

Exposure therapy for emetophobia: A case study with three-year follow-up



Danielle J. Maack^{a,*}, Brett J. Deacon^b, Mimi Zhao^a

^a University of Mississippi, Department of Psychology, 205 Peabody Building, University, MS 38677, United States

^b University of Wyoming, Department of Psychology, Department 3415, 1000 E University Avenue, Laramie, WY 820711000, United States

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ABSTRACT

Emetophobia, also referred to as a specific phobia of vomiting, is a largely under-researched and poorly understood disorder with prevalence estimates of ranging between 1.7 and 3.1% for men and 6 and 7% for women (Hunter & Antony, 2009; Philips, 1985). The current case study, therefore, sought to methodically apply exposure-based behavioral treatment to the treatment of a 26 year-old, Hispanic, female suffering from emetophobia. Although not as powerful as a randomized design, this description may still add to the existing emetophobia literature through the illustration of adaptation of published behavioral treatments for other specific phobias. The case presented was successful in terms of outcome, and includes a three-year follow up wherein treatment gains were measurably maintained.

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1. Introduction

Emetophobia, a specific phobia of vomiting, is an under-researched and poorly understood anxiety disorder (Boschen, 2007; Marks, 1987; van Hout & Bouman, 2012; Veale & Lambrou, 2006). Prevalence estimates of emetophobia range between 1.7 and 3.1% for men and 6 and 7% for women (Hunter & Antony, 2009; Philips, 1985), yet few empirical data are available regarding this specific disorder. Emetophobia is considered to be a chronic problem with early onset (Lipsitz, Fyer, Paterniti, & Klein, 2001), and it often produces clinically significant distress and impairment in social and other areas of functioning.

Fear of vomiting can be triggered by both internal and external stimuli such as sight of another person vomiting, nausea, or concerns with contaminated food. Most individuals with emetophobia tend to avoid stimuli associated with vomiting such as eating specific foods, strenuous exercise, and drinking alcoholic beverages (van Hout & Bouman, 2012; Veale & Lambrou, 2006). Other research also supports the notion that triggering stimuli are diverse, with previously demonstrated cues ranging from the more innocuous and cognitive (e.g., hearing or seeing the word “vomit”) to the more behavioral and contextual (e.g., eating in public, which precipitates a fear of becoming nauseous; Lipsitz et al., 2001; Veale & Lambrou, 2006). In the limited research that exists it has also been noted

that these cues result in potentially serious behavioral sequelae; for example, 44% of all female emetophobics from an online survey reported that they avoid or delay becoming pregnant (Lipsitz et al., 2001).

Although relatively little is known about this phobia, preliminary research suggests that it is not a rare condition seen in clinical practice (van Hout & Bouman, 2012), and as such warrants further attention. With its documented course as chronic, with an early onset, along with different manifestations in presentation (van Hout & Bouman, 2012), the overall conceptualization of emetophobia is in its early stages. The paucity of attention to this disorder may be exacerbated by clinicians' anecdotal impressions of emetophobia as a difficult disorder to treat, as elucidated by previous surveys that cited high dropout and poor treatment response (Veale & Lambrou, 2006). Additionally, there are no randomized controlled trials (RCTs) examining treatment approaches for this disorder; in fact, few developed treatment models for this type of specific phobia exist without consideration of level of scientific examination or empirical support (see Boschen, 2007). As such, treatment of emetophobia continues to be unstandardized, although several therapeutic approaches have been employed to mixed results, including the following: hypnotherapy (McKenzie, 1994; Ritow, 1979), imaginal coping (Moran & O'Brien, 2005), interoceptive exposure and “analog vomiting” (McFadyen & Wyness, 1983), and psychotropic medication (Lipsitz et al., 2001).

There is substantial support for exposure therapy as a highly effective treatment for a number of specific phobias including animal phobia (Bandura, Blanchard, & Ritter, 1969; Gilroy, Kirkby, Daniels, Menzies, & Montgomery, 2000; Gotestam & Hokstad, 2002), claustrophobia (Booth & Rachman, 1992; Ost, Alm,

* Corresponding author. Tel.: +1 662 915 1775/769 610 8991;

fax: +1 601 915 5398.

E-mail addresses: djmaack@olemiss.edu, daniellemaack@gmail.com (D.J. Maack).

Brandberg, & Breitholtz, 2001), flying phobia (Walder, McCracken, Herbert, James, & Brewitt, 1987), and height phobia and driving phobia (Williams, Dooseman, & Kleinfield, 1984). From the limited research regarding emetophobia, specifically what is known about maladaptive beliefs and safety behaviors suggests that it presents much like other phobias and would likely respond to the same exposure-based treatment approach known to work well for phobias in general. Existing treatment studies (i.e. case studies) are few in number, as previously mentioned, and have generally examined treatment approaches disparate from what has been demonstrated to work in the treatment of other specific phobias (i.e., exposure).

2. Present study

The current case study, therefore, sought to methodically apply exposure-based behavioral treatment to the treatment of a young woman suffering from emetophobia. Although not as powerful as a randomized design, this description may still add to the existing emetophobia literature through the illustration of adaptation of published behavioral treatments for other specific phobias. The case presented was successful in terms of outcome, and includes a three-year follow up wherein treatment gains were measurably maintained.

2.1. Client information

“Lindsey” (a pseudonym) presented to an outpatient university-based psychology clinic as a 28 year-old, single, Catholic, Hispanic female. She completed a high school education and was living with her partner in a small rural, western town. She was referred by a community mental health provider specifically for treatment of emetophobia in January of 2007. Consent for treatment was obtained prior to beginning services, and she subsequently provided her separate, explicit consent to have her case presented for publication.

2.2. Presenting complaints/history of problem

Lindsey’s primary presenting problem was emetophobia. She reported that she wanted to become pregnant and start a family with her fiancé, but that she was unable to attempt to conceive due to apprehension and fear about the possibility of experiencing morning sickness (and thus vomiting). She explained that if she were to conceive her morning sickness might cause her to vomit, and she would likely choke on the vomit and subsequently die. Lindsey also indicated experiencing intrusive images and thoughts surrounding vomiting. She stated that when she thought about vomiting, she felt as if she were choking or suffocating, and that if she vomited she might swallow her tongue, which would be fatal. She reported experiencing these thoughts when encountering stimuli reminiscent of vomiting (e.g., seeing or hearing others vomit or gag). She stated that she had not vomited since the 6th grade at which time she endured a “traumatic vomiting experience.” She said that she came home sick from school, and at one point ran to the bathroom and proceeded to repeatedly vomit. During this time, she began to choke on pieces of the expectorant and felt as though she was going to die. Since this time, she reported continuous rumination about this experience, and as such, at the beginning of treatment she endorsed being hypervigilant to any cues or stomach sensations that might be associated with vomiting. She indicated that she had explicitly trained herself for this avoidance over a long period of time in order to prevent herself from vomiting or being in a situation where she could possibly vomit. When asked, she reported that her “gut” feeling was that there was a 50% chance she would die if she were to throw up, although she also stated that logically, the chance of death was more likely in the range of 10%.

Lindsey stated that the clinically significant impact of emetophobia was the avoidance of becoming pregnant. She said that until she could believe she would be able to deal with morning sickness without the fear or ultimate outcome of death, she would not actively attempt to become pregnant. Additionally, as a secondary goal/concern, she reported that she would like to be able to be supportive of others (i.e. her fiancé, family, friends) when they were sick. She stated that in the month prior to presenting for treatment her fiancé was sick and vomiting, but she was unable to help. Instead, she reported plugging her ears and staying away from him as much as possible, which was consistent with her reported avoidance of cues associated with vomiting. She also stated that she revolved her daily routine around heightened sensitivity to her stomach issues, which resulted in routine avoidance of many other activities including: exercise, amusement park rides, cooking chicken at home, and drinking alcohol, all of which led to a constant monitoring of any symptoms related to nausea. On rare occasions that Lindsey chose to engage in these activities, she reported always being careful to constrain her behavior such that she did not eat anything beforehand. Additionally, she indicated that she carried antacid tablets with her at all time, for use in the event that her stomach felt disrupted.

Lindsey reported previously seeking treatment for emetophobia with no symptom alleviation. Her accounting of the nature of this previous treatment included a diverse array of approaches, including: eye movement desensitization reprocessing, hypnotherapy, various forms of pharmacotherapy, and an unspecified “talk therapy.” She reported that although prescription medications appeared to be of benefit for relief of symptoms of depression, OCD and Tourettes, no type of therapy (pharmacotherapy, psychotherapy or other) to date had been effective in touching the emetophobic symptoms. Additionally, Lindsey reported consistent attendance and adhering to treatment protocols; however, she reported continued difficulty with the experience of emetophobia.

3. Initial assessment

As part of the intake session (3.25 h) at a University-based psychological treatment center the Mini International Neuropsychiatric Interview – 5th edition (M.I.N.I.-5; Sheehan et al., 1998) was administered. In addition, Lindsey completed a number of self-report measures of broad psychiatric symptoms (see Table 1). The assessment and direct treatment of this client was concurrently provided by both a Master’s level graduate student and the supervising psychologist.

3.1. Measures related to emetophobia, differential diagnosis and symptoms

The anxiety sensitivity index-3 (ASI-3; Taylor et al., 2007) is an 18-item measure constructed to assess an individual’s fear of arousal-related sensations that arise from the belief that these

Table 1
Outcome measures at pretreatment and 3 year follow-up.

Measure	Pretreatment	3 year follow-up
ASI-3	34	2
OCI-R	12	4
BVS		
Attention to internal body sensations	10	8
Sensitivity in changes in internal body sensations	8	3

Note: ASI-3, Anxiety sensitivity index-3; OCI-R, obsessive compulsive inventory, revised; BVS, body vigilance scale.

sensations may have adverse consequences (i.e., anxiety sensitivity; Reiss and McNally, 1985). Items are rated on a 5-point Likert-type scale from 0 = *very little* to 4 = *very much*. The ASI-3 measures three theoretically derived facets of anxiety sensitivity: physical (e.g., “It scares me when my heart beats rapidly”), cognitive (e.g., “When I feel “spacey” or spaced out, I worry that I may be mentally ill”), and social concerns (e.g., “It is important not to appear nervous”). Initial validation of the ASI-3 demonstrated that the instrument possessed sound psychometric properties as examined across a number of sites using diverse participants (Taylor et al., 2007). For this questionnaire, Lindsey reported that she answered in a manner as to her experience when thinking about vomiting.

The Obsessive Compulsive Inventory – Revised (Foa et al., 2002) is an 18 item self-report measure assessing distress associated with obsessions and compulsions. The scale has reported good internal consistency (.88), adequate test-retest reliability (.70), and good discriminant validity between anxiety disorders and non-anxious controls (Hajcak, Huppert, Simons, & Foa, 2004).

The Body Vigilance Scale (BVS; Schmidt, Lerew, & Trakowski, 1997) measures the tendency to attend to panic-related body sensations. The measure consists of four items. The BVS measures the tendency to attend to panic-related body sensations. The measure consists of four items; three assess the degree of attentional focus, perceived sensitivity to changes in bodily sensations and time spent on average attending to bodily sensations. The fourth item involves specific ratings for attention to 15 different bodily sensations. The BVS has demonstrated good internal consistency (in students in student α s = .82 and .84), community (α = .82), and adequate 5 week test-retest reliability (r s = .67 and .69; Schmidt et al., 1997).

3.2. Diagnostic formulation

Lindsey’s report on the initial interview indicated that she had a history of Tourette’s disorder and obsessive compulsive disorder (OCD), both of which were diagnosed when she was in junior high school. She stated that the symptoms of Tourette’s diminished over time with the only current, residual symptoms being occasional muscle tension and “sniffing” type of ticks. However, she mentioned continued concerns of passing these disorders onto her child. She also reported that her current symptoms of OCD were focused around ordering and symmetry. She elaborated to explain that if things were out of place in her home, and she was unable to straighten them it would give her a “just not right” feeling. Specifically, she reported having a need for the house to be “spotless,” performing “excessive” cleaning, and needing hangers in the closet to be evenly arranged. Prior to leaving for work in the morning, she indicated that she felt compelled to double check the stove, lamps, night-lights, and door locks. She denied having a specific threat forecast if she were unable to complete these tasks; rather, she indicated that she would ruminate about negative consequences of leaving these appliances running (i.e., “what if something horrible happens?”) until she checked them or was able to become distracted. Additionally (and related to differentiating emetophobia from symptoms of OCD) she notably denied experiencing any contamination fear, obsessions, or compulsive behavioral symptoms related to her fear of vomiting. Results from the OCD portion of the M.I.N.I.-5 thus confirmed a current diagnosis of OCD and were helpful in extricating these symptoms from her separate diagnosis of Specific Phobia, Other Type (i.e., emetophobia; see below).

Lindsey also reported experiencing panic attacks, which she acknowledged were associated with concerns about vomiting, and therefore had identifiable triggers. She stated that last year she experienced 30–50 attacks, some of which were nocturnal. However, she reported no pressing concerns about having panic attacks,

fears of situations that may trigger another attack, or avoidance of places or situations that could precipitate these experiences. Therefore, from her history and structured interview, a past, but not current diagnosis of Panic disorder was confirmed.

At the time of treatment, Lindsey was reportedly prescribed a tricyclic antidepressant (amitriptyline, 60 mg/qHS). She indicated the medication was prescribed to treat the following: teeth grinding, symptoms of Tourette’s disorder, and depressed mood. Self-report and clinical interview suggested symptoms of depression were well-managed on this medication. A diagnosis of major depressive disorder, in full remission was assigned.

In addition to administration of the M.I.N.I.-5, a separate specific phobia module was also administered to Lindsey. She affirmatively endorsed symptoms indicative of experiencing a specific phobia with her phobic stimuli being vomiting including: (1) always feeling frightened when confronted with vomiting (or any related cues); (2) acknowledging this fear was unreasonable or overstated; (3) always going out of her way to avoid situations where she potentially could vomit; and (4) endorsing this fear caused significant distress and disrupted normal daily functioning. In summary, data from the initial assessment suggested that Lindsey’s current distress and most severe symptoms were best attributed to a diagnosis of specific phobia, other type (i.e., emetophobia) with the following co-occurring disorders: OCD, and major depressive disorder, in full remission. This was consistent with the patient’s reported presenting problem.

3.3. Case conceptualization

Lindsey’s case was conceptualized from a cognitive-behavioral model of emetophobia (Fig. 1). Notably, her affective response to vomit cues was generally increased anxiety, as opposed to evocation of disgust (i.e. contamination). Specifically, she believed that if she were to vomit, she would choke and die. She associated a queasy stomach with the need to vomit, which facilitated to the etiology of her manifest hypervigilance to stomach sensations. When she could perceive any changes in her stomach’s activity she immediately believed she would vomit and thus would begin employing safety behaviors (taking antacids, sipping 7-Up, avoiding eating). The safety behaviors served to decrease her level of anxiety, which in turn reinforced the belief that these behaviors were what keep her from vomiting and equated to what kept her alive (given her strong degree of belief in the potential mortality associated with vomiting).

The implementation of these safety behaviors provided a long-term, intensive barrier to Lindsey’s ability to learn what would happen if she actually did vomit, and thus an inability to ameliorate her fears on the basis of naturalistic exposure. Without this experience and the concomitant opportunity for emotional processing (Foa and Kozak, 1986) that it could provide, it was likely that Lindsey would continue. Exposure to less intense situations, such as watching videos, inducing sensations related to vomiting, simulating vomiting, etc. were not deemed sufficient to provide her with corrective information regarding her core maladaptive belief (and were similarly avoided in her naturalistic environment). Additionally, she already knew, logically, that other people do not choke and subsequently die when vomiting. As with so many other cases being treated for diffuse disorders, however, she needed to learn this for herself and “feel” what she already “knew.”

Using this conceptualization and a broad literature of scientific support, exposure therapy was recommended for treatment. Treatment rationale and course were discussed with Lindsey, and she indicated her willingness to engage in the necessary behaviors that this treatment would entail. Following is a description of the course of therapy, the outcomes achieved, and a three-year follow up after the cessation of services.

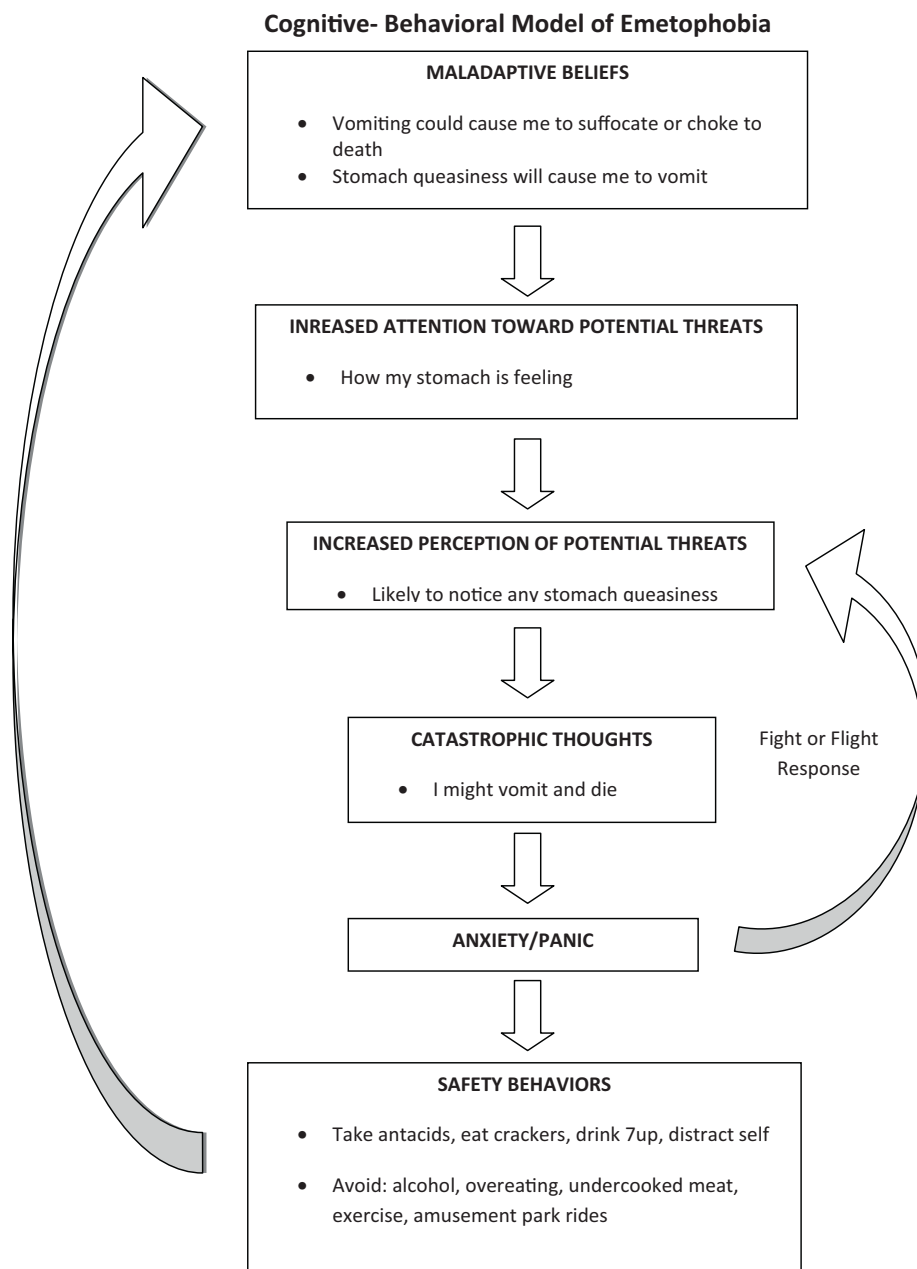


Fig. 1. Cognitive-behavioral model of emetophobia.

4. Treatment

4.1. Session 1 (2.25 h)

The first session began with a check-in with Lindsey and review of her symptom ratings on the ASI-3 (on which she scored 34 during this session). She indicated that when answering the ASI items she endorsed levels of concerns she had about body sensations that could occur during vomiting (as instructed). Lindsey stated that earlier in the week she experienced a panic attack, which she attributed to no longer avoiding thinking or talking about vomiting. She indicated that she had taken Roloids one evening, and following the panic attack she ate crackers, drank a Sprite, took Pepto Bismal and put a cold washcloth on her face and chest to help distract. The role of safety behaviors in maintaining her fear and preventing her from knowing what would happen if she discontinued use of

these behaviors was reviewed. Again, rationale for exposure therapy and what treatment entailed was discussed. Additionally, a fear hierarchy was developed to guide the remainder of treatment (see Table 1 and note that actual vomiting, the highest rated stimulus on the hierarchy, was the eventual goal of treatment).

Exposure exercises began during this first session with Lindsey watching a number of vomiting scenes on a computer. These scenes were viewed in a graded manner beginning with a more benignly rated video of college students purposefully consuming gallon of milk and knowingly causing themselves to vomit. Over the protracted course of this first session (and assigned as homework) Lindsey engaged in exposure to more seemingly distressful vomiting experiences (i.e., video of a sick woman on a bathroom floor who was projectile vomiting). Initially, Lindsey's anxiety was rated at a 6 (out of 10) in orientation to the most benign stimulus, a rating which subsequently decreased with each viewing. After watching

the first clip three times, her anxiety never was rated higher than a three for the remaining clips (including new scenes of projectile vomiting). Thus an effective pattern of within and between trial habituation was achieved, and these initial, in situ exposure exercises were deemed to be successful.

In order to continue to capitalize on this success, as well as to provide context for generalization of eventual treatment gains, Lindsey worked with her therapists to select exposures from her hierarchy to complete for homework. She agreed to watch different vomit scenes from YouTube each day for 30 min, with the expectation of selecting new videos that systematically increased in terms of distressing sounds and images for each subsequent exposure. Additionally, she agreed to cook and eat chicken at home without overcooking the chicken, and she also agreed to separately overeat during a meal. Lindsey also asserted she would discontinue her use of safety behaviors when experiencing any sensations in her stomach. The agenda for the following session was discussed where the plan was to meet at a local restaurant, order medium rare burgers, overeat, and then take a brisk walk. Limits of confidentiality were discussed in terms of meeting and completing exposures in public, and Lindsey explicitly agreed to this in vivo meeting.

4.2. Session 2 (3 h)

Lindsey presented to a local area restaurant for the second session two weeks after session 1. She stated that she had not experienced any panic attacks in the past two weeks. Additionally, she indicated that she had given up the use of antacids, crackers, and 7-Up when feeling queasy; however, she clarified that she had not felt queasy in the past two weeks. Lindsey stated that she had been watching the vomit clips as instructed, but that she did not do so every day. Her rationale for less frequent exposure was that she no longer experienced a reaction to the clips and found them more boring and senseless than anxiety or disgust provoking. She said that she did not complete the homework of undercooking chicken and eating it at home, but that she would do so before the next session in one week's time. During this session both Lindsey and her therapists ordered medium rare burgers with french-fries, which they proceeded to consume until feeling uncomfortably full. After taking each bite, Lindsey was noted to look at the pink color of her hamburger and either make a disgusted face or talk about how she would never have thought she would do this for fear of becoming sick.

After eating Lindsey and her therapists went on a brisk walk over a nearby pedestrian bridge in an attempt to induce queasy feelings in Lindsey's stomach. Initially during the walk Lindsey stated she felt uneasy and wanted to stop, but quickly reframed her statements to indicate that she realized that she had been avoiding activities (such as exercise even when not directly after eating) for no real reason. This realization was reinforced, and Lindsey continued to engage in the exposure exercise, which persisted to such a point that the therapists also experienced queasiness. At the termination of this session Lindsey agreed that the next session would focus on modeling and practicing behaviors associated with vomiting (e.g., kneeling by the toilet) and practicing gagging.

Additionally, Lindsey continued to express and exhibit motivation to progress to eventually vomiting herself. She stated that it continued to be difficult to even think about herself vomiting, but also that she understands and "knows" that she needs to engage in the behavior in order to overcome this fear. For homework, Lindsey agreed to continue watching clips of vomiting each day, with her selection of stimuli being contingent on finding videos that did elicit sufficient levels of fear to make these exposure exercises useful. Additionally, she agreed to complete the task of preparing undercooked chicken and eating this at home.

4.3. Session 3 (1.5 h)

Lindsey presented for session stating that her anxiety was increasing as the intention to engage in physically vomiting became more imminent. She said that in the past week she completed the homework of preparing and consuming home cooked chicken – without purposefully overcooking it. She remarked that the chicken turned out well, and that she learned that if you handle chicken appropriately, you can cook it at home and not become sick. Lindsey also said she continued to watch clips of people vomiting and noticed that "the anxiety wasn't there" despite making attempts to increase the salience and difficulty of these stimuli daily. Lindsey stated that she was beginning to do activities that she never thought she would have been able to do such as eating greatly undercooked hamburgers, preparing chicken, and eating a meal and then exercising.

Following this initial review, a new hierarchy of exposures was created (listed in order of exposure progression): (1) seeing the modeling of and practicing "fake" vomiting; (2) watching others vomit to study their sensations and how they react (i.e., do they choke, are they concerned about dying, what happens to them following vomiting?); (3) vomiting with someone around to offer comfort; and (4) vomiting alone.

The in-session exposure exercise was to both watch and practice "fake vomiting." In order to accomplish this, both Lindsey and the female therapist went to a women's restroom located in the clinic building. First the therapist modeled fake vomiting by sitting in front of a toilet making gagging noises. Lindsey knelt in front of the toilet and practiced this as well. Next, the therapist put "fake vomit" (a concoction of diced tomatoes in water) in her mouth, knelt in front of the toilet, and spit this concoction into the toilet to simulate the texture in the mouth and sounds of vomiting into the toilet. Lindsey followed the therapist in acting as if she were vomiting and indicated she was experiencing little anxiety. The only time Lindsey indicated any anxiety was (1) when she asked the therapist if modeling this would make the therapist vomit (which the therapist replied that it could), and (2) after having the tomato concoction in her mouth and feeling some of it in her throat. Lindsey remarked that this exposure was not as anxiety provoking as she might have anticipated, stating that she knew this was not real and she was just practicing.

Her original hierarchy was reviewed for the purpose of reinforcing her success, and she stated directly that she was surprised she had even been able to proceed as far as she had. She voiced concern that when she needs to vomit she may "freak out" or have a panic attack and pass out. The therapist encouraged this to happen in session and reviewed the course and treatment of panic as well as revisited the rationale for exposure treatment. For homework, Lindsey agreed to practice fake vomiting with increasingly disgusting concoctions each day and to continue to abstain from the use of any safety behaviors. The plan for the next session was to watch the therapists vomit and study their reactions to this.

4.4. Session 4 (1.5 h)

The next session was two weeks later following a cancellation by Lindsey. During the initial check-in, Lindsey reported that over the past two weeks she had been working on her homework of practicing fake vomiting. This included using mashed up avocados, tomatoes, and olives as a fake vomit concoction and acting out vomiting in her home toilet (similar to what was modeled for her during session 3). She stated that during these experiences, the "vomiting" never felt real, and that she did not experience an urge to vomit. Lindsey also stated that due to medical complications, she recently discovered that she could no longer take birth control pills. She mentioned that her cognitive interpretation of this

led to fears about the possibility of becoming pregnant, which in turn increased her thoughts and fears about vomiting. Despite these increased fears, Lindsey articulated a desire to do more than what was planned for this session, and indicated that she may be able to engage in vomiting herself.

The agenda for the current session was thus revised, and Lindsey was encouraged to first watch the two therapists vomit with the intention of subsequently attempting to vomit herself. Lindsey articulated her nervousness and concern for the therapists' well-being prior to the beginning of behavioral modeling. Her concerns were not allayed, and she was thus cognitively primed for heightened anxiety when she watched both therapists proceed to vomit. During the vomiting, Lindsey asked how the vomiting felt, and if the therapists were concerned about choking or dying. The therapists genuinely responded with one articulating that following the large breakfast she ate in preparation for this session, the vomiting actually made her feel more comfortable. When asked if she were willing to try to vomit, Lindsey stated that she would try, but added that she did not eat much for breakfast despite her therapists' advice to do so. Although she attempted to vomit by intermittently gagging herself for approximately 20 min, she was unable to vomit. Lindsey indicated disbelief in that she had both watched the therapists vomit and also made an attempt to do so herself. Additionally, she remarked that she "knows" vomiting would not be so bad and articulated that she needs to "just vomit." After discussion, it was decided that next session would be devoted to her vomiting and she would prepare by eating a large breakfast beforehand. For homework, Lindsey stated she would try to vomit at home with a full stomach of water to prepare for the next session where the plan would be for her to vomit with a full stomach of "more chunky vomit."

4.5. Session 5 (1 h)

Lindsey presented for session stating that she "did not come prepared." She said that following the last session she had intrusive and obsessive thoughts surrounding her vomiting. She indicated that she did not complete her homework of attempting to vomit at home, and likewise did not eat any breakfast to help prepare her for vomiting during this session. After discussion and assessment of her motivation, she agreed that the only step remaining in this treatment was for her to vomit and if she were unwilling to do so, it would not make sense to continue with exposures that were no longer creating distress. Lindsey agreed that for the next session she would complete the homework prior to session or she would cancel. She stated understanding that engaging in vomiting in session was necessary to overcome her fear, and that until she was willing to progress toward this in therapy she should cancel sessions. To help promote success, a very specific homework plan was discussed and created with Lindsey. She agreed that prior to the next scheduled session (on a Friday) she would (1) practice "fake" vomiting a watery substance (e.g. water or soup) at least once before Thursday evening, (2) review the video tape of therapists vomiting during session (and her attempt at vomiting) daily, and (3) on the morning of session 9:30 (at her selected restaurant) eat a ham and cheese croissant, hashbrown and orange juice just prior to the 10:00 scheduled session. She stated that she would review the plan with her mother to increase her accountability and added she would also bring a toothbrush to session. She appeared to have a renewed motivation and confidence in her ability to face this fear when she left the session.

4.6. Client call to psychologist

Lindsey later called the supervising psychologist, and was seemingly very excited. She stated that following the session where she

presented unprepared, she felt bad about her equivocation in terms of therapeutic commitment, which prompted her to go immediately home and vomit. She said that this was a freeing experience for her, and that she was able to separately proceed to vomit with her husband present and later her mother. Lindsey stated that she no longer understood why she thought vomiting was so dangerous, and said that since she faced her fear and had no additional concerns about vomiting, that she no longer needed treatment. Lindsey said that she would be willing to be contacted in the future for follow up, but given her success and resultant change in appraisal concerning the future experience of vomiting, did not feel she needed additional therapy.

5. Follow up

When contacted via telephone in February of 2010, Lindsey stated she was excited to hear from her former therapist. She said that she was now married, and that she and her husband were actively trying to conceive. Lindsey stated that she continued to have some residual fears about vomiting, but not to the extent that it prevented her from engaging in the activities she once avoided (i.e., exercising, trying to become pregnant, and cooking meat at home). She also added that she was now able to console her husband when he was sick and vomiting, which coincidentally had occurred in the month prior to this telephone contact. Lindsey agreed to complete any follow up questionnaires that were sent and mentioned that she continued to appreciate the services provided to her by the psychology clinic.

With her verbal consent Lindsey was thus sent a follow-up packet (via U.S. mail) containing the ASI-3, OCI-R, and BVS, as well as a free response questionnaire (assessing use of safety behaviors, current anxiety related to vomiting, current medications, and thoughts about potentially becoming pregnant). Specifically, from the free response questionnaire, Lindsey stated that she no longer engages in safety behaviors (such as keeping antacids, avoiding cooking meat), and is no longer taking any prescription medication. Additionally, she reported that she no longer felt much anxiety in general about vomiting, but did experience some if she were in fact "sick to my stomach." When asked if she avoided anything (such as foods or activities) for fear it would cause her to vomit, she responded "nothing." In addition, her response to the question, "Do you believe that if you were to vomit you would choke and die?" was that she was mostly concerned with choking and not being able to breathe leading to a panic attack, but that she no longer had concerns about dying as a result of vomiting.

Furthermore, it can be noted that Lindsey's scores on the ASI-3, OCI-R and BVS improved from pretreatment to follow up (see Table 2). The decrease in ASI-3 scores from pretreatment to follow up was dramatic. As mentioned previously, Lindsey stated that her initial responses on the ASI-3 were related to the sensations she was concerned about if she were to vomit. As reflected in this measure, her fear of arousal sensations related to vomiting decreased, which was a predicted and likely effect from treatment using exposure. By

Table 2
Hierarchy of emetophobia-related situations.

Activity	SUDS	RANK
Eating a medium-rare burger	2	8
Watching video clips of people vomiting	4	7
Drinking alcohol	5	6
Overeating	6	5
Cooking and eating chicken	6	4
Running immediately after a big meal	7	3
Watching/listening to others vomit	7.5	2
Vomiting	10	1

Note: SUDS, subjective units of distress.

repeatedly having the opportunity to confront these uncomfortable internal sensations related to vomiting and subsequently learning that these sensations did not produce the catastrophic effects imagined, Lindsey was no longer adversely affected by fear of her sensations. OCI-R scores also decreased over the three year period. Although not the focus of treatment, it appeared (based on the OCI-R responses) that over the three year period, some of her avoidance and checking behaviors, also decreased. Similarly, in regard to the scores on the BVS, the changes in the two scales demonstrated that although Lindsey continued to be attentive to her bodily sensations, she no longer was sensitive to such changes and did not equate them to negative meaning related to vomiting.

Functionally, Lindsey's improvements included the ability to expose herself to previously feared and avoided situations (e.g., caring for husband when he was sick), and her active attempts to become pregnant (i.e., the reason she initially presented to treatment). Although she continued to report experiencing some residual fear regarding vomiting, she indicated that this no longer interfered with her life or prevented her from engaging in any desired activity. As such, it was ascertained that she no longer met diagnostic criteria for this unique specific phobia.

6. Discussion

The present paper outlined the assessment and course of exposure therapy for an individual presenting with emetophobia. The observed change in symptoms and behaviors immediately following therapy, as well as gains maintained at three-year follow up, provide promising initial evidence for the effectiveness of exposure based treatment for this low base-rate condition. Results from this case study demonstrated that by employing exposure therapy, the client not only eliminated her avoidance of feared situations, but she also evidenced sustained cognitive change and a reduction in hypervigilance to internal physiological symptoms previously associated with catastrophic fear, avoidance and distress. From this case example, using an individual's fear hierarchy with the inclusion of vomiting proved to be not only acceptable, but the most helpful for the client to treat the underlying fear. In terms of this particular client's catastrophic cognitions related to the different steps of the exposure hierarchy, it was deemed by both therapists as well as client that having the client vomit, as opposed to just imagining herself vomit, or seeing others vomit was an essential component for her treatment. Additionally, the client reported understanding that completing this step in her exposure hierarchy was safe, tolerable and effective in treatment. The progression through this particular hierarchy (including actual vomiting), exemplified the idiographic adaptation of nomothetically established behavioral principles of exposure for treatment of a specific phobia. More specifically, this case study illustrated the feasibility of the using in vivo exposure therapy as treatment for emetophobia.

Moreover, this case study demonstrated through psychoeducation (related to both the disorder as well as exposure treatment) patients may actually be very willing to engage in exposure therapy. A previous concern outlined in Lipsitz et al.'s (2001) study suggested individuals (responding from an emetophobia website) reported a reluctance to engage in exposure-based treatments. However, these individuals were completing an online survey, were not evaluated for true emetophobia diagnosis, and were likely not provided with the rationale and evidence to support the use of exposure therapy in phobias. As such, this may not be a true representation of emetophobics' views on exposure therapy if provided with treatment rationale and the cognitive-behavioral conceptualization of emetophobia. Moreover, it is likely that when presented as an option to treatment seeking individuals, exposure therapy

could be considered as not only an acceptable, and tolerable treatment, but a preferred treatment of emetophobia as was seen in this case illustration (and given the broad support for behavioral approaches more generally and the absence of any evidence for a more effective form of treatment specific to this condition).

One limitation of this report was the use of self-report measures that were not specific to emetophobia symptoms (i.e., ASI-3, BVS). Although not available at the time of treatment, two measures related to symptoms of emetophobia have recently been developed: the Emetophobia questionnaire (Boschen, Veale, & Ellison, unpublished) and the specific Phobia of vomiting inventory (spovi; Veale et al., 2013). Initial psychometric support has been found for use of the SPOVI in clinical populations and may provide researchers with a measure to further conceptualize and better understand specific symptoms and clinical presentations of this disorder. Additionally, this report represents a single subject case study regarding exposure therapy as treatment for an individual with emetophobia. The importance of replication of successful treatment using exposure therapy in multiple trials, ideally involving randomized group designs to the extent possible, is essential to further evaluate effectiveness and efficacy. Moreover, it is likely that future studies could more thoroughly capture information in numerous clinically relevant domains in the context of conducting randomized efficacy trials.

In summary, the case presented here provides continued support for the CBT conceptualization of emetophobia and the use of exposure therapy as an effective treatment with gains maintained at three-year follow-up. By systematically moving up through the patient's fear hierarchy, treatment was able to target her idiographic experience of this specific phobia. The feasibility and integral nature of exposure exercises designed to make her vomit (as opposed to think about or view someone else vomiting) were also demonstrated. Similar to other behavioral treatment for more common specific phobias, it appeared that the theoretical mechanism of exposure's effectiveness (i.e., emotional processing; Foa and Kozak, 1986) was supported. Additionally, it can be reiterated that emetophobia is an under-researched and undertreated specific phobia. It is important for continued research in order to have a better conceptual understanding of this disorder as well to assess the efficacy of treatments and refine their usage in this relatively uncommon, but clinically and academically interesting, disorder.

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