Triggers, positive and negative metacognitive beliefs about binge eating (N= 10)

Patient	Triggers	Positive metacognitive beliefs	Negative metacognitive beliefs
1	Thinking about my responsibilities in my family management	Bingeing helps me to stop thinking and to unload tension	I cannot control my binge eating
2	Feeling nervous and thinking about my problems in relationships	Bingeing is useful for defeating thoughts about loneliness	Once I start to binge, cannot find a way to control myself
3	Feeling nervous; thinking I am not well physically and psychologically	Bingeing allows me not to think Bingeing makes me relaxed	I think I will be able to control my bingeing but, in actuality, I am not able to do it
4	Thinking about my work problems; feeling angry and disappointed	When I binge, my worries disappear	Once I start to binge, I cannot stop
5	Feeling bored, melancholic and sad	Bingeing compensates for my boredom Bingeing makes me carefree and stop worrying	I have not control over my bingeing
6	Feeling stressed and anxious and thinking about my family and work problems	Bingeing helps me get distracted from my thoughts	I have little control over my bingeing Bingeing will make me feel guilty
7	Feeling abandoned from my son. Feeling angry with him	When I binge my negative thoughts and feelings disappear Bingeing helps me to avoid irritability	I cannot control myself when bingeing
8	Thinking about my problems at work	Bingeing allows me not to think Bingeing helps me to release tension	When start bingeing it is difficult to control my behaviour
9	Thinking I was alone at home	Bingeing removes my worries	When start bingeing I cannot control myself
10	Feeling anxious for my work and my future	Bingeing remove my worries	I have little control over my bingeing

and relaxation. Notwithstanding the goals identified, all patients reported they did not know when the goal was achieved.

In response to the question regarding what signalled that it was ok to stop bingeing, seven out of the 10 patients reported physical discomfort characterized by nausea and feeling full, two patients stated that they started to think they should stop eating because they were exaggerating and binge eating was not the best way to solve their problems, and one patient interrupted the binge eating in response to an environmental stimulus. Finally, all patients reported that bingeing reduced self-consciousness.

Discussion

The findings of the present study suggest that metacognition is relevant to the understanding of BED. The results of the current study closely mirror those which have emerged from work employing the metacognitive profiling interview in other areas of research in psychopathology.

Positive metacognitive beliefs appear to relate to the usefulness of engaging in binge eating as a means of interrupting perseverative thinking about concerns, feeling well-being and happiness, releasing tension and relaxing, and compensating for boredom. These beliefs may be involved in the initiation of binge eating because they may increase internal states (e.g. an idea or feeling that concerns can be interrupted) or they may act as a “mental” form of problem-solving to improve emotional state achieving, albeit in the short-term, well-being and relaxation. These beliefs could signal that it is ok to start bingeing.

Negative metacognitive beliefs appear to be concerned with the uncontrollability of binge eating and its negative impact on cognitive-emotional states. The S-REF model (Wells 2000) proposes two categories of negative metacognitive beliefs (i.e. danger/harm and uncontrollability) and it also suggests that psychological disturbance occurs when coping strategies (in this case, binge eating) become perseverative and perceived as uncontrollable (Wells and Matthews 1994). According to these aspects of the S-REF model, negative metacognitive beliefs may be involved in the propagation of negative affect and in the persistence of binge eating episodes which are perceived as harmful but, at the same time, labelled as uncontrollable.

In order to explore the dynamic of monitoring and controlling cognition during a binge eating episode we asked questions relating to the goal of binge eating and self-consciousness. Patients reported engaging in binge eating as strategy to regulate cognitive-emotional states with half of the patients saying it was a strategy to interrupt negative repetitive thinking and the remaining half saying it was a strategy for improving emotional state. Thus, intention to binge eat appears to be linked to the monitoring of internal states which patients use as a start signal to commence eating. All patients also reported that they were not aware of whether they had achieved their goal. This could be due to all patients reporting reduced self-consciousness associated with binge eating which may, in turn, be linked with a failure in ‘metacognitive monitoring’ (Spada and Wells 2006) leading to a

perpetuation in binge eating because goal progress information, that may signal it is ok to stop bingeing, is not attended to.

The clinical implications that emerge from our findings are evident. The techniques and principles of Metacognitive Therapy (MCT; Wells 2011) could be considered in supporting patients discontinuing binge eating. Specifically, the adapted metacognitive profiling interview we used could help, in clinical practice, to identify metacognitive beliefs and plans relevant to binge eating in BED. As put forward in standard MCT protocols, metacognitive beliefs could be re-appraised using Socratic metacognitive interventions (Wells 2011). The role of binge eating in regulating cognitive-affective states and forms of coping aimed at control these states could also be both illustrated and challenged by increasing metacognitive monitoring (for example through Situational Attentional Refocusing; SAR; Spada and Wells 2006; Wells 2011) whilst attention training and detached mindfulness could be used to interrupt binge eating (Wells 2013).

This study has several limitations which need consideration. Firstly, the sample size was small and predominantly female. Secondly, the interview was retrospective in which each patient was asked to recall a recent binge eating episode thus potentially introducing mnemonic bias. Thirdly the structured interview employed, although used extensively in the literature, may also introduce self-report biases for both patients' and investigators. Finally, findings and their possible generalization should be interpreted with caution until what has been observed in this study can be evaluated in studies employing experimental and longitudinal designs with larger samples.

In conclusion, the findings from our study provide novel evidence on how metacognition may be operating in BED highlighting the possibility that the metacognitive model of psychological disorder may be of relevance in the conceptualisation and treatment of this condition.

Compliance with Ethical Standards

Conflict of interest The authors have no conflict of interest to declare.

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