

The Psychopathology of Vomit Phobia

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Abstract. A survey of individuals was conducted on self-diagnosed vomit phobics compared to panic disorder and non-clinical controls. Vomit phobics were overwhelmingly female and had had symptoms for over 25 years. They were significantly more likely to fear themselves vomiting (in public and private situations) than fear others vomiting. The vomit phobics interpreted sensations of nausea as impending vomit and had a wide range of safety seeking and avoidance behaviours that were maintaining their fear. Although the vomit phobics reported feeling nauseous more often, there was no difference in their frequency of vomiting compared to the control group. The clinical implications of the study for therapy are discussed.

Keywords: Specific phobia, vomit, descriptive psychopathology.

Background

A specific phobia of vomiting (also known as emetophobia) is a greatly under-researched area. Cases of vomit phobia have been described as presenting as anorexia nervosa (Manassis and Kalman, 1990), but generally little is known about the phenomenology or treatment. Compared to other specific phobias, clinicians generally regard it as challenging to treat because of high drop out or a poor response to treatment. One survey of vomit phobics has been conducted by Lipsitz, Fyer, Paterniti and Klein (2001), who reported the mean age of onset was 9.2 years old and 89% of their sample was female.

There are no specific models for vomit phobia or RCTs for its treatment. Marks (1987) suggested that some types of vomit phobia were a type of social phobia because of the concern over possible humiliation. Pollard, Tait, Meldrum, Dubinski and Gall (1996) proposed that the avoidance behaviour in vomit phobia was part of agoraphobia without panic. There are only four case reports in the literature describing treatment by behaviour therapy (McFadyen and Wyness, 1983; Herman, Rozensky and Mineka, 1993; Philips, 1985; Lesage and Lamontagne, 2003); one of systemic behaviour therapy (O'Connor, 1983); one of psychotherapy (Manassis and Kalman, 1990); two of hypnotherapy (Ritow, 1979; McKenzie, 1994) and one with a combination of the above (Wijesinghe, 1974). Many of these studies were published 10–25 years ago and since then there have been significant developments in our understanding of maintaining factors in anxiety, specifically the role of attentional biases, catastrophic beliefs and safety seeking behaviours.

The aim of this study was therefore exploratory: to learn more of the beliefs; safety seeking and avoidance behaviours in vomit phobia; the similarities and differences to panic and other

anxiety disorders, and develop a better understanding of the factors that maintain the fear. Ultimately, this should lead to the development of innovative treatment strategies that are in keeping with developments in other anxiety disorders.

Method

Two hundred and nine participants were recruited for the study. The sample consisted of three groups: vomit phobics ($n = 100$); panic disorder ($n = 28$) and a non-clinical control group ($n = 81$). Participants were recruited through various sources. Vomit phobics were recruited through the newsletters of the support group Gut Reaction and the National Phobics Society in the UK. The vomit phobic patients were self-diagnosed as it was not possible to interview them to confirm the diagnosis when they were sent a questionnaire. Individuals with panic disorder (as diagnosed by DSM IV) were recruited from a clinical setting. Non-clinical controls were either relatives or friends of the two patient groups. To recruit non-clinical controls, both patient groups were instructed, in the covering letter, to pass the Vomit Questionnaire (for healthy controls) to a relative or friend (male or female) who did not suffer from vomit phobia or another psychiatric disorder.

The clinical and control groups were asked to complete a questionnaire about their fear of vomiting and experience of nausea. Three versions of the Vomiting Questionnaire were designed for each of the participant groups:

- (a) Vomit Questionnaire for healthy controls: this was the shortest version of the questionnaire (total of 24 items) and consisted of demographics; general questions regarding past experiences of vomiting; the probability and awfulness of consequences that may occur after vomiting.
- (b) Vomit Questionnaire for Panic Disorder: this version consisted of 50 items and included the items for healthy controls and questions regarding: (i) frequency of sensations of nausea and perceived causes of nausea; (ii) Beck Anxiety Inventory (Beck, Epstein, Brown and Steer, 1988). The instructions were modified to ask participants to rate the degree each symptom was experienced during episodes of feeling sick rather than when they felt anxious; (iii) the Panic Cognitions Questionnaire (Salkovskis, Clark, Hackmann, Wells and Gelder, 1999). The questionnaire was modified so that instead of rating the thoughts experienced when they were most anxious, they were asked about the frequency and strength of thoughts going through their mind when they felt sick; (iv) a modified version of the Safety Behaviours Questionnaire (Salkovskis et al., 1999). The participants were asked the frequency of what they did when they felt sick. This differs from the original version, which asks what respondents do when they are most anxious or panicky. Seven safety seeking behaviours relevant to vomiting in the original questionnaire were also added.
- (c) Vomit Questionnaire for Vomit Phobics: this was the most detailed version (total of 63 items) and included items for both of the above as well as avoidance behaviour because of the vomit phobia; interference and past treatment of vomit phobia.

Data were analysed in SPSS using One Way Analysis of Variance for continuous data, which was normally distributed and Chi-square for the categorical data. Because of the large number of significance tests, we set the level of significance at $p < .01$.

Table 1 Demographics of vomit phobics, panic disorder and non-clinical controls

| | Vomit phobia Mean (SD) N = 100 | Panic disorder Mean (SD) N = 28 | Non-clinical controls Mean (SD) N = 81 | Significance |
|--------|--------------------------------------|---------------------------------------|--|--|
| Age | 37.61 (11.65) | 36.21 (12.98) | 41.75 (14.72) | $F(2, 188) = 2.99, p = <.053$ |
| Gender | $m = 3\%$ $f = 97\%$ | $m = 39\%$ $f = 61\%$ | $m = 52\%$ $f = 48\%$ | Chi-squared = 57.02, $df = 2, p <.0001$ |

Table 2 Fear of vomiting alone or in public

| | Vomit phobics N = 98 | Panic disorder N = 28 | Controls N = 77 |
|---|-------------------------|--------------------------|--------------------|
| I have no fear of myself vomiting | 0% (0) | 42.9% (12) | 82.4% (61) |
| I fear myself vomiting in public or social situations only | 3.1% (3) | 28.6% (8) | 9.5% (7) |
| My main fear is of myself vomiting in public but I have some fear of vomiting alone | 16.3% (16) | 7.1% (2) | 4.1% (3) |
| I fear myself vomiting whether it is in public/social situations or alone | 77.6% (76) | 17.9% (5) | 1.4% (1) |
| My main fear is vomiting alone but I also have some fear of vomiting in public or social situations | 1.0% (1) | 0% (0) | 2.7% (2) |
| I fear myself vomiting alone only | 2.0% (2) | 3.6% (1) | 0% (0) |

Results

The demographics of the three groups are shown in Table 1. The three groups did not differ significantly in age. There was a significant difference on gender between the groups, accounted for by far more women in the vomit phobic group. Unfortunately, at the time of collecting the data we were not aware of the previous survey by Lipsitz et al. (2001), and did not match our control group by gender.

The mean age of onset in the vomit phobic group was 9.8 years old (SD 6.9) and it was described as first becoming a problem at 11.6 years old (SD 7.2). The mean duration of vomit phobia was 25.9 years (SD 13.9; range 4 years to 65 years).

Fear of vomiting alone or in public situations

Participants were asked which statement best described their beliefs about vomiting alone or in public situations. A significant difference was found between the three groups (Chi-squared = 168.375, $df = 10, p <.0001$) (see Table 2). The majority (77.6%) of the vomit phobics did not discriminate between the fear of vomiting whether they were alone or in public situation. A minority (16.3%) feared vomiting mainly in public and social situations. If the panic disorder

Table 3 Internal vs. external fear in the fear of vomiting

| | Vomit phobia <i>N</i> = 100 | Panic disorder <i>N</i> = 28 | Non-clinical controls <i>N</i> = 77 |
|--|--------------------------------|---------------------------------|---|
| I have no fear of myself or others vomiting | 0% (0) | 53.6% (15) | 76.6% (59) |
| I only fear myself vomiting (not others) | 3% (3) | 25.0% (7) | 7.8% (6) |
| My main fear is of myself vomiting but I have some fear of others vomiting | 41% (41) | 10.7% (3) | 2.6% (2) |
| I fear myself vomiting and others vomiting equally | 47% (41) | 3.6% (1) | 5.2% (4) |
| My main fear is of others vomiting | 7% (7) | 7.1% (2) | 0% (0) |
| I only fear others vomiting (not myself) | 2.0% (2) | 0% (0) | 7.8% (6) |

and non-clinical controls had any fear of vomiting it was weighted towards vomiting in public or social situations.

Locus of fear

The locus of the fear of vomiting in all groups was explored by asking which statement best described their beliefs about vomiting (see Table 3). There was a significant difference between the three groups (Chi-squared = 164.11, $df = 10$, $p < .0001$). Forty-seven percent of vomit phobics feared themselves and others vomiting equally, and 41% feared mainly themselves vomiting and had some fear of others vomiting.

Frequency of vomiting

There were no significant differences between the clinical groups in the number of times they believed they had vomited in their life (mean for vomit phobics 4.71 vs. panic disorder 3.58) ($F(2,33) = 1.373$, $p < .268$) or in the number of times they had been ill (mean for vomit phobics 2.47 vs. panic disorder 1.50) ($F(1,18) = 0.789$, $p < .389$). Therefore, despite spending their life preventing themselves from becoming sick, the frequency of vomiting was not significantly greater in individuals with vomit phobia compared to the panic disorder group.

Sensations of nausea

Vomit phobics reported feeling nauseous significantly more often than the panic disorder group (Chi-squared = 23.123, $df = 7$, $p < .002$). The majority of the vomit phobics reported feeling nauseous almost every day or every other day (vomit phobics 51% v panic disorder 22%). When the two groups felt nauseous, the feeling would also last for a significantly longer duration in the vomit phobics compared to the panic disorder group, as 78% of the vomit phobics felt nauseous for more than an hour a day compared to 41% of the panic disorder group (Chi-squared = 17.543, $df = 5$, $p < .004$). Because the sensation of nausea was such a frequent symptom in a pilot study, we focused the next set of questions on the beliefs and safety behaviours about episodes of nausea. Data from the pilot study are not included in this report.

Anxiety inventory

Both clinical groups completed the Beck Anxiety Inventory (Beck et al., 1988). The mean score in vomit phobics was significantly higher compared to panic disorder (33.6 vs. 20.9) ($F(1,114) = 14.98, p < .0001$).

Interpretation of feeling sick

Both clinical groups completed the modified version of the Panic Cognitions Questionnaire (Salkovskis et al., 1999).

a) Frequency of thoughts. The frequency of the thought was rated on a scale from 1 (thought never occurs) to 5 (thought always occurs when I feel sick). Compared to the panic disorder group, vomit phobics were significantly more likely to report the following thoughts when they felt sick: “I am going to vomit” (mean 4.20 vs. 3.22), ($F(1,120) = 21.62, p < .0001$) and “I will be paralysed with fear” (35.21 vs. 18.18) ($F(1,116) = 5.22, p < .024$). There were no significant differences for the following thoughts: “I am going to pass out”; “I must have a brain tumour”; “I will have a heart attack”; “I will choke to death”; “I am going to act foolish”; “I am going blind”; “I will not be able to control myself”; “I will lose control of my bladder or bowels”; “I will hurt someone”; “I am going to have a stroke”; “I am going to go crazy”; “I am going to scream”; “I am going to babble or talk funny”; “I am going to die”; “I am seriously ill”; “I am going to suffocate”; and “I am going to faint”.

b) Strength of belief. The strength of the belief was measured using a scale from 0 (I do not believe this thought at all) to 100 (I am completely convinced this thought is true). Vomit phobics were significantly more likely to believe the following thoughts to be true: “I am going to vomit” (mean 69.1 vs. 50.4) ($F(1,117) = 8.987, p < .003$); “I will be paralysed with fear” (mean 57.0 vs. 25.2) ($F(1,115) = 15.23, p < .0001$). There were no other significant differences for any of the other thoughts that were listed above in the “frequency of thoughts”.

Perceived cause of nausea

Participants were asked to rate the strength of their belief about the cause of their nausea. They were presented with seven possible causes from anxiety to a variety of medical causes chosen from a pilot study and were requested to rate each problem using a scale from 0 (I do not believe this is the cause of my nausea) to 100 (I am completely convinced this is the cause of my nausea). The seven suggested causes were: (i) anxiety; (ii) irritable bowel syndrome; (iii) migraine; (iv) gastric/duodenal ulcer; (v) chemotherapy; (vi) middle ear disease/balance disorder; (vii) brain tumour. There were no significant differences in belief ratings between the vomit phobics and panic disorder group for any of the seven suggested causes.

Fearful consequences of vomiting

All three groups were presented with a list of possible feared consequences of vomiting that were chosen from a pilot study (see Table 4). Using a scale between 0 and 100, they were

Table 4 Probability of the likelihood of feared consequences occurring during vomiting

| Feared consequences | Vomit phobics | Panic disorder | Controls | Significance One-way ANOVA |
|---------------------------------|------------------------|-------------------------|--------------------------|-------------------------------------|
| | Mean (SD) N = 98 | Mean (SD) N = 28 | Mean (SD) N = 77 | |
| I will lose control | 63 _a (32.5) | 22 _b (24.7) | 10 _b (18.6) | $F(2,188) = 82.88$, $p < .0001$ |
| I will choke | 34 _a (27.2) | 20 _{ab} (28.7) | 9 _b (15.3) | $F(2,187) = 23.14$, $p < .0001$ |
| I will become very ill | 46 _a (30.7) | 17 _b (17.1) | 13.5 _b (22.0) | $F(2,189) = 35.09$, $p < .0001$ |
| I will die | 20 _a (25.7) | 11 _{ab} (21.7) | 3 _b (6.7) | $F(2,186) = 14.28$, $p < .0001$ |
| I will faint | 35 _a (37.7) | 22 _{ab} (28.7) | 11.7 _b (20.2) | $F(2,187) = 10.99$, $p < .0001$ |
| Others will find me repulsive | 50 _a (34.8) | 24 _b (30.0) | 23 _b (26.3) | $F(2,188) = 17.33$, $p < .0001$ |
| Others will not want to know me | 38 _a (35.1) | 13 _b (21.1) | 13 _b (18.3) | $F(2,187) = 17.49$, $p < .0001$ |

Note. Row means not sharing a common letter in the subscript are significantly different at least at $p < .01$.

asked to rate the following:

- (i) The likelihood of the event occurring on a scale from 0 (no possibility of occurring) to 100 (will most definitely occur), assuming they were to vomit.
- (ii) The awfulness of the event if it occurred on a scale from 0 (not at all bad) to 100 (the most awful thing I can think of), assuming they had vomited.

Significant differences were found in the mean probability ratings for the likelihood of each of the events occurring if they did vomit (Table 4). Vomit phobics reported significantly higher mean probabilities of most of the events occurring compared to both the non-clinical controls and the panic disorder group. For three events, vomit phobics rated significantly higher probability ratings for choking, dying and fainting compared to non-clinical controls but not the panic disorder group.

For the degree of awfulness of vomiting, five events revealed significant differences between the clinical groups (Table 5). The vomit phobics rated the degree of awfulness of losing control; of becoming ill; of others finding them repulsive; and of others not wanting to know them as significantly higher than the panic disorder group.

Safety seeking behaviours

Both clinical groups completed a modified version of the Safety Behaviours Questionnaire (Salkovskis et al., 1999) that asks about their behaviour when they felt sick. Vomit phobics were more likely to report looking for an escape route ($F(1,119) = 18.18$, $p < .00001$); trying to keep tight control of their behaviour ($F(1,121) = 15.11$, $p < .0001$); taking medication ($F(1,120) = 15.96$, $p < .0001$); reading ($F(1,118) = 16.16$, $p < .0001$); sucking antacids/mints

Table 5 Ratings of awfulness of the consequences of vomiting

| Consequences | Vomit phobics <i>N</i> = 98 | Panic disorder <i>N</i> = 28 | Controls <i>N</i> = 77 | Significance One-way ANOVA |
|---------------------------------|--------------------------------|---------------------------------|---------------------------|--------------------------------------|
| I will lose control | 72 _a (26.7) | 44 _b (40.2) | 25 _b (31.6) | $F(2,186) = 49.167$ $p < .0001$ |
| I will choke | 64 (32.7) | 48 (40.5) | 48 (45) | $F(2, 179) = 0.634$ $p < .53$ |
| I will become very ill | 72 _a (29.9) | 45 _b (38.9) | 30 _b (33.7) | $F(2,180) = 32.000$ $p < .0001$ |
| I will die | 60 (41.1) | 46 (48.7) | 48 (46.7) | $F(2, 173) = 1.823$ $p < .17$ |
| I will faint | 48 _a (33.7) | 46 _a (41.2) | 19 _b (23.8) | $F(2,173) = 17.226$, $p < .0001$ |
| Others will find me repulsive | 58 _a (34.0) | 35 _b (31.7) | 23 _b (28.6) | $F(2,180) = 25.325$, $p < .0001$ |
| Others will not want to know me | 52 _a (35.4) | 29 _b (29.4) | 20 _b (28.1) | $F(2,178) = 20.407$, $p < .0001$ |

Note. Row means not sharing a common letter in the subscript are significantly different at least at $p < .01$.

($F(1,118) = 17.07$, $p < 0.0001$) and moving very slowly ($F(1,122) = 10.8$, $p < .001$). Consistent with their psychopathology, the only safety seeking behaviour panic disorder patients were significantly more likely to report was physically checking the body (e.g. heart rate). Insignificant differences between the two clinical groups included distracting behaviours such as trying to think about other things, do more physical exercise, focusing attention on their body, eating something, sucking on ice, going to bed, asking people around for help and holding onto or leaning on someone.

Additional safety seeking behaviours reported by the vomit phobics included repeatedly checking the sell by date and the freshness of the food (29%); washing hands and brushing their teeth excessively (16%); checking the health of themselves and of others (16%); superstitious behaviour such as “not stepping on a 13th stair” or repeating a word or action a certain number of times to prevent vomiting (14%); seeking reassurance from others (12%); excessively cleaning of the kitchen area with products such as Dettol and anti-bacterial sprays (10%); washing food excessively (8%) and eating sweets (5%).

Avoidance behaviours

Only the vomit phobic group were asked to rate the degree of avoidance or restriction from a list of activities/situations *because* of their fear of vomiting (and not for other reasons). This was on a scale from 0 (never avoid) to 100 (always avoid). They were asked to make two ratings: when alone, and when accompanied by another person. Vomit phobics avoided a wide range of situations or activities because of their fear of vomiting. The most commonly avoided activities when alone included: illegal substances (92.3%); being around drunks (89.2%); fairground rides (86.9%); people who are ill (82.2%); boats (89.3%); holidays abroad (72.6%); travel by aeroplane (68.7%); drinking alcohol (66.1%); crowded places (65.1%); public transport

(64.4%); eating from salad bars or buffets (63.1%); visiting others in hospital (56.8%); pubs (55.65%); eating at restaurants (54.1%); public toilets (51.5%). There were no significant differences whether they were alone or accompanied by others.

In an open question, vomit phobics were asked if they avoided any specific foods because of their fear of vomiting. The most commonly avoided foods included: meat (54%) (poultry in particular); seafood and shellfish (51%); foreign meals (particularly curries) (36%); dairy products such as soft cheese, milk and ice cream (24%); fruit and vegetables (24%); fried fast food (21%); eggs (19%); carbohydrate foods such as bread, pasta and cakes (18%); pre-cooked foods (buffet food) (15%).

Forty-six out of 94 (49%) of the vomit phobics compared to 0 out of 27 (0%) of the panic disorder group who responded reported that they had avoided having children because of a fear of vomiting. (We did not ask whether having children was avoided because of a fear of panicking) (Chi-square = 21.32, $df = 1$, $p < .0001$). Five out of 94 (5.3%) of the vomit phobics reported having terminated a pregnancy because of their fear of vomiting, and none of the 18 panic disorder group who responded had done so. Neither group had ever placed pressure on a partner to terminate a pregnancy due to a fear of vomiting (vomit phobics 0 out of 3) vs. panic disorder 0 out of 8. Vomit phobics were more likely to avoid general anaesthesia or surgery because of a fear of vomiting (vomit phobics 34% (32/93) vs. panic disorder 0% (0/28) (chi-square = 13.09, $df = 1$, $p < .0001$).

Interference

Using a 10-point rating scale (0 representing “not at all” to 10 being “very severe”), vomit phobic patients indicated the degree their fear of vomiting had interfered with their life. On average, their fear of vomiting had moderately impaired their work (mean 5.4, SD 3.6). Examples include taking days off work when they think someone in their office may be ill. Impairment in social life was rated as moderate (mean 6.7, SD 2.8). An example would be avoiding social gatherings, parties and pubs where there was the risk of vomiting. Impairment was rated to a less extent in family life/domestic life (mean = 4.8, SD 3.4) This included avoiding contact with their children when they were ill and feeling guilty because they could not care for them. Handicap in intimate relationships was moderate (mean = 4.9, SD 3.4) but included terminating a pregnancy or sleeping in another room if their partner had been drinking.

Past treatment

The majority of the vomit phobics had sought help from their GP (70%) and had been referred to or sought help from a psychologist or psychiatrist (67%). Twenty-nine percent of the whole sample had received some form of therapy, which overall was rated as largely ineffective. Behaviour Therapy (BT) was mentioned by 20.3% of the vomit phobic patients in the study and was rated as least effective (mean = 1.71, SD 2.27). In comparison, cognitive behaviour therapy (CBT) was received by 17.9% of sample and was rated as moderately effective (mean = 5.23, SD 12.19). It was not, however, possible to establish the nature of BT or CBT. Medication (anti-depressants or anti-nausea drugs) was the most common therapy received (41.3%) and was rated as mildly effective (mean = 3.34, SD 2.58). Thirty-five percent of the whole sample had received hypnotherapy and also reported the effectiveness as mild

(mean = 2.07, *SD* 4.807). The percentages reported for the various treatments sought were based on the whole of the vomit phobia sample and not just the patients who sought therapy.

Discussion

Vomit phobia is regarded as a simple phobia but this survey reveals a complex and chronic disorder. There was an overwhelming bias of women with vomit phobia (97%). The mean duration of the phobia was of 25.9 years, of whom many were significantly handicapped to the extent of some who were avoiding surgery or pregnancy because of their fear of vomiting.

The design of the study can be criticised for the lack of a structured diagnostic interview, the lack of information on co-morbidity and the potential selection bias. Standardized questionnaires were also modified to focus on the role of nausea and this may have affected their psychometrics. The panic disorder group was smaller, not matched by sex and recruited from a different setting. Furthermore, the vomit phobic group had a selection bias of belonging to a support group and had chronic symptoms. There is a possible bias in the control group, which came from a population connected to the other two groups. Our control group may therefore have learnt some of the beliefs and behaviours of the vomit phobics, which may have influenced their response. In our opinion, exact matching of sex or a control group that was unrelated is unlikely to have led to significantly different results. It is one of the largest samples of vomit phobics studied and with the dearth of research in the area, it provides some clues on the phenomenology that can help to develop an understanding of the factors maintaining the disorder, and generate various hypotheses for future experimental studies.

One of the main findings is the overlap in the cognitive processes and behaviours with panic disorder (Clark, 1986). Vomit phobics frequently experience nausea in anticipation of vomiting as a symptom of anxiety. Furthermore, the selective attention and vigilance for vomiting is likely to intensify the sensations of nausea in a vicious circle. The sensation of nausea becomes misinterpreted as evidence of impending vomit and being paralyzed with fear. (We did not, however, enquire whether they interpreted other sensations of anxiety in the same or a different way). Vomiting is associated with the feared consequences of losing control, and to a lesser extent of becoming very ill or choking. These thoughts or images may become fused with reality. Beliefs about losing control or becoming ill are common in panic but the ratings of the probability and awfulness of the events were significantly higher in vomit phobics than the panic disorder group. Vomit phobics avoided situations that were associated with an increased risk of vomiting (e.g. pregnancy) or of others vomiting (e.g. being near a drunk). However, many of the situations avoided would be associated with an extremely low risk of vomiting (e.g. using a public toilet). In common with other anxiety disorders, safety seeking behaviours are likely to prevent individuals from disconfirming their fears of vomiting or intensifying the sensations. There were no significant differences in the activities avoided whether the vomit phobics were alone or accompanied by another person (which is different from individuals with panic disorder and agoraphobia who often use a partner or close relative to reduce the risk of panic attack occurring or to cope better in an attack).

There is also significant overlap in the phenomenology with that of obsessive compulsive disorder (with fears of contamination) or of health anxiety. For some vomit phobics, there was an over-inflated sense of responsibility in the beliefs about the degree of influence in their ability to prevent themselves vomiting and in the checking of sell-by dates or the health of others or of washing their hands excessively. There were also surprisingly high ratings for

beliefs about medical causes of nausea such as irritable bowel syndrome or migraine (rather than anxiety). There was no difference in the strength of conviction between the vomit phobia and panic disorder groups. This suggests that both groups have overlap with health anxiety to the same degree.

There is some overlap in vomit phobia with social anxiety. Most vomit phobics (77.6%) did not discriminate between their fear of vomiting in public or being alone. Only a minority had their main problems as being fear of negative evaluation and shame about vomiting in front of others. Overall, the concern that others will find them repulsive or will not want to know them if they vomit appears to be a secondary or additional concern for most vomit phobics.

Forty-one percent of vomit phobics feared themselves and others vomiting equally, and 47% feared mainly themselves vomiting and to a lesser extent in others. This suggests that the locus of fear in vomit phobia is predominantly internal. Only a small minority view others vomiting as the main threat. There may also be generalization of the fear in vomit phobics so that others vomiting may be a threat to themselves vomiting from contamination or because of the association and being reminded of their own fears.

What are the clinical implications for cognitive behaviour therapists and the role of exposure? Traditionally, behaviour therapy has used exposure in imagination to vomiting (O'Connor, 1983; Wijesinghe, 1974; Lydiard, Laraia, Howell and Ballenger, 1986), simulated vomit (McFadyen and Wyness, 1983), joke vomit, or videos of others vomiting (Lydiard et al., 1986; Philips, 1985). Videos of another person vomiting may have limited benefit since the main fear is of the self vomiting. Watching simulated vomiting or others vomit may also not be sufficiently realistic. Inducing vomiting by a prescribed emetic such as ipecachuana is described in behaviour therapist folklore. It could theoretically be justified for a single behavioural experiment to test the "awfulness" of vomiting, but it cannot be done repeatedly for ethical and practical reasons. Another obstacle to exposure to simulated or real vomit is that it may not alter the rating of the "awfulness" of vomiting or the beliefs about the consequences of vomiting. If exposure is used, then the ratings of the awfulness of vomiting and of the consequences of vomiting should be monitored to determine the effectiveness. Exposure to vomiting may be counter-productive; for example, one participant with vomit phobia described repeated exposure to vomiting by a prescribed emetic as confirming for her the awfulness of vomiting and making her even more determined to avoid vomiting. However, a different participant with vomit phobia who had had emergency surgery vomited repeatedly post-operatively, which she described as having benefit in reducing her fear for about a year before the phobia and the handicap returned.

Our study suggests a need to develop a detailed formulation and to identify the factors that are maintaining the beliefs and especially the safety seeking and avoidance behaviours. It is striking that for vomit phobics, despite a career of preventing themselves from vomiting, the frequency of vomiting is no less than the panic disorder group. Here the therapist might want the patient to conduct their own survey amongst friends or family to determine how frequently they have vomited during their lifetime in the absence of being drunk. Vomit phobics may, however, have a better recall of when they have been sick, which increases the frequency. Vomit phobics may recognize the low probability of the likelihood of vomiting but continue to believe that the awfulness of vomiting is too high or that the consequences of vomiting are too dangerous. They may hold an over-inflated responsibility about the degree of influence they have to prevent vomiting. As a result, their solution of avoidance, safety seeking behaviours and excessive vigilance for vomiting are now their problems. We would recommend

a method of engagement similar to that of hypochondriasis (Clark et al., 1998) or obsessive compulsive disorder with a “vicious flower” of maintaining factors and to present a patient with two alternative hypotheses to test out. For example, “Theory A” is that the individual has a problem of vomiting and losing control. “Theory B” would be that the problem is of being *worried* about vomiting and losing control, rating vomiting as being 100% awful and therefore trying too hard to prevent themselves from vomiting. The therapist might discuss metaphors about their solutions (e.g. man in the hole) (Hayes, Strosahl and Wilson, 1999). The emphasis in engagement is focussing on the handicap and distress caused by the avoidance and safety seeking behaviours and excessive vigilance. Another strategy may be to help patients to question their over-inflated sense of responsibility, so that they can drop their safety seeking and avoidance behaviours and act “as if” the problem is worrying about vomiting rather than treating it as a problem of vomiting. Thus it is crucial to conduct behavioural experiments and enter situations and activities associated with nausea (caused by anticipatory anxiety) without excessive vigilance and safety seeking behaviours. The aim would be to refocus attention in avoided situations to disconfirm the prediction of vomiting and improve the quality of life caused by the handicap. Here the emphasis is on being functional and following valued directions in life, as the strategy of trying never to vomit has a significant cost and yet has no effect on the frequency of vomiting.

If this were unsuccessful, then one can still use exposure in imagination to vomiting and role plays of the self vomiting (since this seems to be more important than others vomiting). The aim here would be to reduce the “awfulness” of vomiting to enable the patient to drop their avoidance, excessive vigilance and safety seeking behaviours. A therapist might also attempt to decrease the rating of the awfulness of vomiting and to develop more adaptive beliefs (for example “Being sick is very unpleasant, but not awful since there are much worse things that could happen”) and helping the patient to re-rate the awfulness of vomiting on a continuum (for example 0 being “unpleasant” up to 100 being “awful”). Another obstacle for vomit phobics is the fear of losing control if they did vomit. It may be important to explore the meaning or imagery associated with “losing control” and to practise “losing control” (similar to the treatment of panic disorder). For fears of negative evaluation about vomiting, a therapist may suggest the patient conducts a survey of attitudes towards someone else vomiting who is not drunk. The patient should make her predictions first and then ask others how repulsive they would find someone else vomiting, or for how long they would be repulsed, or the degree to which a person would make a fool of themselves.

These findings are therefore generally consistent with the results reported in other anxiety disorders. This includes in vomit phobia: misinterpreting the sensation of nausea; the inflated sense of responsibility; an attentional bias and vigilance on sensations of nausea; avoidance and safety seeking behaviours. The next steps are to develop a treatment manual for vomit phobics with these findings and, to evaluate it, a randomized controlled trial against other treatments that have case reports such as hypnotherapy or anxiety management. It is hoped this will lead to the development of more effective treatment for this handicapping, yet extremely under-researched disorder.

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