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RUNNING HEAD: Vomiting in bulimic disorders

Triggers of Self-Induced Vomiting in Bulimic Disorders: The Roles of Core Beliefs and Imagery

Hendrik Hinrichsen

St. George's Hospital Medical School, University of London, and

South West London and St. George's Mental Health NHS Trust, London, UK

Tamara Morrison

Sub-Department of Clinical Health Psychology, University College London, London, UK

Glenn Waller

South West London and St. George's Mental Health NHS Trust, London, UK

Ulrike Schmidt

Eating Disorders Unit, Institute of Psychiatry, De Crespigny Park, London, UK

Address for correspondence: Hendrik Hinrichsen, Department of Mental Health, St. George's Hospital Medical School, University of London, Cranmer Terrace, London SW17 0RE, UK. Phone: +44-20-8682-6747; Fax: +44-20-8682-6724; E-mail: hendrik.hinrichsen@gmx.net.

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Abstract

Recent evidence has suggested a specific role for core beliefs in the triggering of bulimic behaviors. However, less is known about the role of imagery in this link, despite its role in other disorders. The present study aimed to investigate the potential roles of core beliefs and imagery in triggering vomiting. Thirty bulimic women took part in a semi-structured interview focusing on their mental processes prior to vomiting, and completed a self-report measure of core beliefs. The results showed that prior to vomiting a clinically significant proportion of bulimic patients reported thoughts relating to defectiveness/shame, failure and social isolation core beliefs, and associated feelings of shame and anxiety. Most patients perceived these feelings as triggers to their vomiting. A large number of bulimic patients also reported experiencing visual images prior to vomiting, and those images tended to be recurrent and linked to adverse life experiences. Overall, the findings suggest that defectiveness/shame, failure, and social isolation core beliefs and recurrent negative images (linked to adverse life experiences) may play important roles in the triggering of vomiting in bulimic disorders.

Key words: Bulimia, anorexia, vomiting, core beliefs, imagery.

Triggers of Self-Induced Vomiting in Bulimic Disorders:

The Roles of Core Beliefs and Imagery

To date, most cognitive theories of bulimia have stressed the role of negative automatic thoughts or dysfunctional assumptions regarding weight, shape and food. While there is good evidence in support of the roles of these cognitive structures (e.g., Rieger, Schotte, Touyz, Beumont, Griffiths & Russell, 1998), recent findings suggest that they may not be sufficient to explain cognitive content in bulimic psychopathology. Evidence for this comes from two sources. First, while cognitive behaviour therapy (CBT) is effective in the treatment of bulimia nervosa, leading to a complete remission of eating disorder symptomatology in approximately 40-50% of cases and a reduction of bingeing and purging symptoms in about 80% of cases, there is little conclusive evidence that CBT in its existing form is more effective than other treatments. Results from two controlled trials have shown that interpersonal psychotherapy (IPT) is about as effective as CBT in the longer term (Agras, Walsh, Fairburn, Wilson & Kraemer, 2000; Fairburn, Norman, Welch, O'Connor, Doll & Peveler, 1995). Second, there is now considerable evidence showing that negative emotional states can precipitate bulimic behaviours (e.g., Fairburn, Cooper & Shafran, 2003; Meyer, Waller & Waters, 1998). Models of bulimia that have incorporated this evidence have suggested that bingeing may serve the function of reducing awareness of negative emotional states (e.g., Cooper, Wells & Todd, 2004; Lacey, 1986; Waller, Kennerley & Ohanian, in press). However, the functions of vomiting are less clearly established.

Theoretical accounts, such as the anxiety reduction model proposed by Rosen and Leitenberg (1985), have suggested that vomiting in bulimics may serve as an 'escape' response, reducing the anxiety about body shape and weight, triggered by eating 'forbidden foods'. To date, most research examining subjective events preceding an episode of self-induced vomiting has focused on cognitions relating to shape and weight. The limited success of current CBT

approaches, as well as initial findings suggesting a role for alternative preceding experiences such as affective states, suggests that current cognitive behavioural models of bulimic behaviours do not fully account for bulimic pathology and need to be broadened to integrate these findings. Two promising areas for further exploration include the potential role of core beliefs in triggering self-induced vomiting and the potential relevance of imagery.

The potential role of core beliefs

Given the failure of current cognitive-behavioural interventions to induce change in a substantial minority of bulimics, it has been suggested that the models on which they are based do not sufficiently account for the roles of past experiences and core beliefs in the development and maintenance of eating psychopathology (Cooper et al., 2004; Hollon & Beck, 1994; Waller et al., in press). Core beliefs are defined as absolute and unconditional beliefs about the self and the world, which are established early in life in response to the person's environment (Young, Kosko & Weishaar, 2003). While often being adaptive within the person's early environment, these beliefs can become maladaptive over time and with changed circumstances (e.g., the person is no longer in an environment where they have to mistrust others). Preliminary evidence indicates that many bulimics hold core beliefs relating to fear of abandonment (Patton, 1992), a sense of defectiveness (Andrews, 1997), vulnerability to harm (Root & Fallon, 1989), and personal inadequacy (McManus, Waller & Chadwick, 1996). Examining the role of core beliefs in bulimic women, Waller, Ohanian, Meyer and Osman (2000) found that frequency of vomiting was predicted by the strength of their 'defectiveness/shame' core belief (i.e., the belief that one has perceived defects that make one unlovable). This would suggest that self-related thoughts of defectiveness and associated feelings of guilt or shame may play a role in triggering vomiting. Reflecting on the possible development of defectiveness/ shame core beliefs, Young (1999) has hypothesised that patients presenting with such beliefs have typically experienced an early family environment that was punitive, critical or abusive. In the field of the eating disorders, some

support for this hypothesis comes from research showing that many bulimic patients experience abuse in childhood (Kent, Waller & Dagnan, 1999; Rorty, Yager & Rossotto, 1995; Wonderlich, Brewerton, Jocic, Dansky & Abbott, 1997).

The potential relevance of imagery

Whereas past clinical research has focused largely on the verbal content of cognitions, recent evidence suggests that exploring images and impressions may also be useful. A number of studies have considered the role of visual imagery in patients with anxiety and other emotional disorders. These studies have shown that negative and distressing images and impressions are frequently experienced by individuals suffering from simple phobias (Watts, Sharrock & Trezise, 1986), obsessive-compulsive disorder (De Silva, 1986), health anxiety (Wells & Hackmann, 1993), generalised anxiety (Borkovec & Inz, 1990), social phobia (Hackmann, Surawy & Clark, 1998), posttraumatic stress disorder (Hackmann, 1998), and psychosis (Morrison, Beck, Glentworth, Dunn, Reid, Larkin & Williams, 2002). In some disorders, images and impressions are recurrent, and can bear close similarity to early memories of adverse life events. For example, Hackmann, Clark and McManus (2000) found that all of 22 patients with social phobia reported spontaneously occurring images, which were stable over time and across different situations, and tended to portray similar circumstances or reflect similar sensations. In addition, most patients reported that their images were linked to memories of adverse social events that tended to cluster around the time of the onset of the disorder. While there is a large body of work examining the role of imagery in the anxiety disorders, thus far little research has investigated the frequency and nature of images experienced by patients with eating disorders. In a preliminary study, Villejo, Humphrey and Kirschenbaum (1997) investigated imagery in binge-eaters, and showed that the activation of internalised images of family relationships led to distress and elevated sensations of hunger in these individuals. These findings suggest that imagery and associated emotions can act as triggers to bulimic behaviours.

The link between imagery and core beliefs

A number of studies have explored possible links between core beliefs and imagery. For instance, Wells and Hackmann (1993) investigated the content and origins of intrusive imagery in patients with health anxiety. They concluded that the exploration of images might be an effective method for identifying underlying core beliefs, which can subsequently be changed with the help of imagery modification techniques (e.g., imagery rescripting). This is in agreement with the views of clinical researchers (e.g., Layden, Newman, Freeman & Morse, 1993), who have suggested that imagery may provide direct access to core beliefs in a way that purely verbal techniques can not. In a recent single case study, Ohanian (2002) produced results that were consistent with this hypothesis. While eight sessions of conventional CBT for bulimia nervosa reduced symptom behaviours in her client by 50 per cent, a single session of imagery rescripting (addressing a particular core belief) led to an almost complete cessation of the remaining binge-purge behaviours.

Whereas established models of binge-eating and vomiting (e.g., Fairburn, 1997) suggest that vomiting occurs as a direct consequence of bingeing, it has become more apparent in recent years that there is not a perfect relationship between bingeing and vomiting. Clinical experience and recent research findings indicate that not all episodes of vomiting follow a binge, and not all binges result in vomiting (e.g., Tobin, Griffing & Griffing, 1997). It is therefore likely that other factors (such as cognitions or emotional states) may also play a role in triggering vomiting. The present study investigated the potential role of core beliefs and imagery in triggering vomiting behaviour. Based on the literature to date, the research questions were as follows: (1) Prior to vomiting, do individuals with bulimic disorders experience cognitions relating to a defectiveness/shame core belief, and associated feelings of guilt or shame? (2) Prior to vomiting, do individuals with bulimic disorders experience images or sensory impressions? If yes, are these images/sensory impressions recurrent, and can they be linked to adverse life

experiences?

Method

Participants

Thirty individuals took part in the study. All participants were patients who had been referred a specialist eating disorders service, and met DSM-IV diagnostic criteria for a bulimic diagnosis involving vomiting (American Psychiatric Association, 1994). Diagnoses were made on the basis of standardised clinical interviews carried out by experienced and trained clinical psychologists. Twenty-seven participants (90%) were female, while three (10%) were male. The participants' mean age was 28.1 years (SD = 9.32, range 17-63). The sample consisted of: four patients with anorexia nervosa of the binge/purge subtype (mean age = 23.0; SD = 5.7; mean BMI = 15.1; SD = 1.0; weekly vomiting frequency = 30.6; SD = 33.6); 22 with bulimia nervosa of the purging subtype (mean age = 29.6; SD = 9.6; mean BMI = 22.2; SD = 5.0; weekly vomiting frequency = 27.9; SD = 26.5); and four with an eating disorder not otherwise specified (EDNOS) (mean age = 24.8; SD = 9.7; mean BMI = 26.3; SD = 14.6; weekly vomiting frequency = 12.5; SD = 11.6).

Measures and procedure

Following their diagnostic interviews, the participants completed a brief questionnaire. They were then asked to take part in a semi-structured interview, focusing on their mental processes prior to episodes of vomiting. The interview was conducted individually and lasted approximately 45 minutes. Whenever participants were required to give a rating, the interviewer displayed the relevant rating scale.

Cognitions and emotions associated with vomiting. Before taking part in the interview, participants were asked to complete a measure of core beliefs. The Schema Identification Scale for Clients with Eating Disorders (SIS-ED: adapted from Bricker & Young, 1994, and from

Young, 1999) is a seven-item self-report questionnaire. It was specifically developed for the purposes of the present study, and has therefore no established validity and reliability. The rationale for developing the SIS-ED was that it would allow participants to become familiar with the concept of core beliefs and provide ratings for these beliefs before talking about imagery, which was likely to bring up strong emotions in some of the patients. The SIS-ED provides participants with information about the nature of core beliefs, and briefly describes seven core beliefs that are commonly reported by individuals with bulimic disorders (Waller et al., 2000). These beliefs are: (1) Abandonment (belief that close relationships will end imminently); (2) Defectiveness/shame (belief that one has perceived defects that make one unlovable); (3) Emotional inhibition (belief that emotions must be inhibited to avoid adverse consequences); (4) Failure to achieve (belief that one is incapable of performing well); (5) Mistrust/abuse (belief that one will be taken advantage of or abused by others); (6) Social isolation (belief that one is different from others, and isolated from the world) and (7) Subjugation (belief that one must submit to the control of others to avoid negative consequences). Participants were then asked to rate how true each core belief was of them, using a six-point scale ('completely untrue of me' to 'describes me perfectly').

Participants were next asked to identify a recent time when they had vomited, and to describe any thoughts they had experienced immediately prior to vomiting. They were then asked to indicate whether they felt that any of the core beliefs they had identified previously on the SIS-ED were reflected in those thoughts. If they answered in the affirmative, participants were asked to identify the relevant core beliefs, and to rate the strength of each one on a 1-4 scale ('slightly' to 'extremely'). Next, participants were asked to specify whether they had noticed any feelings prior to vomiting. If they answered in the affirmative, they were asked to indicate which feelings they had experienced, by selecting any of nine possible feelings from a list. These were: loneliness, boredom, shame, guilt, worry, anxiety, sadness, anger, and depression.

(Following data collection, six items from the list referring to similar emotional states were collapsed into three to allow for statistical analysis. Those items were: anxiety/worry, depression/sadness, and shame/guilt.) The participants were asked to name the single feeling they had experienced most strongly prior to vomiting, and they were requested to rate (on a 0-100 scale - 0 = 'not at all'; 100 = 'extremely') the extent to which they believed that this feeling had increased their urge to vomit.

Images/sensory impressions and linked memories. In order to identify images or sensory impressions, participants were asked whether an image had passed through their mind prior to the identified episode of vomiting. If they did not report a visual image, the investigator asked whether they had experienced a sensory impression of any kind, which may have included smells, tastes, feelings or sounds. If participants answered in the affirmative for any of these, they were asked to evoke the visual image or sensory impression, and to describe it in as much detail as possible. They were asked to recount everything they had seen, heard and/or felt in the image.

Participants who had reported an image or sensory impression prior to vomiting were asked whether their image/impression was recurrent (i.e., stable over time and across different situations, and tending to portray similar circumstances or reflect similar sensations). In order to identify possible links between images and early memories, participants who had reported experiencing a recurrent image prior to vomiting were asked about their earliest recollection of any aspects reflected in the image. They were then questioned as to whether there was a memory that seemed linked to the image. If they answered in the affirmative, they were asked to evoke the memory with their eyes closed. Participants were then asked to describe the memory, and to recount briefly what they had seen, heard, and/or felt at the time.

Results

Table 1 shows participants' ratings of individual core beliefs prior to vomiting. The majority of participants (n = 22; 73%) believed that the thoughts they had experienced prior to vomiting were related to a defectiveness/shame core belief. On average, these participants felt that a defectiveness/shame belief was 'very strongly' reflected in their thoughts (mean = 3.32; SD = 0.65; max. score = 4). A large number of participants (n = 20; 67%) also reported thoughts relating to a failure core belief. On average, these participants felt that a failure belief was 'extremely' reflected in their thoughts. Finally, 16 participants (53%) reported thoughts relating to a social isolation core belief. On average, these participants felt that a social isolation belief was 'very strongly' reflected in their thoughts.

Comparisons of participants' ratings of core beliefs showed that for core beliefs in general, a defectiveness/shame core belief was endorsed by a significantly greater proportion of patients than either a social isolation core belief ($z = 2.53$; $p < .01$) or a mistrust/abuse core belief ($z = 2.28$; $p < .05$). A failure core belief was endorsed by a significantly greater proportion of patients than a social isolation core belief ($z = 1.67$; $p < .05$). There were no significant differences in the proportions of patients endorsing other pairs of core beliefs ($z \leq 1.40$; $p > .05$ in all cases). For core beliefs prior to vomiting, a defectiveness/shame core belief was endorsed by a significantly greater proportion of patients than either a mistrust/abuse core belief ($z = 3.36$; $p < .001$), or emotional inhibition, abandonment or subjugation core beliefs ($z = 2.60$; $p < .01$ in all cases). A failure core belief was endorsed by a significantly greater proportion of patients than either a mistrust/abuse core belief ($z = 2.84$; $p < .01$), or emotional inhibition, abandonment, or subjugation core beliefs ($z = 2.07$; $p < .05$ in all cases). Finally, a social inhibition core belief was endorsed by a significantly greater proportion of patients than a mistrust/abuse core belief ($z = 1.83$; $p < .05$). There were no significant differences in the proportions of patients endorsing the other pairs of core beliefs ($z \leq 1.06$; $p > .05$ in all cases).

Insert Table 1 about here

Table 2 shows participants' ratings of their feelings prior to vomiting. While many participants reported that the feeling they had experienced most strongly prior to vomiting was shame/guilt (n = 10; 33%), an equal number reported that the feeling they had experienced most strongly was anxiety/worry (n = 10; 33%). Overall, 93 per cent of participants (n = 28) reported experiencing either or both feelings prior to vomiting (although not always as the strongest emotion present). In addition, 87 per cent of participants (n = 26) believed that the feelings they had experienced at the time had increased their urge to vomit.Comparisons of participants' ratings of their feelings prior to vomiting showed that feelings of shame/guilt and anxiety/worry were endorsed by a greater number of patients than feelings of boredom ($z = 3.88$; $p < .001$), loneliness ($z = 2.88$; $p < .01$) or anger ($z = 2.39$; $p < .05$). In addition, feelings of depression were endorsed by a greater proportion of patients than feelings of boredom ($z = 2.10$; $p < .05$). To determine whether some feelings were more likely to be reported as stronger than others, a one-way chi-square test was carried out, which was highly significant ($X^2 = 22.73$; $df = 6$; $p < .001$). Comparisons of individual pairs showed that feelings of shame/guilt and anxiety/worry were reported more frequently than feelings of boredom ($X^2 =$; $df = 1$; $p < .0$) or feelings of depression ($X^2 =$; $df = 1$; $p < .0$). None of the other pairs were significantly different from each other ($X^2 \leq .3.77$; $df = 1$; $p > .05$).

Insert Table 2 about here

Seventeen participants (57% of the sample) reported experiencing an image/impression prior to vomiting. In all reported instances, participants' images/impressions were visual - none reported a non-visual sensory impression. Sixteen participants (53% of the sample) reported that their image was recurrent, and eleven of them (37% of the sample) were able to link these to a memory from the past. In many instances, these life experiences had occurred in childhood.

Table 3 shows the results from the semi-structured interview for those participants who were able to identify a recurrent image that was linked to a specific memory. The table contains descriptions of participants' images and memories. Close inspection of participants' memory accounts suggested the presence of two themes. These were: (1) <u>being humiliated or abused</u> (e.g., "teacher laughing at me with other boys because I'm no good at sport"; "being bullied at school because I'm overweight"; "forced first sexual experience whilst drunk"); and (2) <u>being abandoned</u> (e.g., "dad leaving the family when I'm six years old"; "seeing my brother dying"; "finding our house empty as mum has disappeared"). Two experienced clinical psychologists were next asked to rate participants' memories for the presence or absence of these themes. In the majority of cases (<u>n</u> = 10), the content of participants' memories could be classified under one of the two themes. Inter-rater reliability checks indicated a high agreement between the raters (*kappa* = 0.79; $p < .01$).

Insert Table 3 about here

Discussion

The first aim of this study was to determine whether bulimic patients experience cognitions relating to a defectiveness/shame core belief (belief that one has perceived defects

that make one unlovable), and associated feelings of guilt or shame prior to vomiting. The results showed that a clinically significant proportion of bulimic patients reported the activation of defectiveness/shame core beliefs. In addition, a significant proportion of bulimic patients also reported the activation of failure and social isolation core beliefs prior to vomiting. The activation of these beliefs was associated with feelings of shame and anxiety, and most patients perceived these feelings as triggers to their vomiting behaviour. The second aim was to investigate whether bulimic individuals experience images prior to vomiting, and whether such images are recurrent and linked to adverse life experiences. The findings showed that a large number of bulimic patients report experiencing images, which are predominantly visual. In many cases, the images were recurrent and linked to adverse life experiences of being humiliated, abused or abandoned. These findings suggest that memory-linked images may be one factor that can trigger vomiting in eating-disordered individuals.

In keeping with previous studies showing that emotional states can precipitate bulimic behaviours (Fairburn et al., 2003; Meyer et al., 1998), the present results indicate that many patients experience feelings of guilt or shame prior to vomiting, and that they perceive these feelings as triggers to their vomiting. The finding that feelings of anxiety/worry were experienced by patients prior to vomiting as frequently as feelings of guilt/shame is in agreement with Rosen and Leitenberg's (1985) hypothesis that anxiety about the consequences of bingeing may be a precipitant of vomiting. Future research might investigate whether direct manipulation of patients' emotional state (e.g., inducing feelings of guilt, shame, or anxiety) can trigger purging or vomiting urges. Such research might involve presenting bulimic individuals with subliminal processing cues relating to a defectiveness core belief, and observing their emotional state and behavioural reactions (e.g., Meyer & Waller, 1999; Patton, 1992; Waller & Mijatovich, 1998).

The present findings suggest that recurrent images that are linked to early memories (e.g., Hackmann et al., 1998; 2000) are also experienced by bulimic individuals, and that they

may play a role in triggering vomiting. Further research is needed to determine the exact origin, nature and role of these images. Thus far, the functional links between imagery and patients' use of vomiting behaviours remain unclear. However, the present findings suggest that vomiting, like bingeing, might serve as a coping strategy to reduce the emotional impact of negative imagery (Pitts & Waller, 1993). The fact that a number of patients were able to link their recurrent images back to distressing life experiences (of being humiliated, abused or abandoned) suggests that these experiences might contribute to the development of patients' core beliefs. While previous research has provided some preliminary evidence for such a link in other disorders (e.g., psychosis – Morrison et al., 2002; social phobia – Hackmann et al., 2000), further research is needed to demonstrate that link in bulimic patients.

The present study has several implications for clinical practice. First, it would seem important to identify and address patients' defectiveness/shame beliefs in therapy. Treatment strategies for accessing and modifying core beliefs have been described (e.g., Beck, 1995; Layden et al., 1993; Padesky, 1994; Young et al., 2003). Modification of such beliefs might involve the use of positive data logs, verbal challenging of belief content, and the re-attribution of responsibility for the origins of the core belief. Second, identifying patients' images and associated memories of adverse life events might also be useful. This would be particularly important when working with bulimic patients with a history of childhood trauma or abuse. A number of cognitive-behavioral techniques have been developed for accessing images and early memories and transforming their meaning (e.g., Arntz & Weertman, 1999; Smucker, Dancu, Foa & Niederee, 1995; Young et al., 2003). These might involve changing the ending of an image or memory, having an adult self establishing control in the image/memory, and the integration of corrective information that has been identified with the help of the therapist. While there is case material indicating an efficacy of these treatment strategies (e.g., Cooper, Todd & Turner, 2003; Ohanian, 2002), the evidence base supporting their use is so far highly limited, and further

research is needed to conclusively determine their value.

The present study has several limitations that need to be addressed by future research. First, the reliability and validity of the semi-structured interview and the core belief measure used (the SIS-ED) have not yet been established. Both tools will therefore need to be extensively validated in future studies. With regard to the interview, the authors are not aware of comparable measures of imagery in clinical participants. Future research in this area might consider the use of the Young Schema Questionnaire (YSQ) to assess core beliefs. Second, because patients' accounts of their episodes of vomiting were obtained retrospectively, the accuracy of these recollections cannot be determined. Patients' memories of their cognitive processes and emotional states prior to vomiting may have been affected by their recollections of what went through their mind at other times during the bulimic episode (e.g., prior to bingeing or after vomiting). This issue could be addressed by asking bulimic patients to provide an immediate report of their thoughts, images, and behavioral intentions following an experimental manipulation of their mood state (e.g., induction of feelings of guilt, shame, or anxiety). Third, it is possible that some patients underreported their images/memories. The present data were collected by a research psychologist following a diagnostic assessment by a clinician. Some patients may not have felt safe discussing their images and early adverse life experiences in a one-off interview (particularly patients who had experienced sexual trauma or abuse). Future research might require clinicians to conduct the interview with new patients after an initial engagement period (e.g., three or four sessions), with the added benefit of allowing therapist and patient to identify recurrent images and memories to address in therapy. Fourth, in the present study, only a single episode of vomiting was assessed. This does not allow the assessment of potential intra-individual variability in triggers to vomiting. As there may be a significant degree of variability with regards to triggers of vomiting in eating-disordered individuals, this limits the validity of the findings. Future research should therefore assess a

number of episodes of vomiting over time. Finally, as all data were collected at a specialist service, it is likely that patients with less severe forms of bulimia (e.g., patients managed by their GPs within primary care) were not included in the study. Further research is needed to replicate the present findings in a larger clinical sample, which also includes mild cases of bulimia.

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Table 1: Participants' ratings of individual core beliefs in general and prior to vomiting.

	In general:				Prior to vomiting:			
Core belief	N	%	Mean strength (max. = 6)	SD	N	%	Mean strength (max. = 4)	SD
Defectiveness/shame	29	97	4.83	1.37	22	73	3.32	0.65
Failure	27	90	5.07	1.21	20	67	3.60	0.60
Social Isolation	22	73	4.77	1.31	16	53	3.06	1.00
Emotional Inhibition	26	87	4.46	1.48	12	40	3.25	0.62
Abandonment	26	87	4.50	1.53	12	40	2.83	0.84
Subjugation	26	87	4.42	1.36	12	40	2.83	1.03
Mistrust / Abuse	23	77	4.26	1.39	9	30	3.00	1.12

Table 2: Participants' ratings of their feelings prior to vomiting*.

	Reported as being present		Reported as being strongest	
Feeling	N	%	N	%
Shame/guilt	23	77	10	33
Anxiety/worry	23	77	10	33
Depression/sadness	16	53	2	7
Anger	14	47	3	10
Loneliness	12	40	3	10
Boredom	8	27	0	0

*Two participants (7%) reported no feelings prior to vomiting.

Table 3: Descriptions of participants' images and linked memories.

Age and gender	*Description of the image*	*Memory linked to the image*
19, female	No image. (3/MS) (WHAT DO THESE CODES MEAN?)	
32, female	No image. (11/CC)	
27, female	No image. (13/JS)	
39, male	No image. (14/KL)	
28, female	No image. (17/SRDS)	
36, female	No image. (18/YM)	
22, female	No image. (19/LM)	
30, female	No image. (20/LF)	
23, female	No image. (23/KJ)	
28, female	No image. (24/AMcC)	
24, female	No image. (25/HC)	
37, female	No image. (27/CN)	
23, female	No image. (29/AS)	
21, female	I see what my mum is doing (shopping or seeing a friend) and what she looks like. She is finding things to do to stay out of the house. (2/RS)	Having to leave the house, be in certain parts of the house, or avoid going home. Finding the house empty as mum had disappeared.
17, male	I see myself as a turkey being stuffed for Christmas. I'm not going to die, but will keep on getting bigger. Everyone will pick on me. I can hear a voice telling me to be sick, that I'm a horrible person and I need to destroy my body. (4/JR)	Being bullied at school because I was overweight.

NEED TO MAKE SURE THAT THESE ARE LAID OUT RIGHT

25, female Image of me being bloated, cold sore on the side of my mouth, spotty, my tummy and thighs bulging, swollen wrists and knuckles, bruised fingers. I can taste the binge, I have an adrenalin rush but feel emotionally dead. (6/GMcD)

63, female	I'm looking huge and out of proportion, Feel I'm inhuman. I feel I'm not worth it and run myself down, I feel the taste being sick. (5/MS)	Moving to London due to new arranged marriage of dad (my mother had passed away). I felt lonely and unhappy as I had not been

consulted about the marriage.

25, female I can see me in the image eating lots and lots of food and getting fat. I am growing bigger, I can smell and taste food. I feel that my insides are going to explode if I don't get the food out. (30/KSt)

32, female	I'm with my ex-boyfriend and another girl, I feel uncomfortable as they are talking about something they don't want me to hear. I don't know how to talk to him. (7/AH)	Giving my boyfriend his engagement ring back because he had lied and met someone else.
23, female	I see myself, throwing up over the bathroom sink. There is a flash image of someone's face watching me. I feel shaky and sweaty. (10/AT)	Memory of me throwing up. Can hear water running. I feel shaky and sweaty. I have stomach cramps.

38, female Image of my partner with a new girlfriend in bed together. I can see me on the phone talking to him. I am chatting away while she is laughing at me. I feel paranoid, vulnerable and exposed. (9/RY)

24, female I imagine myself looking fat and ugly, I can see myself becoming physically more unattractive because I have taken in so many calories. My stomach is becoming extended, and I have physical sensations of bloatedness. Feel like I'm a pathetic individual. (1/EH)

30, female	Me as two people, an adult and a child, but also half human and half monster. I'm ugly, unwanted and horrible, can hear people saying I'm unworthy and not liked, I live in a body that is not really mine. (12/CH)	Memories of my dad leaving when I was six, being bullied at school, me always trying to please others, sleeping around, feeling emotionally unstable, sad, lonely and depressed.
39, female	Two images, one of me being alone, looking bloated, scruffy and being slow - that image is grey and solitary, the other of someone, who is happy, attractive successful, has lots of energy. (15/LS)	Looking up at my mother whose body language suggests she is angry, she is shouting but I can't hear her, I feel small and unhappy, I have failed and am afraid of my mother losing control.

Table continues

Table 3 (continued)

Age and gender	*Description of the image*	*Memory linked to the image*
24, male	Me growing in size, can feel the weight going on, mental battle between pros and cons of vomiting, feeling gross and chaotic. (16/RL)	Being teased at school because I was not good at sport, teacher talked about and laughed at me with the other boys, I can see and hear them, I feel embarrassed, useless and inadequate.
23, female	See myself as a fat person getting fatter. I feel physically sick, and I am scared and worried. My life is not worth living any more and I'm not going out or doing anything else anymore. (26/CA)	
23, female	I'm overweight. People look at me and judge me in a bad way as someone who has failed, I try to find a solution, but I can't find one. Feel knotted up inside – trapped. I want to kill myself, I can never change, I can also see people who are successful, such as my friends who are happy and confident. (21/EP)	Lots of different memories, such as physical and emotional arguments with my father, pressure to look a certain way at school, having attractive friends, forced first sexual experience whilst drunk, best friend putting me down.
20, female	I look really fat. I feel that it is wrong that I ate. I feel ashamed and disgusting, and have to get rid of the food. I can't keep it inside because it is wrong. (8/TON)	
31, female	My brother walking down the stairs with a noose around his neck, him lying in his coffin. (22/AR)	My brother dying.
19, female	Two images, one of my friend with everyone talking to him, one of me alone in my room sitting on my bed not doing anything, my friend hasn't turned up to meet me. (28/MK)	Me waiting for my friend and him not turning up. Thinking that I won't be accepted by my family and that I'm not good enough.