

Cognitive behaviour therapy for a specific phobia of vomiting

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Abstract. This article summarizes the current knowledge and treatment for a specific phobia of vomiting (SPOV). It is relatively uncommon compared to other specific phobias but may have been misdiagnosed in catchment-area surveys. The differential diagnosis of SPOV includes obsessive–compulsive disorder, hypochondriacal disorder and anorexia nervosa. I discuss the following: a model that is linked to past aversive experiences of vomiting; conducting a clinical assessment; making a formulation; psycho-education, engagement and therapy. The strategies employed depend on the formulation but are likely to include: exposure *in vivo* to cues of vomiting, exposure in imagination and role-plays of vomiting, imagery re-scripting, behavioural experiments; and dropping of safety-seeking behaviours.

Key words: Cognitive behaviour therapy, exposure, specific phobia, vomiting.

Epidemiology

A specific phobia of vomiting (SPOV) has been a neglected area of research. Epidemiological studies suggest that the prevalence of specific phobias *in general* is extremely common with a 12-month prevalence of about 7–13% (Boyd *et al.* 1990; Kessler *et al.* 2005; Becker *et al.* 2007; Stinson *et al.* 2007). Of these, only one study specifically enquired about a phobia of vomiting which had a prevalence of 0.1% (Becker *et al.* 2007). The study by Stinson *et al.* (2007) found the numbers of SPOV too small to analyse (Grant, personal communication in Stinson *et al.* 2007). These estimates are in sharp contrast to the estimates suggested by Kirkpatrick & Berg (1981, cited in Philips, 1985) and van Hout & Bouman (unpublished observations cited in van Overveld *et al.* 2008) who claim a prevalence of 1.7–3.1% for males and 6–7% for females. However, these studies are based on a *fear of vomiting* rather than diagnostic criteria for SPOV.

There is significant overlap in SPOV especially with health anxiety and obsessive–compulsive disorder, for which it may have been misdiagnosed in some of the surveys. Despite being uncommon, clinicians generally regard SPOV as more difficult to treat and different in psychopathology compared to other specific phobias. For example, people with SPOV tend to be more handicapped than people with other specific phobias (e.g. avoidance of a desired pregnancy or being significantly underweight from restriction of food; Manassis & Kalman, 1990).

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Characteristics of SPOV

Lipsitz *et al.* (2001) and Veale & Lambrou (2006) have published surveys of people with a SPOV from internet support groups. These studies suggest it commonly develops in childhood with a mean duration of about 25 years and occurs almost exclusively in women (for this reason I will refer to clients in the female gender). The gender differences may be reflected in the normal population – men may be more likely to view vomiting as a joke and even desire to vomit after heavy drinking. Most people with a SPOV are predominantly fearful of their self-vomiting (Veale & Lambrou, 2006). They may also strenuously try to avoid people who they believe to be at risk of vomiting usually because they believe it would put themselves at risk of vomiting. Even if there is no evidence that a person vomiting is contagious, such individuals are a stimulus for having to think about vomiting or feeling nauseous and a client may then believe that it would cause her to vomit by a process of magical thinking. A minority of people with SPOV are either exclusively or predominantly fearful of others vomiting (usually on them), as described by McKenzie (1994) and McFadyen & Wyness (1983). This might be described as a subtype of SPOV or a different specific phobia. These people may be easier to treat and should be investigated separately in any controlled trial. The rest of this article therefore assumes that a client is predominantly fearful of herself vomiting (or of herself and others equally).

Davidson *et al.* (2008) have highlighted the relationship between a heightened internal locus of control and a SPOV. This is in keeping with the experience of people with SPOV who fear losing control and who may convince themselves that they can avoid vomiting by controlling a reflex response. Van Overveld *et al.* (2008) found that people with SPOV have increased levels of disgust propensity and sensitivity and that this is the best predictor of symptoms in SPOV. Boschen (2007) discussed a cognitive behavioural model and research agenda. He described how people with SPOV may be more vulnerable to general anxiety and somatization (a tendency to express anxiety through somatic symptoms – specifically gastrointestinal symptoms, e.g. nausea, bloating, diarrhoea, ‘butterflies’). They may have suffered aversive experiences of themselves and others vomiting.

In extreme anxiety, some people (especially children) may vomit probably through the parasympathetic vagal pathway which can also lead to immobility, fainting, dissociation and defecation (Porges, 2007). The experience of vomiting as a child might be associated with the feeling of suffocation or death and be a factor in the development of SPOV. Ohman & Mineka (2001) suggest that a fear module is preferentially activated in aversive contexts by stimuli that are fear relevant in an evolutionary perspective. This can include food aversions that have developed after vomiting and could lead to avoidance of cues related to vomiting (Garcia *et al.* 1977). Such aversions are extremely enduring and this is a probable factor in the development of a SPOV. Ohman & Mineka (2001) also suggest that activation to such stimuli is automatic and is relatively impenetrable to cognitive control. They suggest that a fear module mediates an emotional level of fear learning that is relatively independent and dissociable from cognitive learning of stimulus relationships.

Diagnosis

A SPOV is relatively easy to diagnose when a client presents with a fear of vomiting. The key criteria for a specific phobia in DSM-IV (APA, 2000) are given in Table 1. The words in italics about vomiting have been added to the relevant criteria. DSM-IV classifies SPOV as Specific Phobia ‘Other type’ which may have the unintended effect of minimizing research into SPOV (Boschen, 2007).

Table 1. Key criteria for specific phobia of vomiting

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- (a) Marked and persistent fear of vomiting that is excessive or unreasonable, cued by the presence of vomit or anticipation of vomiting.
 - (b) Exposure to cues related to vomiting almost invariably provokes an immediate anxiety response, which may take the form of a situationally bound or situationally pre-disposed panic attack.
 - (c) The person recognizes that the fear of vomiting is excessive or unreasonable.
 - (d) Phobic situations related to vomiting are avoided or else endured with intense anxiety or distress.
 - (e) The avoidance, anxious anticipation, or distress interferes significantly with the person's normal routine, occupational (or academic) functioning, or social activities or relationships, or there is marked distress about having the phobia.
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I first discuss the differential diagnosis of SPOV from other anxiety disorders and anorexia nervosa and how they may be comorbid. It is particularly important to note the onset of a comorbid diagnosis and its functional relationship to SPOV.

Hypochondriacal disorder (health anxiety)

People with hypochondriacal disorder are concerned with the fear of being ill (in which the focus of a disease often varies over time) rather than vomiting *per se*. People with SPOV often have a significant degree of health anxiety in that they worry about infections or food poisoning that may cause them to vomit. Alternatively, they attribute the cause of nausea to a physical problem (e.g. irritable bowel syndrome, or middle ear disease) rather than anxiety. A diagnosis of a comorbid hypochondriacal disorder would be made if there were additional fears of illness unrelated to vomiting.

Obsessive–compulsive disorder (OCD)

People with SPOV often perform rituals or superstitious behaviours to prevent vomiting and these tend to develop after the SPOV. A comorbid diagnosis of OCD would be made if there were additional obsessions and compulsions that are unrelated to rituals and an over-inflated sense of influence over their ability to stop themselves or others vomiting.

Panic disorder

A diagnosis of panic disorder requires recurrent unexpected panic attacks with anticipatory anxiety about further attacks. Sometimes the main fear of panic disorder is of vomiting when feeling nauseous and anxious (but this is usually in the context of other physiological sensations and minimal avoidance of cues relating to vomiting). It is, however, still possible to have an additional comorbid spontaneous panic attacks unrelated to a SPOV.

Social phobia

The majority of people with a SPOV are fearful of vomiting whether they are alone or in social situations (often equally). The embarrassment of vomiting in public may be an additional burden for a person with a SPOV. Here the fear of others being critical of vomiting in public

may require extra focus in therapy. People who are predominantly fearful of the embarrassment of vomiting in public situations (and are not especially fearful of vomiting when they are alone) would have a diagnosis of social phobia. Such a case is described by Lesage & Lamontagne (1985). McNally (1997) also describes an atypical social phobic who would induce vomiting if she had to leave her home unexpectedly and before she had fully digested a meal. Thus vomiting in the privacy of her home was better than her negative evaluation of vomiting in public.

Other specific phobias

The fear of choking or suffocating on vomit may be a secondary problem in SPOV. In this case the main problem may be a specific phobia of suffocating from food lodging in the trachea or of choking on food lodging in the oesophagus. Hypersensitivity of the gag reflex (and avoidance of going to a dentist) may be an associated problem in SPOV because of the fear of retching and vomiting when gagging.

Anorexia nervosa

Individuals with a SPOV who are underweight may be misdiagnosed as having anorexia nervosa (Manassis & Kalman, 1990). Assessment of a person with a SPOV should include their body mass index, the degree to which a person restricts their food and an understanding of their motivation for doing so. The goal of a person with SPOV is to eliminate all risk of vomiting (or at least the amount that is vomited or cues that remind them of vomiting). People with a SPOV may therefore have disordered eating, but not an eating disorder, and do not want to be underweight. The sense of control and being underweight may, however, be reinforcing and theoretically it might be a route to developing a comorbid anorexia nervosa. A correct diagnosis of SPOV is important as such clients are unlikely to identify with a treatment model for eating disorders. They may feel very misunderstood as they do not want to be underweight or malnourished – it is an unintended consequence of the more important goal of not vomiting. Weight gain and restoration of normal patterns of eating in SPOV is still a target in treatment (but by a different route).

Treating SPOV

A meta-analysis of controlled trials on treating specific phobias found *in-vivo* exposure to have the most evidence (Wolitzky-Taylor *et al.* 2008). However the meta-analysis did not include specific phobias of vomiting and there are only six published case reports of SPOV treated by behaviour therapy or cognitive behaviour therapy (McFadyen & Wyness, 1983; Lesage & Lamontagne, 1985; Philips, 1985; Herman *et al.* 1993; Lesage & Lamontagne, 1985; Hunter & Anthony, 2009); one of imaginal coping (Moran & O'Brien, 2005); one of systemic behaviour therapy (O'Connor, 1983); one of psychotherapy (Manassis & Kalman, 1990); two of hypnotherapy (Ritow, 1979; McKenzie, 1994) and one with a combination of the above (Wijesinghe, 1974). There is likely to be a publication bias of successful cases and of those published, four are atypical: two predominantly fearful of others vomiting (McKenzie, 1994; McFadyen & Wyness, 1983) and two of atypical social phobia (Lesage & Lamontagne, 1985; McNally, 1997).

This article describes a cognitive behavioural formulation, which incorporates many of the findings from a previous survey (Veale & Lambrou, 2006), the paper by Boschen (2007), as well as advances made in the treatment of anxiety disorders over the past 10 years.

Treatment model

The model used is of aversive memories of vomiting becoming associated with fear. Past aversive experiences of oneself or others vomiting (and their cues) become fused with the present so that they are re-experienced as if they are about to be repeated. It is possible that vicarious learning may also occur. Once the association is learnt, the core appraisal is of nausea as impending vomit (Clark, 1988) and the evaluation of vomiting as one of extreme awfulness leading to further anxiety and nausea.

There are various responses to a current threat of impending vomit.

- (a) Experiential avoidance of thoughts and images of oneself or others vomiting and interoceptive cues for nausea.
- (b) Avoidance of external threats that could lead to vomiting or nausea.
- (c) Hyper-vigilance for monitoring external threats (e.g. people who could be ill or an escape route).
- (d) Self-focused attention for monitoring of nausea.
- (e) Worry, self-reassurance and mental planning of escape routes from others vomiting.
- (f) An over-inflated sense of responsibility and belief in one's ability to stop oneself from vomiting.
- (g) Safety-seeking behaviours including compulsive checking and reassurance seeking.

In a functional analysis, all these responses will have an unintended consequence of increasing the frequency of thoughts about vomiting and symptoms of nausea and will prevent disconfirmation of the threat of vomiting. Avoidance of people and activities related to vomiting prevents extinction and prevents disconfirmation of expectations and the 'awfulness' of a fear and reinforces avoidance of nausea and cues related to vomiting. Vomiting may occur rarely but it does not lead to a diminished fear response, perhaps because it does not occur frequently enough and the association with fear is very powerful.

Developmental formulation

The therapist should take a chronological history of the client's experiences of vomiting from the earliest age she can recall. This should include a past history of (a) when she vomited, (b) when she experienced panic or severe anxiety and strongly believed she was going to vomit, (c) when she witnessed others vomiting or was vomited upon. The therapist should also determine the age and the context in which the event occurred (e.g. an infection), and ask about how anxiety-provoking each experience was (e.g. on a scale between 0 and 10).

Imagery is a powerful means of evoking emotion and may be helpful to understand the associations or meaning attached to such experiences. If the client is willing (as this is a form of exposure in imagination), the therapist can ask her to close her eyes and re-experience the most distressing experiences in her mind's eye and to describe this in the first-person present tense from a field perspective (i.e. not looking back as an observer of oneself). Do any of

these experiences of vomiting seem relevant to her current problem? Are there any relevant antecedents to vomiting – e.g. physical or sexual abuse? What aspect of the vomiting is totally unbearable? What happened after these experiences? For example, was a relative very critical of her vomiting? (For some, parental or peer attitudes to vomiting is relevant. For example, a woman with a SPOV may have learned her fear as a child from observing her own mother.) Did she feel abandoned? Did she think she was going to die or be severely harmed? Was there a pattern of gradual increase in distress and avoidance after each event of vomiting? Is one experience more relevant or distressing than others? Do any of these memories link to current ‘flashbacks’ that she might now be experiencing. If not, how often does she experience intrusive images of herself or others being sick (‘flash-forwards’)?

The vomiting history and any meaning attached to these experiences can be used for a developmental formulation of how the phobia has developed. Note that it may be difficult to identify any associations or meaning of vomiting from very early experiences and the only association is that of overwhelming fear.

Current history

Beliefs about gastrointestinal sensations

The following issues are usually explored for beliefs about feeling sick and vomiting. How often and in what situations does the client currently feel sick or experience other gastrointestinal sensations? How strongly does she believe at the time of feeling sick that she will vomit? At the time, how strongly does she believe she may lose control or be paralysed with fear? If yes, what does losing control mean? If she believes that nausea is caused by a medical problem (rather than anxiety) what does she believe are the implications?

Evaluations

Most people with a SPOV evaluate vomiting as being 100% awful and if given the choice would prefer to die rather than to vomit. The therapist should try to explore the awfulness of vomiting but be aware that people with SPOV are usually unable to articulate why vomiting is so awful other than knowing they have to avoid it all costs.

Cognitive processes

The most common cognitive process in SPOV is of worry and mentally planning how to prevent oneself from being sick or how to cope with someone else being sick or a related cue. The therapist should try to identify the client’s positive beliefs for worrying (e.g. ‘If I worry I can mentally prepare myself for vomiting’, or ‘If I worry I can then prevent vomiting from happening’) and the unintended consequences of the worry. There are also attentional biases that are important to target: How often is she self-focused and monitoring bodily sensations such as nausea? How often is she vigilant for others who may be sick or other cues that are related to vomiting? How often is she looking for an escape route or people who might be able to help her if she were to vomit? In what contexts do these attentional biases occur? What is the unintended consequence of these biases?

Avoidance

A detailed hierarchy is required of all people, situations or activities that are avoided because of the SPOV. Avoidance can usually be divided into external or internal triggers and the former a trigger for the latter. External triggers include:

- (a) Adults or children who could either be ill (and are therefore viewed as contagious) or who may be at risk of vomiting (e.g. drunks). The avoidance might extend to restricting the activities of any children who may be in contact with other children at school or at a party.
- (b) Avoidance of situations or activities such as going on holiday abroad, places where the client might see drunks, visiting people who might be ill, travelling by boat, travel by aeroplane, drinking alcohol in normal amounts, being in crowded places, using public transport, pregnancy, fairground rides, using public toilets or door handles, medication, going to the dentist, anaesthesia or becoming pregnant.
- (c) Avoidance of food. Food restriction may occur in a variety of ways:
 - Restricting the amount of food eaten that reaches one's stomach, thus reducing the amount that might be vomited. Alternatively a restricted amount is equated with feeling 'full', as eating more than this could lead to vomiting.
 - Restricting food in certain contexts (e.g. not eating food cooked by someone else or in an unfamiliar restaurant).
 - Restricting certain types of food. Certain foods (e.g. shellfish, poultry curries, dairy products and fried fast food) might have a slightly higher risk for vomiting. Alternatively certain foods may have become associated with a past experience of vomiting which have now led to avoidance. Others will only eat a narrow range of idiosyncratic foods which are regarded as safe. An example is a woman who restricted her food to chocolate, crisps and Coke which had to be bought from a specific supermarket. Restricting food may lead to becoming underweight, which may have a number of physiological consequences which are often reinforcing – for example emotional numbness which may reduce anxiety. For others disordered eating may be a further factor in increasing nausea.

Avoidance may also be internal and include:

- (a) Experiential avoidance of thoughts or images relating to vomiting. People with SPOV may not want to even accept their vulnerability to vomiting and are likely to fuse their thoughts of vomiting with past associations so they are 'felt' to be in the present. Euphemisms such as 'being ill' or 'unwell' may be used by clients when discussing vomiting. Avoidance may be described as distraction, suppression or some other behaviour that has the function of preventing thinking about vomiting.
- (b) Experiential avoidance of nausea and gastrointestinal symptoms. These might include 'feeling bloated' leading to restriction of the amount of drink or food eaten.

Safety-seeking behaviours

Safety-seeking behaviours are performed as a response when a client is unable to escape or as a means of controlling the anticipation of being sick. These behaviours may be either an overt behaviour or a covert mental act performed to prevent oneself or others being sick. Overt behaviours include compulsive checking of 'sell by' dates and freshness of food, reassurance seeking, excessive cooking of food, excessive washing of hands or cleaning of the kitchen

area with anti-bacterial sprays and gels, superstitious behaviours such as ‘not stepping on the thirteenth stair’ or repeating a word or action a certain number of times to prevent herself from vomiting. Membership of an internet support group may be a safety-seeking behaviour. Initially membership may be very supportive especially regarding communicating with others with the same fears. However, membership may also raise anxiety with frequent virus alerts and constant seeking of reassurance from one another by phone, texts or via a bulletin board.

People with SPOV frequently drink bottled water or a sugary fizzy drink, which they carry around with them. This may be a form of threat monitoring (e.g. ‘If water’s going down, then nothing can come up’) or a prevention of vomiting (e.g. ‘It can stop me from vomiting’). However, it has the consequences of increasing preoccupation, diminishing appetite, and perhaps causing nausea and weight loss.

Covert acts include the client mentally reviewing her actions and reassuring herself that she will not be sick. Various safety-seeking behaviours are also performed in order to prevent impending vomit. People with SPOV attempt mentally to control the reflex act of vomiting. They may take anti-nausea medication or suck antacids, ice or mints. These behaviours are reinforcing because they appear to work but have the unintended consequence of increasing self-focused attention and preoccupation with vomiting and prevent disconfirmation that vomiting will not occur.

Assessment measures

There are no published measures for measuring outcome in SPOV but the author is currently evaluating a Vomit Phobic Inventory, which is a 14-item self-report measure that focuses on cognitive processes, safety and avoidance behaviours that could be used weekly. The Emetophobia Questionnaire is a 21-item self-report questionnaire that has good reliability and validity against a behavioural avoidance test (Boschen & Riddel, unpublished observations). These authors have also devised a behavioural approach test that involves measuring how close a person is willing to approach a bucket containing fake vomit (created from a recipe).

Goals and valued directions

Clients with SPOV are often ambivalent about change when they first present. Their goals may be to lose their fear of vomiting but without really accepting the possibility that they might vomit in the future. Try to agree on specific goals about what will be achieved by the end of therapy (e.g. ‘I want to be able to go on holiday abroad’; ‘I want to be able to eat out at a restaurant with my family’; ‘I want to let my children get to school’). Try to negotiate goals that emphasize improving the quality of life and participating in activities that are important to them rather than ‘no longer feeling anxious about vomiting’ but which accept the possibility of vomiting in the future. Exploring their valued directions in life may help this, e.g. one domain might be in what way they want to be a good mother for their children despite their fear (Hayes *et al.* 1999).

Psycho-education and engagement

The therapist should normalize the experience of vomiting as being an adaptive process that increases the client’s chances of survival if she became ill. Information may be given about how vomiting is beneficial and prevents disease by getting rid of toxins. Thus the rat is the only animal that cannot vomit and one reason why rat poison is so effective.

People with SPOV may believe that if vomiting were to occur it would last for many days. Here the therapist can provide normative information on how long vomiting normally lasts for after an infection or food poisoning, this might be assisted by a survey of others about how long vomiting persisted when they were ill.

Others believe that they can influence or control their vomiting. However, the act of vomiting is a primitive reflex act that cannot be inhibited. People with SPOV tend to focus on the risk of infection or food poisoning but the reflex can be triggered by a wide variety of stimuli around the body (e.g. mechanically in gynaecological problems, a stretched gall-bladder or stomach or by certain drugs or metabolic problems that act on the brainstem, extreme fear, severe pain, certain smells). If a vomit reflex is triggered then it cannot be 'controlled'. This is difficult to demonstrate in a behavioural experiment despite the above information.

Therapy begins with a developmental formulation. If there are early adverse experiences of vomiting they can be linked to current problems and discussed as 'ghosts of the past' that have not yet been updated. It is also worth the therapist emphasizing that developing a SPOV is highly understandable given the way that humans and animals can easily become averse to certain foods after, e.g. food poisoning or an infection, and avoid situations that remind them of vomiting. Validate the fact that vomiting in childhood can be very panic inducing (e.g. the association with the feeling of suffocation, choking or death). Explain that as an adult you know these associations are not true, although they remain powerfully linked in the mind. However, there are reasons to be optimistic because even things learned over many years can be 'unlearned' and many people with SPOV can overcome their problem or make it more manageable. Note that not everyone will be able to recall early adverse experiences of vomiting as they may no longer be accessible.

A client with SPOV is often reluctant to engage in any treatment that involves exposure to any risk of vomiting. She may have marked health anxiety and believe that she is especially vulnerable to vomiting or at a higher risk of vomiting compared to others. She may have received a diagnosis of irritable bowel syndrome or an allergy as an explanation for nausea and other gastrointestinal symptoms. Engagement may be assisted following the model of hypochondriasis (Clark *et al.* 1998), where a client is presented with two alternative hypotheses to test out in therapy. 'Theory A' (the one she has been following) is, for example, that she is more prone to vomiting and that she has an increased ability to control her vomiting. 'Theory B' is that the problem is of worrying excessively about vomiting and trying too hard to prevent herself from vomiting (for which the unintended consequences are her *feeling* that she is more vulnerable to vomiting; *feeling* more nausea from anxiety, or *feeling* she has control over her vomiting.)

The therapist might discuss metaphors about solutions (e.g. man in the hole; Hayes *et al.* 1999). The emphasis in engagement is focusing on the how symptoms of nausea, the handicap and distress are maintained by avoidance, safety-seeking behaviours and excessive vigilance. Thus the goals in therapy for the client are to become functional and follow their important directions in life, as trying not to vomit has a significant cost and, as yet, no or little effect on the frequency of vomiting.

Maintenance model

Progress can be made to an understanding of the current processes that maintain the client's fear by drawing an idiosyncratic model (Fig. 1). Central to the model is the way a person with SPOV may (a) re-experience past memories of vomit or vomiting and fuse them

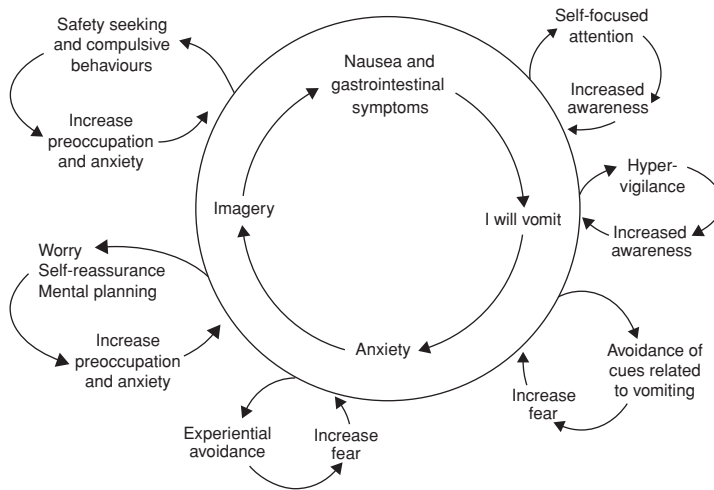


Fig. 1. Maintenance of specific phobia of vomiting.

with the present, (b) misinterpret nausea or thoughts and images of vomiting as evidence of impending vomit, (c) evaluate vomiting as 100% awful (see Fig. 1), (d) become more anxious and experience further sensations of nausea and gastrointestinal symptoms in a vicious circle.

The model naturally leads to a dialogue about the role of safety-seeking and avoidance behaviours and the degree to which the client believes that her behaviours prevent herself from vomiting. The aim of therapy is to test Theory B, to enable the client to drop her safety-seeking and avoidance behaviours and act 'as if' the problem is of trying too hard to prevent herself from vomiting. Thus it is crucial to conduct behavioural experiments and enter situations and activities associated with nausea without self-focused attention and safety-seeking behaviours. This will involve allowing herself to experience intrusive thoughts and images of vomiting or sensations of nausea and then reducing safety-seeking and avoidance behaviours. In time this will reduce the nausea and improve the quality of life caused by the handicap (and make no significant difference to whether they vomited or not).

Not having control over a reflex act is a difficult concept for many people with SPOV who believe that if they are going to vomit they can prevent it from happening. This is an over-inflated sense of responsibility similar to that found in OCD and generalized anxiety disorder (GAD). Clients may believe that their safety-seeking behaviours have prevented them from vomiting in the past and are often proud of the number of years since they last vomited. Preliminary surveys suggest that the frequency of vomiting is no different in people with or without a vomit phobia despite a lifetime of trying to prevent themselves from vomiting. However, this needs replicating in a prospective study with a larger number of controls as a person with SPOV may have a better recall for when they have been sick. Vomiting from food poisoning or an infectious illness in an adult in a developed country is still a relatively rare event. Other events such as binge drinking or eating from a roadside stall in a third-world country may be associated with a higher risk of vomiting but are not something that you will be asking your client to do.

People with a SPOV may recognize the low probability of the likelihood of vomiting but continue to believe that the awfulness of vomiting is too great and do everything they believe necessary to stop themselves from vomiting (or even thinking about it). In this respect it has similarities with an over-inflated sense of responsibility and the need for certainty as in OCD (Salkovskis *et al.* 2000). Many clients say that they would prefer to be in control and die rather than vomit. For this reason it may be more helpful to focus the individual on what she really wants her life to represent – rather than being someone whose life is dedicated to not vomiting or to following the values that were identified in her assessment. A person with SPOV is being asked to act *as if* they do not have a SPOV even if they believe that vomiting is awful or life threatening. This has many implications in trying to give up control over vomiting and accepting the uncertainty that vomiting may occur. It is helpful to explore the meaning or imagery associated with ‘losing control’ (e.g. the idea of not being able to prevent oneself from vomiting and the vomiting persisting). A major step for the client is accepting that if her body needs to vomit (e.g. food poisoning) then there is very little control in preventing vomiting (and it would be dangerous if one could inhibit removal of toxins). One can partly demonstrate magical thinking by a behavioural experiment in which the client is encouraged to wish herself vomiting when she feels nauseous or bloated. It is also possible to demonstrate the lack of control over intrusive thoughts and images of vomiting by standard thought control experiments (e.g. try not to think of a ‘pink elephant’). The message is that trying to control thoughts or feelings of vomiting is the problem that increases distress and not the solution.

For the client, the fear of losing control is related to the need for certainty that she is not going to vomit. As in OCD, this is questioned by pragmatism. There is no guarantee that whatever a person with SPOV does in therapy to overcome her fears will not be associated with vomiting (or it may occur by coincidence for another reason). However, the cost of failure to overcome her fear and trying to prevent herself from vomiting is the guarantee that she will be disturbed by a SPOV for the rest of her life and be unable to follow her valued directions in life.

Exposure *in vivo*

The evidence-based treatment for specific phobias is graded exposure *in vivo*. Graded exposure involves a hierarchy that is negotiated and exposure done *in vivo* within sessions or as homework alone or with the assistance of a relative or friend. The choice of cues for exposure will therefore be guided by the assessment, the hierarchy of cues and formulation. Some valued directions such as the need to increase weight or to be an effective parent for child care may also determine the priority of which tasks take greater priority.

The guiding principle for graded exposure *in vivo* in SPOV is to choose both (a) internal cues of vomiting (e.g. past memories of vomiting, thoughts, images or sensations associated with vomiting), (b) external cues for vomiting that are being avoided or devised for the treatment programme (e.g. smell of vomit). Graded exposure needs to be done without safety-seeking behaviours, self-focused attention and other attentional biases in monitoring nausea and other gastrointestinal symptoms. It needs to be done continuously until the anxiety has effectively subsided. Last, exposure means full acceptance that one has very limited control of any intrusive thoughts or images of the idea of oneself vomiting in the future. An example of an exposure hierarchy is shown in Table 2 and the client’s history is given below.

Table 2. Example of exposure hierarchy

Cue	Anticipated SUDS (0–100%)
Drinking a glass of wine with evening meal	80
Going to visit a friend who is ill in hospital	90
Using a public toilet	90
Visiting dentist to have teeth examined	95
Going out socially in town on Saturday night when pubs close	95
Going on holiday abroad	95
Caring for a person who vomits without escaping	95
Eating a full plate of food each meal	95
Eating seafood	95
Eating poultry	95
Eating any food I choose at a restaurant	95
Listening to sound of vomiting on a loop	95
Smelling and looking at bucket of vomit	100
Role-playing herself vomiting with sound of vomiting	100

SUDS, Subjective Units of Discomfort Scale

Case history

Ms A is a 25-year-old single woman who is a student midwife. Her main problem is of herself vomiting but there is some fear of others vomiting because she may vomit from catching an illness or watching others vomit. She sought help after she escaped from a ward where a pregnant woman was vomiting. Her preoccupation with vomiting lasts about 5 hours per day. The onset occurred when she was 8 years old and it has been a significant problem for the past 5 years. She has not vomited for 15 years. She eats a restricted diet and has a number of the avoidance behaviours listed in Table 1. She has a number of aversive memories of herself vomiting aged 9 years and of her mother vomiting aged 12 years. Engagement occurred by developing a shared formulation of the problem by drawing an idiosyncratic model using information gathered from self-report measures and clinical assessment of the maintaining factors. She learnt how her responses to a fear of vomiting (her solutions of avoidance, safety-seeking behaviours, worry, self-monitoring and excessive vigilance of vomiting) was now making her more anxious and experiencing more nausea in a vicious circle. The costs on the patient's quality of life were discussed as well as the adaptive function of vomiting. The client's expectations of treatment and specific goals were derived by operationalizing the ability to act in her valued directions despite a fear of vomiting. She participated in exposure *in vivo* for various avoidance behaviours listed in Table 1 without her safety-seeking behaviours. She carried out imaginal re-living and re-scripting of past aversive experiences of vomiting. She learnt to stop monitoring her nausea and to give up trying to control her thoughts and sensations of nausea. She eventually did a role-play of vomiting using the smell of vomit and with a washing bowl of a vomit recipe. She felt she would always have a fear of vomiting but was able to return to being a midwife and to go out socially and eat food in restaurants despite her fear.

One can either use a rationale of habituation or a behavioural experiment paradigm. The rationale for habituation is that anxiety about vomiting (and therefore sensations of nausea) will decrease over time with increasing exposure. Behavioural experiments do not involve

Table 3. *Recipe for vomit*

Tinned rice	
Minestrone or chicken soup mix	Vinegar
Parmesan cheese	Sour milk

testing whether vomiting occurred or not (since a person with SPOV might discount their experience and believe that there is always a next time to vomit). The experiment is about determining whether the distress lasted as long as predicted or whether their experience best fits with Theory A or Theory B (see Psycho-education and engagement section on engagement). It may also assist in differentiating between the experience of nausea or other symptoms of anxiety and that associated with vomiting.

In most people with SPOV, the phobia is of themselves *vomiting* not of vomit. However, for exposure, it is impractical and unethical to induce *repeated* vomiting by the use of emetics or to self-induce vomiting. Indeed it could make a client even more determined never to vomit again and *repeated* vomiting could theoretically lead to electrolyte imbalances or dental damage. There might be exceptions for inducing vomiting in a one-off behavioural experiment in individuals who have never vomited, but in general I would not recommend induction of vomiting. If induced vomiting is used then it is important to report it as a single case experimental design with predictions about the nature of vomiting (e.g. rating of the awfulness) before the induction and then compared after vomiting. It is also vital for long-term follow-up to be reported. I am aware of one client with SPOV who had emergency abdominal surgery and vomited repeatedly post-operatively. She decreased her fear and rating of the awfulness of the vomiting but over the following year her fear and rating of awfulness returned to the previous level.

Vomit (or a verbal, visual, audio, olfactory or physical representation of vomit) may be a trigger that increases anxiety about vomiting. Exposure to such cues is therefore a means towards an end and can be incorporated into a hierarchy of graded exposure. This includes exposure in imagination to the client vomiting in the future. Existing case descriptions have focused on exposure in imagination to vomiting (Wijesinghe, 1974; O'Connor, 1983; Lydiard *et al.* 1986), simulated vomit (McFadyen & Wyness, 1983), joke vomit, or videos of others vomiting (Philips, 1985; Lydiard *et al.* 1986). These are all valid and a common recipe is provided in Table 3 (McFadyen & Wyness, 1983). It may also be important to customize the recipe to resemble a previous experience (e.g. spaghetti bolognese).

Combining the exposure in imagination for vomiting with the smell of vomit is especially pungent. Butyric acid is responsible for the smell of vomit and can be purchased in a concentrated form from specialist suppliers over the internet (e.g. <http://www.camlab.co.uk>). It is also found naturally in rancid butter and Parmesan cheese. Locations of the natural smell of vomit include casualty departments in the early evening (especially children's area). The therapist and client may also role-play themselves vomiting with a plastic bucket with the recipe for vomit and added butyric acid.

Videos of others vomiting can be found by searching on <http://www.youtube.com/> and <http://video.search.yahoo.com/>. A graded exposure programme to pictures of vomiting can be found on <http://www.emetophobia.bravehost.com/>. Other 'resources' include <http://www.ratemyvomit.com/>, although I am not sure about the value of pictures such as people

sleeping in vomit. Although a therapist (usually male) may find the Mr Creosote scene in Monty Python's *Meaning of Life* very funny, it is probably not helpful for someone with a SPOV. Audio clips of vomiting can also be downloaded from the internet and placed on a loop.

The impact of exposure to auditory and visual cues of vomiting can be maximized by combining them with exposure in imagination to the client vomiting at the same time especially if memories of past experiences of vomiting are being avoided. For some people, touching pictures of vomiting and describing it as if they are vomiting can be helpful. Exposure can be made to the word 'vomit' and 'vomiting' or affixed as posters around the home. Repeating the word 'vomit' for several minutes may be helpful when the word is a term that is avoided or euphemisms are used.

Some clients report that watching simulated or real vomiting by others may not be sufficiently realistic and does not reduce rating the 'awfulness' of themselves vomiting. Special attention should be made whether the client is using neutralizing, self-reassurance or other safety behaviours believing that she can prevent herself from vomiting. Exposure can also be done to internal sensations that are cues to vomiting (Hunter & Antony, 2009). They include cues such as drinking a full can of a fizzy drink in one sitting and eating more at mealtimes to induce a sensation of bloatedness; holding mouthwash in mouth for 30 seconds and reading in a moving vehicle to induce a sensation of nausea.

Exposure in imagination and imagery re-scripting

If the client has identified intrusive imagery and aversive memories of vomiting as a child then the therapist may need to add exposure in imagination or as imagery re-scripting. The procedure is derived from Arntz & Weertman (1999) and Smucker & Dancu (1999). It has not yet been evaluated in SPOV but the procedure has been successfully used in social phobia (Wild *et al.* 2008) and other anxiety disorders. Clients are asked to describe their aversive memory in three stages. The first stage involves re-living the aversive memories from the age when they first experienced vomiting. This consists of exposure in imagination and should be described in the first person, present tense and from a field perspective in as much detail as possible. The client should first state their age and the context. Recounting the memory should be done in slow motion like a video frame-by-frame account. Ensure that there are no 'hot spots' that are being avoided and if necessary ask the client to describe in more detail those aspects which are more anxiety provoking. She should describe the sensations of the vomiting as well as the colour, taste and texture of the vomit. Ask the child to describe the meaning of the experience and what the child needs or would like to happen next. This allows the meaning of the event to be updated in the next phase of repeating the memory from an adult's self-perspective. (For further details of imagery re-scripting see the above references.) A variation on imagery re-scripting is 'Competence Imagery'. This is described by Moran & O'Brien (2005) in a girl who avoided social environments because she feared encountering vomit or others vomiting (and was not therefore typical of people with SPOV). Therapy included systematically pairing anxiety-provoking conditioned stimuli (video scenes of someone vomiting) with competence images. The client chose to imagine playing her musical instruments, swimming lengths in the pool, or practising yoga postures, which were actions she believed she could perform well. Theoretically this could be used in others with SPOV with exposure to cues associated with vomiting.

Dropping safety behaviours

Safety-seeking behaviours will interfere in exposure and are the main obstacle to progress. The goal is to drop all the responses that are believed to maintain the fear. This includes cognitive processes such as worry and attentional biases towards potential risks. If you identified the meta-cognitions about the cognitive processes (e.g. 'It can help me mentally prepare myself for vomiting'), then these can usually be challenged pragmatically on the basis of their unintended consequences and their costs (e.g. 'How effective is worry at mentally preparing yourself? Is this something you would teach others? If not, why not?; What is the cost of mental planning?').

Dropping of safety-seeking behaviours and self-focused attention may be assisted by behavioural experiments in which the behaviour is either increased or decreased and asking the client to make specific predictions. Does the use of a safety-seeking behaviour or compulsion increase or decrease her worry and distress about vomiting? Does focusing her attention internally and monitoring the level of nausea increase distress compared to focusing externally? A similar approach can be used for compulsions. Some clients excessively check the freshness of food, have abnormal hygiene measures, check excessively health of themselves and others, follow superstitious behaviours, repeatedly seek reassurance, perform excessive cleaning of kitchen area and toilet. Compulsions are identified and can be added to the hierarchy for them to be discontinued. Similar to people with OCD, it is usually important to identify the termination criteria for a compulsion (e.g. feeling comfortable) that are problematic in maintaining the behaviour and to ensure that if a compulsion is conducted, then the patient 'undoes' it by re-exposing herself to the original risk.

For fears of negative evaluation by others about vomiting, the therapist may suggest their client conducts a survey of attitudes towards someone else vomiting who is ill. The client 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. A therapist may role-play vomiting with fake vomit and take a survey of people passing.

Pharmacotherapy

There is no evidence base for the use of pharmacotherapy in specific phobias, but there might be a rationale for a selective serotonin reuptake inhibitor (SSRI) in those with severe symptoms that overlap with OCD and who are unresponsive to CBT. Nausea is a potential side-effect of a SSRI which might be used as a form of exposure or may mean that it is an unacceptable approach.

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Declaration of Interest

None.

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Learning objectives

By the end of this article, the reader will have obtained knowledge on:

- (1) Epidemiology, clinical characteristics and differential diagnosis of a specific phobia of vomiting (SPOV).
- (2) Making an assessment and formulation in a person with SPOV.
- (3) Provide psycho-education about vomiting and plan a programme of change.
- (4) Using exposure *in vivo* or behavioural experiments in a person with SPOV.
- (5) Identify safety seeking behaviours and compulsions that interfere in exposure.