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Characteristics, Correlates, and Experiences of Emetophobia: An Exploratory Study

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CHARACTERISTICS, CORRELATES, AND EXPERIENCES OF EMETOPHOBIA:
AN EXPLORATORY STUDY

by

Megan Pearson, BAHons, Acadia University, 2007

A thesis presented to Ryerson University

in partial fulfillment of the
requirements for the degree of

Master of Arts

in the program of

Psychology

Toronto, Ontario, Canada

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Megan Pearson

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Megan R. Pearson

Master of Arts

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2010

Abstract

Emetophobia, a fear of vomiting or vomit, appears to be more common and consequential than generally thought, and has recently become a growing focus of research and clinical attention. The purposes of this survey-based study were to provide support for existing research evidence, and to investigate emetophobia in novel ways based largely within a cognitive-behavioural framework. Individuals with emetophobia exhibited scores that appear likely to be clinically and practically meaningful on measures of relevant constructs, particularly visceral anxiety, body vigilance, perceived control, and disgust; emetophobic fears appeared to be somewhat distinct from other manifestations of health anxiety. Related cognitions and safety behaviours were assessed with pilot measures. Emetophobia was generally found to have an early onset, chronic course, and strong negative impact in numerous functional domains. Participants generally indicated that their treatment experiences had produced few lasting benefits, perhaps in part due to some potentially unique characteristics of these fears.

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Characteristics, Correlates, and Experiences of Emetophobia:

An Exploratory Study

Emetophobia is a term used to describe an extreme fear of vomiting or, less commonly, a fear of vomit. People with emetophobia may fear themselves and others vomiting, and, to varying degrees, vomiting themselves in public and in private. Often described as a unique, unusual, or peculiar specific phobia (e.g., Philips, 1985), this fear nevertheless appears to be more common among members of both the general population and several clinical groups than its presence to date in the research literature would imply (Boschen, 2007; Kartsounis, Mervyn-Smith, & Pickersgill, 1983; Kirkpatrick & Berg, 1981; Lipsitz, Fyer, Paterniti, & Klein, 2001; Veale & Lambrou, 2006). Although there is a lack of established prevalence information, there is emerging evidence that emetophobia affects numerous individuals, generally has an early onset and a chronic, often unremitting course, and in many instances requires clinical attention (Boschen, 2007; Lipsitz et al., 2001; van Overveld, de Jong, Peters, van Hout, & Bouman, 2008; Veale & Lambrou, 2006). One estimate (albeit a somewhat dated one) by Kirkpatrick and Berg (1981) indicated that emetophobic fears were present to a degree of “extreme or terror” among 6% of women and 3.1% of men in a heterogeneous non-psychiatric sample of 545 individuals aged 15-89.

Like other phobias and anxiety disorders more generally, emetophobia appears to occur more often among women (Davidson, Boyle, & Lauchlan, 2008; Kirkpatrick & Berg, 1981; Lipsitz et al., 2001; Veale & Lambrou, 2006). Researchers who have begun to explore the nature and consequences of emetophobia agree that it is a poorly understood, under-researched phenomenon that merits further investigation (Boschen,

2007; Liptsitz et al., 2001; van Overveld et al., 2008; Veale & Lambrou, 2006). The purposes of this study were to explore the etiology, characteristics, correlates, and implications of emetophobia in order to clarify and contribute to knowledge about, and facilitate management of, fears related to vomiting or vomit. An underlying but equally important goal was also to raise awareness and increase understanding of such fears.

Few studies addressing emetophobia have yet been published, although based on increasing publication of such studies recently, it appears that interest in the phenomenon is growing. Until recently, the fear of vomit or vomiting has been subsumed among the umbrella “Other” category in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (American Psychiatric Association, 2000; Boschen, 2007; Liptsitz et al., 2001; van Overveld et al., 2008; Veale & Lambrou, 2006). The relatively few studies to date examining emetophobia, most published more than a decade ago, have characterized it variously as a variation of panic disorder most often co-occurring with irritable bowel syndrome or IBS (Lydiard, Laraia, Howell, & Ballenger, 1986), a form of social phobia related to fear of humiliation (Marks, 1987), an atypical form of anorexia (Manassis & Kalman, 1990), or an explanation for some cases of agoraphobia in the absence of panic disorder, which might be more common than general consensus would indicate (Pollard, Tait, Meldrum, Dubinsky, & Gall, 1996).

Particularly in its more severe expressions, emetophobia can be profoundly impairing and extremely unpleasant to live with. Emetophobia often leads to substantial distress and impairment among those affected by it in a wide range of domains of functioning, as well as having a negative impact on quality of life, physical and psychological health, and relationships. People with emetophobia may report

experiencing problematic mood and anxiety symptoms; struggling to function adequately in school, work, and relationships; postponing or foregoing cohabitation, marriage, and children; and in some instances, termination of pregnancies and suicidal ideation or attempts (Davidson et al., 2008; Heaton-Harris, 2007; Lipsitz et al. 2001; Veale & Lambrou, 2006). A majority of people who endorse vomit-related fears are equally afraid to vomit in public or in private places (Lipsitz et al., 2001; Veale & Lambrou, 2006). Evidence suggests that many, if not most, people with emetophobia connect their fear to traumatic experiences that involve themselves or others vomiting, but others do not (Dattilio, 2003; Davidson et al., 2008; Lipsitz et al., 2001; Manassis & Kalman, 1990), and in some instances it is unclear whether the “traumatic” nature of these experiences contributed to onset of or arose as a consequence of such fears. Trauma, in this context, implies that these individuals perceived the experiences as a serious threat to the physical integrity of themselves or others, and consequently have related experiences that are characteristic of trauma symptoms, such as re-experiencing the event, hyperarousal, and avoidance of related stimuli and situations.

Researchers currently suggest that emetophobia may be most usefully conceptualized in parallel with other anxiety disorders, within a cognitive-behavioural framework (Boschen, 2007; Veale & Lambrou, 2006). Other potentially important models to consider in addition to this framework might include developmental, family systems, biological, and trauma models; the relative importance of each approach is likely to depend on the unique experiences and characteristics of a given affected individual. In terms of the cognitive-behavioural model, Boschen (2007) proposed that anxiety-related constructs such as a general vulnerability to trait anxiety, specific

cognitive and attentional biases, and maintenance of safety behaviours through negative reinforcement contribute to the etiology and persistence of vomit-related fears. The development and chronicity of emetophobia might be most common among individuals who tend to somaticize anxiety as gastrointestinal symptoms, are hypervigilant about and catastrophize over such symptoms, and hold dysfunctional beliefs about the personal and interpersonal tolerability of vomiting (Boschen, 2007; Veale & Lambrou, 2006).

As emetophobia becomes a specific focus of research and clinical interest, questions about appropriate and effective treatments also arise. To date, no studies in which any controlled treatment regimens have been conducted or evaluated have been published. Most relevant studies have involved single- or multiple-case study designs in which treatments such as hypnotherapy (e.g., McKenzie, 1994), flooding under hypnosis (Wijesnghe, 1974), behaviour therapy (e.g., Datillo, 2003; Philips, 1985), interpersonal therapy (Manassis & Kalman, 1990), cognitive-behavioural techniques (Hunter & Antony, 2009; Moran & O'Brien, 2005; Whitton, Luiselli, & Donaldson, 2006), or a combination of these approaches were administered. Anecdotally, individuals with emetophobia often report that treatment is difficult and, apart from medications, rarely effective (Heaton-Harris, 2007; Lipsitz et al., 2001; Veale & Lambrou, 2006), although recent case-study evidence suggests that more positive outcomes are possible (Dattilio, 2003; Hunter & Antony, 2009).

Conceptualizing emetophobia as being similar to many anxiety disorders for which cognitive-behavioural therapy (CBT) is the empirically supported treatment of choice suggests that these fears should respond in similar ways to such treatment protocols (Boschen, 2007). While treatment evaluations to date have been limited to

single- or multiple-case study evidence, it has been hypothesized, based mainly on the self-reported treatment experiences of people with vomited-related fears, that these fears may have unique characteristics that could interfere with effective intervention (Davidson et al., 2008; Lipsitz et al., 2001; Philips, 1985; Veale & Lambrou, 2006). These as yet unknown characteristics may affect individuals' willingness to acknowledge and seek treatment for the fears, as well as the likelihood of treatment failure or dropout, and may influence relapse rates once treatment has ended (Lipsitz et al., 2001; Philips, 1985).

One such characteristic may be a concept proposed by Boschen (2007) as being similar to the agoraphobic avoidance that can develop in the wake of experiencing panic attacks: "nausea avoidance," a tendency to avoid stimuli and situations that are associated with past experiences of nausea. Nausea avoidance might also contribute to the maintenance of emetophobic fears through negative reinforcement, as well as reducing self-efficacy in terms of coping with nausea (and possibly vomiting). Boschen (2007) suggested a multi-faceted CBT treatment regimen for emetophobia: cognitive restructuring, considered use of distraction (especially for those whose attention is markedly drawn to gastrointestinal (GI) sensations), arousal management, selective serotonin reuptake inhibitors, and exposure – specifically, to sensations of nausea (for those who fear themselves vomiting).

While exposures are difficult for almost everyone with a phobia to contemplate, mental health professionals treating emetophobia with such techniques may be faced with particularly resistant clients. Images, often used as a primary exposure stimulus in the treatment of this as well as other specific phobias (e.g., spiders, snakes) may be even more problematic for people with emetophobia than for those with other disgust-based

fears. Emetophobia support site forums contain permanent posts where members can warn one another about films, television shows, etc. where they will encounter images of people vomiting. The most commonly asked question by potential participants before they decided whether or not to enter the survey was whether it contained any such images (it did not) or only text. In personal communications, some participants described visiting sites such as “Rate My Vomit.com,” where people can post video of themselves vomiting, as a means of self-exposure. A few said this exposure improved their tolerance for viewing such images, but more of them reported that it actually seemed to make them more fearful. This reported increase in fear is, in all likelihood, the result of uncontrolled exposure to the feared stimulus – to be therapeutically beneficial, exposure must be controlled, predictable, and sustained until fear and associated arousal peak and begin to subside (Clark & Fairburn, 1997). People who engage in these activities as a potentially desperate attempt to conquer their fears without seeking professional help may be even less willing to access such help and to consider exposure in therapeutic, controlled contexts in the future.

Additionally, Lipsitz et al. (2001) reported that among 56 participants with emetophobia, 30 said they would “definitely not” be willing to attempt exposure to sensations related to vomiting, while another 20 said they would only consider it if it were “guaranteed” to work. Of course, no such guarantee can ever be made, but success with traditional exposure methods may be even less sure for people with emetophobia, although evidence either for or against this suggestion is extremely limited to date. In one example, among patients who completed multiple group exposure sessions that involved videos (without and then including audio) of a man and a woman vomiting at

progressively closer distances, three of seven patients experienced a return of their fear (described as a “lapse of habituation”) between sessions, and required more sessions to achieve a lesser degree of improvement (Philips, 1985). These three patients exhibited more extreme levels of fear pretreatment than the other four, as well as higher scores on the *Beck Depression Inventory*, higher Subjective Units of Distress ratings, and greater behavioural avoidance – indicating what Philips described as “a more discrete and severe problem” (p. 49).

It seems possible that obstacles to treatment may include the internal and inescapable nature of the feared stimulus and its associated symptoms, as well as obvious challenges to finding modes of exposure that are appropriate, tolerable, and effective. Boschen (2007) suggested that while the “obvious” exposure stimulus might be the actual experience of vomiting, there are problematic side effects of repeated vomiting (e.g., damage to the teeth), and – perhaps more importantly – many clients would view this technique as unbearable. Particularly in instances when emetophobia is “more discrete and severe,” chances of treatment success (i.e., meaningful and lasting improvement) may depend on a much slower and more graduated progression through the fear hierarchy, a greater number of sessions, and more flexibility in terms of permitting clients to distract themselves during creative and carefully considered exposures, than may be typical of many CBT regimens.

It is also unclear what relationship, if any, might exist between “clear” vs. ambiguous etiology (i.e., whether a person attributes the fear to a remembered experience) and treatment compliance, persistence, and outcome. Some studies (e.g., Hellström & Öst, 1996) have indicated that there is no clear relationship between the

nature of onset and treatment outcomes in specific phobias. The question of whether this finding applies to emetophobia has not been explored to date – which is not surprising, given the limited research available regarding these aspects of treatment for emetophobic fears.

Understanding emetophobia through a cognitive-behavioural lens allows researchers to investigate this constellation of closely related fears in terms of a number of constructs that have been established as relevant to various other anxiety disorders, including anxiety sensitivity, body vigilance, perceived control, disgust sensitivity and propensity, and health anxiety. There is also evidence that emetophobia is associated with symptoms of other anxiety disorders, and that affected individuals are highly likely to report the occurrence of panic attacks not associated with their vomit-related fears (Lelliot et al., 1991; Lipsitz et al., 2001; Pollard et al., 1996). The following sections review constructs that are thought to be pertinent to emetophobia and that were therefore examined in this study, many of them for the first time.

Anxiety Sensitivity and Visceral Sensitivity

Anxiety sensitivity is a fear of the physical symptoms of anxiety (Antony et al., 2001; Cox, Fuentes, Borger, & Taylor, 2001; Mayer, Craske, & Naliboff, 2001). More specifically, it has been defined as both an attentional bias regarding physiological symptoms of anxiety and a fear of such symptoms; that is, people who are high in anxiety sensitivity are highly attentive to bodily changes and tend to catastrophize them (Cox et al., 2001; Labus et al., 2004; Labus et al., 2007). A growing body of research evidence suggests that anxiety sensitivity represents a cognitive predisposition to anxiety psychopathology, particularly panic attacks (Broman-Fulks et al., 2008). It has also been

characterized as distinct from trait anxiety, and is itself more of a trait than a state (Reiss, 1997); that is, anxiety sensitivity is not simply a byproduct of trait anxiety or neuroticism, and is an individual characteristic that tends to be stable over time. Both aspects of its definition imply that anxiety sensitivity may be substantially implicated in emetophobia. It seems likely that people who are higher in anxiety sensitivity might be at risk of developing vomit-related fears, particularly if they have a tendency to express anxiety physiologically as gastrointestinal (GI) symptoms, and then to experience the symptoms as dangerous or catastrophic (Boschen, 2007).

Visceral sensitivity may be a specific form of anxiety sensitivity and seems likely to have particular relevance to emetophobia. It is a relatively recently defined construct involving disproportionate attention and fearful responses to GI experiences and symptoms, and the situations or events with which they are associated (Labus et al., 2004). To date, this type of anxiety has largely been studied in the context of irritable bowel syndrome (IBS) and related problems. However, such anxious responses and attentional biases related to GI symptoms seem highly likely to be present among people with emetophobia as well. Specifically, people who have an intense fear of vomiting themselves may be especially likely to monitor their abdominal sensations closely for any interoceptive cues suggesting that they may vomit, and to respond with anxious preoccupation to such sensations.

There may also be a relationship between emetophobia and IBS, generated in part by visceral sensitivity. With rates of 10-15%, IBS is the most prevalent functional GI disorder in the United States and Canada, particularly among women (Labus et al., 2004; Thompson, Irvine, Pare, Ferrazzi, & Rance, 2002). IBS has substantial implications for

health, functioning, and quality of life (Deary, Chalder, & Sharpe, 2007; Labus et al., 2004; Thompson et al., 2002). In the psychology literature, IBS is generally viewed as a “psychosomatic” or medically unexplained syndrome and is typically grouped with other such symptom complexes, including chronic fatigue and fibromyalgia (Deary et al., 2007). There is considerable evidence that IBS frequently co-occurs with anxiety psychopathology, particularly panic disorder and posttraumatic stress disorder (Deary et al., 2007; Labus et al., 2004). Although the question of whether an association between emetophobia and IBS exists was beyond the scope of the current study, elevated scores among individuals with vomit-related fears on a measure of visceral sensitivity would suggest that they may be at risk for functional GI disorders or medically unexplained symptoms, indicating that this question would be an important one for subsequent research.

Health Anxiety

Health anxiety involves an irrational or disproportionate anxiety arising from the misinterpretation of physical sensations and symptoms as signs of both danger and the presence of a physical illness that warrants medical attention (Abramowitz & Braddock, 2008; Asmundson et al., 2001). It is a core feature of hypochondriasis and several other DSM-IV-TR diagnoses. Individuals with such fears also simultaneously believe that they are incapable of dealing with or managing the consequences of their perceived physiological illnesses (Abramowitz & Braddock, 2008; Asmundson et al., 2001). At first glance, emetophobia appears to fall neatly within this definition. Individuals with vomit-related fears often express the belief that they are unable to cope with themselves or others vomiting (Davidson et al., 2008). However, few people with these fears appear to

associate vomiting with the presence of a serious or life-threatening illness that requires medical attention, and there is no evidence as yet that people with emetophobic fears generally lack insight or believe the process of vomiting represents a danger to their lives or health (Boschen, 2007; Lipsitz et al., 2001; Veale & Lambrou, 2006). It appears from the evidence available that it is most often the process of vomiting itself, or situations in which one is exposed to vomit or vomiting, which trigger or underlie the fears, rather than interpretations of vomiting as signs of serious illness, although the origins of these fears remain unclear. As such, emetophobia may be distinct from other conditions that are associated with health anxiety, such as hypochondriasis, but may still fall within the broader scope of health anxiety.

Disgust

The “universal” or “basic” emotion of disgust has recently become a focus of interest among anxiety researchers, including the role it plays in the development and maintenance of phobias, its relation to other forms of psychopathology, and its neurological, structural, and biochemical features (Olatunji & McKay, 2009). Disgust is believed to have a long evolutionary history as an adaptive response to exposure to or ingestion of noxious substances; this central system of disgust is thought to be activated primarily by food and materials produced by the body, including vomit (Olatunji & McKay, 2009), as well as some animals (e.g., spiders, insects, rodents, snakes). In humans, the “core” disgust system may have been predisposed to acquire similar responses to other types of stimuli, such as threats to social norms and moral principles (Olatunji & McKay, 2009). Regardless of the form of the stimulus, experiencing,

defining, or learning to perceive it as disgusting involves responding to or generating an internal drive to avoid it (Olatunji & McKay, 2009).

The issue of contamination is also relevant to disgust; stimuli that represent contamination or contagion are likely to elicit strong disgust responses among adults (Olatunji & McKay, 2009). Exposure to contagious illnesses (e.g., noroviruses) and ingestion of spoiled food can lead to vomiting, and both of these situations can logically be connected to fears of or preoccupation with infection or contamination. One might expect that such concerns among individuals with vomit-related fears, as well as some associated safety behaviours (e.g., repetitive hand-washing or refusal to eat food that others have handled or prepared), might overlap with the intrusive, persistent thoughts or compulsive behaviours manifested in contamination-related obsessive-compulsive disorder. Emetophobic avoidance of contagion (or of vomit itself) might in some instances lead to agoraphobic limitations on movement and functioning. These possibilities were also beyond the scope of this project, but are a matter of interest for follow-up research.

The relationship between emetophobia and disgust is likely to be a complex, bidirectional one. Vomiting is one relatively reflexive physiological response to intense disgust experiences, but vomit-related fears may also be related to disgust reactions *to* vomit or vomiting. “Perhaps the most threatening characteristic that humans share with other animals is mortality, and avoidance of contact with death, either physically or mentally, seems to be central to disgust” (Olatunji & McKay, 2009; p. 13), at least in Western cultures. For individuals who experience an extreme dread of vomiting, sometimes to the extent that they associate it with psychological risk (e.g., “going

crazy”), physical risk, or even death, the simultaneous or intertwined experiences of disgust and this fear could be understandably overwhelming. Van Overveld et al. (2008) found that emetophobia was significantly associated with two aspects of disgust: *disgust propensity* describes how rapidly disgust is experienced, whereas *disgust sensitivity* refers to how negatively the disgust experience is evaluated. Individuals who reported emetophobic problems scored significantly higher than gender- and age-matched individuals who reported an absence of “emetophobic complaints” on both facets of disgust, with disgust sensitivity being the more powerful predictor of emetophobic complaints.

Control

Issues of control are implicated in virtually every anxiety disorder (Barlow, 2002; Brown, White, Forsyth, & Barlow, 2004; Davidson et al., 2008; Rapee, Craske, Brown, & Barlow, 1996). Avoidance behaviours can be attempts to control both the anxiety-provoking situation or stimulus and the experience of anxiety itself (Barlow, 2002; Davidson et al., 2008). Acquiring control over one’s bodily functions, and over one’s emotional responses, are integral aspects of the developmental process (Rothbart & Bates, 1998). After early to middle childhood, people in Western cultures are expected to manage their bodies in particular ways – including the expectations of self and others that certain physical processes and events, including excretion and vomiting, are to a considerable extent under voluntary control and should be conducted in private (Davidson et al., 2008).

Individuals with emetophobia tend to be comparably fearful of vomiting in public or in private (Lipsitz et al., 2001), but this tendency is not always the case, and it has been

suggested that there is an element of social phobia in some expressions of vomit-related fears (Marks, 1987), at least to the extent that vomiting in the presence of others may lead to either or both humiliation and rejection. Additionally, affected individuals may be distressed or exhibit agoraphobic behaviours due to their emotional responses to feared stimuli and situations. In such circumstances, they may feel out of control, and believe that others will respond negatively to their verbal and behavioural expressions of fear. While investigating potential associations between emetophobia and elements of social phobia was largely beyond the scope of the current study, exploring the possible presence and nature of such relationships will be important aspects of future research (see Results and Discussion).

Panic Disorder and Panic Attacks

There is preliminary evidence suggesting that associations exist between emetophobia and various types of psychopathology, including features of panic disorder, agoraphobia, obsessions or compulsions, some aspects of social anxiety, and atypical presentations of disordered eating (Lelliot et al., 1991; Lipsitz et al., 2001; Manassis & Kalman, 1990; Pollard et al., 1996; Veale & Lambrou, 2006; Whitton et al., 2006). The directionality, degree of overlap, and implications of such associations remain unclear to date, and these relationships are likely to be variable and often complex.

Based on the information currently available in the literature, it seems that the anxiety symptomatology most often associated with emetophobia overlaps considerably with panic disorder. Panic attacks, as defined in the DSM-IV-TR (American Psychiatric Association, 2000), are distinct episodes of intense fear or discomfort reaching peak levels within 10 minutes and including the experience of at least four of 13 symptoms,

many of which are associated with sympathetic nervous system arousal (i.e., the “fight or flight” response). Cued panic attacks (i.e., those that occur in response to particular situations or stimuli) may occur in the context of specific phobias (American Psychiatric Association, 2000). A large proportion of individuals living with emetophobia report experiencing cued panic attacks associated with their vomit-related fears, and a substantial subgroup of these people also report experiencing panic attacks which they believe are not connected to emetophobia (Lipsitz et al., 2001). Agoraphobic behaviours also appear to be relatively common among people with vomit-related fears (Philips, 1985), although assessment of such symptoms to date has been somewhat indirect or has relied mainly on self-reports. For example, Veale and Lambrou (2006) reported that 68 of 98 individuals with emetophobia said they avoided crowded places, and 64 said they avoided using public transportation, specifically because of their phobia, while Lipsitz et al. (2001) reported that 40% (22) of 56 respondents said they had agoraphobia.

The Current Study

The purposes of this study were to provide support for the preliminary findings regarding emetophobia to date, to add new and useful information to this growing body of knowledge, and perhaps to contribute to improved diagnosis and treatment, by exploring the etiology, characteristics, correlates, and implications of vomit-related fears. Aspects of emetophobia that have yet to be fully explored, such as common safety behaviours and emetophobic cognitions, were investigated using pilot measures. The data were evaluated in the context of several general predictions consistent with previous research, and in seeking support for a proposed cognitive-behavioural conceptualization of emetophobia that is similar to other anxiety disorders.

The study hypotheses were as follows: (1) Individuals with vomit-related fears were expected to have meaningfully high or low scores on measures of relevant constructs such as (high) anxiety sensitivity, visceral (GI-related) sensitivity, disgust propensity and sensitivity, and (low) perceived control, especially over internal reactions. (2) It was predicted that emetophobia would emerge as a phenomenon somewhat distinct from other expressions of health anxiety. (3) It was anticipated that people with emetophobic fears would report a higher frequency of panic attacks than individuals in the general population, and that the majority of these would be cued panic attacks in response to stimuli that triggered emetophobic fears. It was also expected that affected individuals would experience panic symptoms associated with their fears (i.e., nausea, dizziness/light-headedness) with more intensity than other panic symptoms.

The phenomenology of emetophobia was also investigated, both in order to bolster the findings in other studies and to add new information to what is currently known about the experiences of people living with emetophobia. Examples included: the degree of insight these individuals generally express regarding the reasonableness of their fears; the nature of experiences that might precipitate the fear; personal experiences with treatment; and the impact of the phobia on various aspects of their lives and functioning. Open-ended questions were included in the emetophobia-specific measures to gather information about age of onset, etiology, course, and level of insight among people with emetophobia regarding the rationality or reasonableness of their fears, as well as a number of other types of experiences associated with them. It was expected that most participants would report an early age at onset, some associations of the emergence of their fears with negative past experiences, a chronic and generally unremitting course,

and a high degree of insight regarding the irrational nature of their fears. Overall, the goals of this project were to seek preliminary empirical support for a cognitive-behavioural model of emetophobia and to contribute useful information to the limited but growing body of knowledge about a phenomenon that appears to warrant both research and clinical attention.

Method

Participants

Following the recruitment example of other studies of emetophobia (e.g., Lipsitz et al., 2001; van Overveld et al., 2008), participants in this study were 60 individuals who are members of two online support sites for people living with emetophobia:

Emetophobia.org and Gut Reaction (named with permission), which together have almost 20,000 members. Fifty-four women and six men participated in this study, reflecting a sex difference commonly seen in emetophobia research to date, and in the anxiety literature more generally. Participants between the ages of 17 and 61 were recruited via invitations posted in the website forums by site administrators (see Appendix A). Their average age was 30.7 years; approximately 32% of sample members were aged 20-29, 40% were between 30 and 39, and about 13% were aged 40-49. These individuals lived in various countries, including Canada, the United States, England, Wales, Scotland, and Australia; the majority of them were from the United Kingdom. Fifty-six participants identified their ethnic affiliation as Caucasian; the other four participants identified themselves as Asian.

All but two members of the sample completed high school; about 27% (16) finished college or university, and another 18% (11) completed graduate school. Thirty

percent of participants reported that they were single, while approximately 63% said they were married or cohabiting, and 5% were divorced. The incentive for participation, a small charitable donation on each participant's behalf, was selected for practical reasons: offering a nominal payment for participants' time would have created challenges given the anticipated (and actual) international composition of the sample. It was suggested by a site administrator during recruitment that an offer of payment versus the charitable donation might have boosted participation rates, a suggestion that will be taken into account for future studies.

Measures

Participation in this study involved the completion of a demographics questionnaire and 12 self-report measures assessing some of the key thoughts, behaviours, and constructs that may characterize or be associated with emetophobia, as well as providing preliminary information about its features. The questionnaire package took approximately 1 hour to complete, and was available to all participants online through the secure, password-protected survey software provided through the Qualtrics Research Suite website.

Demographics questionnaire. A 6-item measure was used to collect information regarding participants' age, gender, relationship status, educational attainment, and ethnic affiliation.

Mood and anxiety. The *Depression-Anxiety-Stress Scales, 21-item version* (DASS-21; Lovibond & Lovibond, 1995) were used to assess symptoms related to depression, elevated arousal and anxiety, and tension. Participants were asked to rate, on a 4-point scale, how much each item had applied to them over the previous week (e.g., "I

found it hard to wind down; I was worried about situations in which I might panic and make a fool of myself”). Psychometric examinations have supported the strong internal consistency, temporal stability, and concurrent validity of the DASS-21; Cronbach’s alphas for the three subscales were reported to be .94 for the Depression subscale, .87 for Anxiety, and .91 for Stress (Antony, Bieling, Cox, Enns, & Swinson, 1998). In this study, the Cronbach’s alphas for the scale and subscales were .95 for the overall measure, .94 for Depression, .86 for Anxiety, and .88 for Stress. The DASS-21 also appears to distinguish among these related and somewhat overlapping phenomena more effectively than the Beck Anxiety Inventory and the Trait scale of the State-Trait Anxiety Inventory (Antony, Bieling, et al., 1998).

Sensitivity to physiological experiences. Three instruments were included to investigate the presence of relationships between emetophobia and sensitivity to bodily sensations and changes. The 18-item *Anxiety Sensitivity Index-3* (ASI-3; Taylor et al., 2007) assesses general anxiety sensitivity by asking participants to rate how strongly they agree with each item on a scale from 0 = “very little” to 4 = “very much” (e.g., “It is important for me not to appear nervous; When my stomach is upset, I worry that I might be seriously ill”). The ASI-3 effectively measures three dimensions of the anxiety sensitivity construct: physical, cognitive, and social concerns, and exhibits good construct, convergent, discriminant, and criterion-related validities and internal consistency (Taylor et al., 2007). In this study, the ASI-3 exhibited adequate to strong reliability, with a Cronbach’s alpha of .90 for the overall score and .79, .91, and .85 for Physical, Cognitive, and Social subscales respectively. Individuals with panic disorder appear to have elevated scores on the Physical subscale relative to individuals with most

other anxiety disorders, with the possible exception of post-traumatic stress disorder (Taylor et al., 2007).

Participants also completed the *Body Vigilance Scale* (BVS; Schmidt, Lerew, & Trakowski, 1997), a 4-item scale that measures the tendency to attend to internal, panic-related physical sensations. The first three items (e.g., “I am the kind of person who pays close attention to internal bodily sensations; I am very sensitive to changes in my internal bodily sensations”) assess attention to interoceptive cues over the previous week on a 10-point range where 0 = “Not at all like me” and 10 = “Extremely like me.” The fourth item records the occurrence of the 13 DSM-IV-TR panic attack symptoms and two additional sensations. The BVS has been shown to exhibit adequate to strong internal consistency and construct, convergent, and discriminant validities (Schmidt, Lerew, & Trakowski, 1997; Olatunji, Deacon, Abramowitz, & Valentiner, 2007). Cronbach’s alpha of the BVS in this study was .91. Fearful attention and responses are associated with a number of anxiety disorders, including PTSD, GAD, OCD, and social anxiety. Individuals with panic disorder score higher on average on the BVS than those with other anxiety disorders; elevated BVS scores are also associated with hypochondriasis and health-related safety behaviours (Olatunji et al., 2007).

To assess the degree of anxiety associated specifically with gastrointestinal symptoms and sensations, participants completed the 15-item *Visceral Sensitivity Index* (VSI; Labus et al., 2004). Respondents were asked to rate the strength of their agreement with each item (e.g., “I get anxious when I go to a new restaurant; I often worry about problems in my belly; As soon as I feel abdominal discomfort I begin to worry and feel anxious”) on a scale from 1 (strongly disagree) to 6 (strongly agree). The VSI has

demonstrated strong psychometric properties, including high internal consistency and construct, convergent, discriminant, and concurrent validities (Labus et al., 2004; Labus et al., 2007). In this study, the VSI had a Cronbach's alpha of .93. Although visceral sensitivity has mainly been addressed regarding its relationship with irritable bowel syndrome (IBS), a relationship between this construct and emetophobia could logically be predicted, since an excessive fear of vomiting seems highly likely to be associated with or lead to GI-specific anxiety sensitivity. Additionally, connections have been found linking both IBS and elevated visceral sensitivity to neuroticism, general anxiety sensitivity, and other symptoms and features of anxiety psychopathology (Labus et al., 2004; Labus et al., 2007).

Health anxiety. The 18-item *Short Health Anxiety Inventory* (SHAI; Salkovskis, Rimes, Warwick, & Clark, 2002) was included to investigate the potential relationship between emetophobia and health anxiety. Items asked respondents to select the option that had been most applicable to them over the past 6 months (e.g., "If I have a bodily sensation or change, I (a) rarely wonder (b) often wonder (c) always wonder (d) must know what it means; A serious illness would ruin (a) some (b) many (c) almost every (d) every aspect of my life"). The SHAI is based on a cognitive-behavioural model of health anxiety (HA) and assesses three cognitive aspects of HA, independent of physical health status: perceptions of how likely one is to become ill, perceptions of severity of consequences of becoming ill, and body vigilance (Abramowitz, Deacon, & Valentiner, 2007).

While emetophobia was predicted to emerge as generally distinct from fully defined health anxiety in important ways, some overlap between the two was also

expected, and the nature of the relationship between the two should be informative in any case. The SHAI has demonstrated good reliability and construct, convergent, divergent, and predictive validities (Abramowitz et al., 2007; Olatunji et al., 2007, Salkovskis et al., 2002). Cronbach's alpha of the SHAI in this study was .91, and .90, .83, and .78 for the Illness Likelihood, Illness Severity, and Body Vigilance subscales respectively.

Disgust. The 16-item *Disgust Propensity and Sensitivity Scale-Revised* (DPSS-R; van Overveld, de Jong, Peters, van Hout, & Bouman, 2006) was selected as the disgust measure for this study in part as an attempt to replicate the results of a previous study by the scale creators that found an association between emetophobia and both disgust propensity (DP; how rapidly disgust is experienced) and sensitivity (DS; how negatively the disgust experience is evaluated), particularly the latter (van Overveld et al., 2008). Participants were asked to report how often each item applied to them on a scale from 1 = "Never" to 5 = "Always" (e.g., "I avoid disgusting things; It scares me when I feel nauseous"); the items are split to produce scores on DS and DP subscales.

The DPSS-R is a shortened version of the original DPSS (Cavanaugh & Davey, 2000), and appears to have acceptable psychometric properties, including moderate to good construct, content and convergent validities. In this study, Cronbach's alphas were .90 for the complete measure, and .91 and .79 for DP and DS respectively. Researchers have also reported adequate to good internal consistency of the two subscales, although further research is required to investigate whether the two aspects of disgust measured by this instrument are distinct constructs rather than two facets of the same construct (van Overveld et al., 2006; van Overveld et al., 2008). However, research to date indicates that DS and DP may be differentially associated with various types of anxiety

psychopathology. For example, DP appears to be implicated more strongly in spider phobia, while both DS and DP are associated with blood phobia (van Overveld et al., 2006), and as reported above, DS is a stronger predictor of emetophobic complaints (van Overveld et al., 2008). It has been suggested that the nature of the dominant response elicited by a phobic stimulus (i.e., fear versus disgust) may shape the relationships among the phobia, DS and DP (van Overveld et al., 2006).

Control. The 30-item *Anxiety Control Questionnaire* (ACQ; Brown, White, Forsyth & Barlow, 2004) was used to assess participants' perceptions of the degree of control they are capable of exerting over both internal (e.g., emotional) and external (e.g., subjectively or objectively threatening) events. Participants were asked to rate the extent to which each item (e.g., "I am usually able to avoid threat quite easily; When I am put under stress, I am likely to lose control") applied to them on a scale from 0 = "Strongly disagree" to 5 = "Strongly agree." Studies have shown that the ACQ has high internal consistency and test-retest reliability, as well as good construct, convergent and discriminant validities in both clinical and nonclinical samples (Brown et al., 2004; Rapee et al., 1996). Scores on the ACQ can be analyzed as a single construct, and two subscales can also be calculated: *r*, which assesses perceived control over internal reactions, and *e*, which evaluates perceived control over external events (Brown et al., 2004). In this study, the ACQ had a Cronbach's alpha of .90, while the alpha values for its *r* and *e* subscales were .84 and .82.

Panic symptoms. Potential relationships between emetophobia and the occurrence of panic symptomatology were explored using the 6-item *Panic Frequency Questionnaire* (PFQ; Antony & Swinson, 1999, 2000). The PFQ items assess the

frequency of cued and uncued panic attacks during the previous month and which symptoms occur during attacks, as well as quantifying the degree of worry and behavioural changes that occur in response to panic symptoms on variously worded 8-point Likert scales designed to reflect the associated behavioural and cognitive symptoms required for a diagnosis of panic disorder (e.g., “During the past month, to what extent have you behaved differently (e.g., avoiding situations, avoiding activities, using drugs or alcohol to reduce anxiety, carrying certain objects with you, etc.”). The psychometric properties of this instrument have yet to be established, but its relative brevity and usefulness in terms of diagnosis, case formulation, and planning and monitoring treatment (Roth, Marx, & Coffey, 2002) suggest that it was an appropriate measure of panic symptoms in this context.

Emetophobia. Four measures related to various aspects of emetophobia were included to investigate how emetophobia is experienced and influences experience. An amended and abbreviated measure modelled on the *Fear of Vomiting Questionnaire* (FoVQ, Veale, 2008) was a brief (10-item) assessment of feared situations in emetophobia that also provided some information about its nature (e.g., self or others, public or private) and course, as well as degree of insight into the excessive nature of the fears. The original questionnaire was shortened and revised due to its extensive length (22 pages including 61 items, most of which had several sub-items), as well as to allow the inclusion of several questions regarding issues that have yet to be addressed in emetophobia research (e.g., level of insight; details regarding specific incidents that might have been precipitating events). This truncated version of the FoVQ included some

items asking for numerical ratings and others that elicited open-ended responses, and as such no cumulative score could be calculated.

The 51-item *Emetophobic Safety Behaviours Questionnaire* (ESBQ; developed for this study by author) was administered to explore what types of avoidance and compensatory acts are most common among emetophobic individuals (see Appendix B). Participants were asked to rate how much or how often they engage in certain behaviours (e.g., “Ask people repeatedly how they are feeling”) to manage their emetophobia, using response options ranging from “I do this, but NOT to manage a fear of vomiting/vomit” to “ALWAYS to manage a fear of vomiting/vomit.” The measure exhibited strong internal consistency in this study, with a Cronbach’s alpha of .96.

The 39-item *Emetophobic Cognitions Scale* (ECS; developed for this study by author) was included to investigate the type and intensity of thoughts and beliefs that may be associated with vomit-related fears (see Appendix C). The ECS has two subscales: Beliefs about Causes [of vomiting] (28 items) and Beliefs about Consequences [of vomiting] (11 items), which includes an open-ended item asking participants about their beliefs regarding the worst thing(s) that would happen if they vomited. The measure exhibited adequate to strong internal consistency in this study, with Cronbach’s alphas of .94 for the total scale, and .94 and .83 for the Causes and Consequences subscales respectively.

Finally, the *Illness Intrusiveness Ratings Scale* (IIRS; Devins et al., 1983) was used to assess impairment across 13 domains of functioning. Normally, the IIRS asks respondents to indicate the extent to which an illness or its treatment interferes with each of the 13 life domains. For the purpose of the current study, the instructions were revised

to apply to emetophobia rather than an “illness” (this adapted version will be referred to as the IIRS-Emetophobia version, or IIRS-E). On this scale, participants were asked to rate the degree to which emetophobia interfered in areas such as diet, work, and relationships on a scale from 1 = “not very much” to 7 = “very much.” Research indicates that anxiety disorders such as panic disorder, obsessive-compulsive disorder, and social phobia are rated as more impairing on average in a variety of functional domains than some serious medical illnesses (Antony, Roth, Swinson, Huta, & Devins, 1998). Evidence suggests that the IIRS is psychometrically strong across a range of illnesses in terms of construct validity and internal consistency, and is robust to defensive patterns of responding (Antony, Roth, et al., 1998). In this study, the IIRS-E had a Cronbach’s alpha of .93.

Three of the emetophobia measures (ESBQ, ECS, and IIRS-E) yielded numerical scores that were used to create a composite emetophobia score for use in some study analyses. This composite score was calculated by summing each participant's mean scores on each of the three measures, as a potential strategy for merging information about relatively distinct aspects of emetophobia. It was thought that use of this composite score might allow for a stronger or additionally informative evaluation of the relationships among emetophobia and the anxiety-relevant constructs assessed in this study.

Procedure

The questionnaire package was administered to all participants via computer using Qualtrics Research Suite, an online survey software package. A standard consent form was presented first (see Appendix D). Participants indicated consent by selecting

the “Yes, I agree” option at the end of the online consent form, and could not proceed into the survey itself without providing consent. In the online recruitment postings and in the contact e-mail providing the survey link, participants were invited to address any questions through e-mail before completing the study questionnaires. Participants were then e-mailed the link to the study and provided with a password that allowed them to enter the study site and complete the questionnaire package only once. Low initial response rates led to a decision to make the survey more accessible and anonymous by posting a direct link in the support sites’ discussion forums, and participation did increase thereafter.

The demographics questionnaire always appeared first, while the remaining questionnaires were presented in two blocks; the order of presentation within the blocks was varied at random. The first block included the eight measures assessing anxiety, anxiety sensitivity, health anxiety, disgust sensitivity and propensity, perceived control, and panic symptomatology (i.e., DASS-21, ASI-3, BVS, VSI, SHAI, DPSS-R, ACQ, and PFQ). These measures appeared to participants in randomized order to address any order effects of scale administration. The four emetophobia-specific measures (i.e., FoVQ, ESBQ, ECS, and IIRS-E) always appeared in the second block, which was completed last in the questionnaire sequence. The four emetophobia measures also appeared in randomized order. This order of block administration was designed to minimize any potential distortion of responses to instruments in the first block, as it was anticipated that many emetophobic individuals would experience some related discomfort while completing measures designed to assess vomit-related fears. This discomfort relates particularly to language associated with the feared stimuli (see Discussion). The survey

was constructed so that all participants completed the entire questionnaire package in one interval; they were unable to close the web page and return to it at a later time.

Results

Hypotheses 1 and 2: Anxiety-Relevant Constructs and Health Anxiety

Descriptive statistics, 95% confidence intervals, and intercorrelations were calculated for all relevant measures (see Table 1). Participants tended to have more extreme (i.e., higher or lower) scores on average on pertinent constructs than members of the general population, and in some cases than members of various clinical groups. These results are consistent with study hypotheses, and appeared to be particularly true on measures of those constructs that may be most germane to vomit-related fears (i.e., visceral sensitivity, disgust, perceived control). Comparisons were made based on descriptive statistics and 95% confidence intervals from studies that evaluated the psychometric properties of relevant measures across several comparison groups (see Table 2).

In this study, mean scores on the three DASS-21 subscales were: Depression (D), 15.83, 95% CI [12.69, 18.97]; Anxiety (A), 16.32, 95% CI [13.63, 19.01]; and Stress (S), 18.27, 95% CI [16.03, 20.51]. In comparison, Antony and colleagues (1998) reported mean subscale scores for non-clinical volunteers (D, 2.12; A, 1.22; and S, 3.51) as well as several clinical groups: specific phobia [SP] (D, 10.82; A, 6.59; and S, 13.2); panic disorder [PD] (D, 12.75; A, 18.72; and S, 20.0); obsessive-compulsive disorder [OCD] (D, 13.30; A, 9.26; and S, 17.59); and social phobia [SA] (D, 13.19; A, 12.22; and S, 16.57). Participants' scores in this study indicate that they were experiencing significantly higher levels of symptoms of all three related constructs than those reported

by the non-clinical control group and in a range that is fairly consistent with those reported for the clinical groups, all of which represent diagnoses of interest in association with emetophobia (see Table 2).

The Anxiety Control Questionnaire has a possible score range of 0-150, and higher scores indicate higher perceived control. The mean ACQ score among participants in this study, 64.25, 95% CI [58.80, 69.70] appeared to be significantly lower than that of a clinically anxious norm group (see Table 2). This norm group included individuals with primary diagnoses of panic disorder with or without agoraphobia, generalized anxiety disorder, social anxiety, specific phobia, obsessive-compulsive disorder, and “other anxiety” (Rapee et al., 1996); descriptive statistics for separate diagnostic groups were not available. Rapee et al. (1996) reported mean scores of 96.1 among undergraduates and 73.8 in this clinically anxious group pretreatment, indicating that anxious individuals tend to believe that they have more limited control over what happens to them both situationally and internally. The finding in this study implies that people with emetophobic fears may be particularly likely to believe they have little control over either what happens in their environments or their own reactions to their experiences. The results of subsequent simultaneous regressions (see next section) indicated that among participants in this study, such perceived lack of control was particularly pronounced in terms of internal responses.

Each subscale (Disgust Sensitivity [DS] and Disgust Propensity [DP]) of the DPSS-R has a range of 8-40, with higher scores indicating higher levels of each potential aspect of disgust. People with “emetophobic complaints” have been found to score significantly higher than people without them on both DP and DS, particularly the latter.

Table 1: Means, Standard Deviations, and Intercorrelations of Variables

Variable	M	SD	95% CI	1	2	3	4	5	6	7	A
I. Anxiety-relevant											
1. DASS-21	26.85	15.30	[22.98, 30.72]								
2. ASI-3	29.03	15.28	[25.16, 32.90]	.66*							
3. BVS	30.42	6.87	[26.68, 32.16]	.67*	.60*						
4. VSI	65.37	16.70	[61.14, 69.60]	.57*	.55*	.65*					
5. SHAI	47.41	10.10	[44.85, 49.97]	.59*	.61*	.50*	.69*				
6. DPSS-R	53.66	10.25	[51.07, 56.25]	.73*	.63*	.45*	.59*	.54*			
7. ACQ	64.25	21.55	[58.50, 69.70]	-.65*	-.64*	-.50*	-.66*	-.61*	-.64*		
II. Emetophobia											
A. Composite	11.38	3.37	[10.43, 12.33]	.77*	.61*	.59*	.78*	.62*	.73*	-.71*	
B. IIRS-E	49.86	19.27	[44.98, 54.74]	.76*	.57*	.59*	.76*	.66*	.62*	-.66*	X
C. ESBQ	189.83	40.15	[179.12, 199.36]	.70*	.53*	.53*	.69*	.49*	.75*	-.61*	X
D. ECS	63.48	26.05	[56.31, 69.55]	.71*	.59*	.55*	.73*	.55*	.69*	-.66*	X
E. ECSCauses	41.03	20.98	[35.72, 46.34]	.70*	.52*	.53*	.71*	.49*	.64*	-.58*	X
F. ECSConsq	21.90	8.40	[19.77, 24.03]	.49*	.54*	.40*	.51*	.48*	.55*	-.60*	X

Variable	B	C	D	E
I. Anxiety-relevant				
1. DASS-21				
2. ASI-3				
3. BVS				
4. VSI				
5. SHAI				
6. DPSS-R				
7. ACQ				
II. Emetophobia				
A. Composite				
B. IIRS-E				
C. ESBQ	.81*			
D. ECS	.74*	.79*		
E. ECSCauses	.71*	.76*	.96*	
F. ECSConsq	.54*	.57*	.71*	.49*

*Note: * = Correlation is significant at the .01 level (2-tailed). Intercorrelations were not calculated among the composite emetophobia score and the scales which were used in its calculation. DASS-21 = Depression-Anxiety-Stress Scales-21; ASI-3 = Anxiety Sensitivity Index-3; BVS = Body Vigilance Scale; VSI = Visceral Sensitivity Index; SHAI = Short Health Anxiety Inventory; DPSS-R = Disgust Propensity and Sensitivity Scale-Revised; ACQ = Anxiety Control Questionnaire; IIRS-E = Illness Intrusiveness Rating Scale – Emetophobia; ESBQ = Emetophobic Safety Behaviours Questionnaire; ECS = Emetophobic Cognitions Scale; ECS-Causes = ECS Causes Subscale; ECSConsq = ECS Consequences Subscale.*

Table 2: Descriptive Statistics and 95% Confidence Intervals from Comparison Samples

	Non-Clinical	PD	SA	SP	OCD	Other (A)	Other(B)
Measure	N Mean (SD) [95% CI]	N Mean (SD) [95% CI]	N Mean (SD) [95% CI]	N Mean (SD) [95% CI]	N Mean (SD) [95% CI]	(N/A)	(N/A)
DASS-21D	49 2.12 (3.64) [1.10, 3.14]	67 12.75 (10.15) [10.32, 15.18]	74 13.19 (9.28) [11.08, 15.30]	17 10.82 (11.25) [5.47, 16.17]	54 13.30 (11.83) [10.14, 16.46]	(N/A)	(N/A)
DASS-21A	49 1.22 (1.77) [0.72, 1.72]	67 18.72 (10.77) [16.14, 21.30]	74 12.22 (10.20) [9.90, 14.54]	17 6.59 (6.59) [3.46, 9.72]	54 9.26 (7.56) [7.24, 11.28]	(N/A)	(N/A)
DASS-21S	49 3.51 (3.78) [2.45, 4.57]	67 20.00 (11.60) [17.22, 22.78]	74 16.57 (10.91) [14.08, 19.06]	17 13.29 (11.85) [7.66, 18.92]	54 17.59 (10.98) [14.66, 20.52]	(N/A)	(N/A)
ACQ	71 96.1 (18.9) [91.70, 100.50] Matched control	(N/A)	(N/A)	(N/A)	(N/A)	Clinically Anxious 282 73.80 (21.20) [71.33, 76.24]	
DPSS-R DP	39 18.54 (4.01) [17.28, 19.80] Matched control	(N/A)	(N/A)	*Emetophobia 133 25.18 (4.98) [24.33, 26.03]	(N/A)	(N/A)	(N/A)
DPSS-R DS	39 13.41 (3.64) [12.27, 14.55]	(N/A)	(N/A)	*Emetophobia 133 25.44 (5.28) [24.54, 26.34]	(N/A)	(N/A)	(N/A)

Table 2: Descriptive Statistics and 95% Confidence Intervals from Comparison Samples

	Non-Clinical	PD	SA	SP	OCD	Other (A)	Other (B)
Measure	N	N	N	N	N	N	N
	Mean (SD) [95% CI]	Mean (SD) [95% CI]	Mean (SD) [95% CI]	Mean (SD) [95% CI]	Mean (SD) [95% CI]	Mean (SD) [95% CI]	Mean (SD) [95% CI]
ASI-3	4720 12.80 (10.60) [12.50, 13.10]	120 32.60 (14.30) [30.04, 35.16]	38 31.40 (11.90) [27.62, 35.18]	(N/A)	102 26.30 (16.80) [23.04, 29.56]	(N/A)	(N/A)
BVS(a)	71 18.30 (8.50) [16.32, 20.28]	48 22.60 (9.10) [20.23, 25.17]	18 17.60 (6.80) [14.46, 20.74]	(N/A)	(N/A)	(N/A)	(N/A)
BVS(b)	(N/A)	50 25.65 (7.85) [23.47]	32 14.97 (9.14) [11.80, 18.40]	17 16.74 (8.18) [12.58, 20.36]	(N/A)	Hypochondriasis 14 21.90 (12.45) [15.38, 28.42]	(N/A)
VSI	444 8.2 (N/A) [7.2, 9.2]	(N/A)	(N/A)	(N/A)	(N/A)	IBS+ NonTx 82 28.0 (N/A) [22.1, 23.9]	IBS+ Tx 54 38.0 (N/A) [33.1, 42.9]

Note: PD = Panic Disorder; SA = Social Anxiety; SP = Specific Phobia; OCD = Obsessive Compulsive Disorder; DASS-21 = Depression Anxiety Stress Scales; D = Depression; A = Anxiety; S = Stress; ACQ; DPSS-R = Disgust Propensity and Sensitivity Scale-Revised; DP = Disgust Propensity; DS = Disgust Sensitivity; ASI-3 = Anxiety Sensitivity Index-3; BVS = Body Vigilance Scale; (a) = Schmidt et al. (1997); (b) = Olatunji et al. (2007); VSI = Visceral Sensitivity Index; (N/A) = not applicable or not available; IBS+ = irritable bowel syndrome diagnosis present; NonTx = not in treatment; Tx = in treatment.

In this study, the mean scores, DP = 26.9, 95% CI [25.36, 28.48] and DS = 26.8, 95% CI [25.42, 28.08], were significantly higher than those of a control group without “emetophobic complaints”, and very similar to those of participants with vomit-related fears in the van Overveld et al. (2008) sample (see Table 2): mean DP and DS scores for individuals with “emetophobic complaints” were 25.2 and 25.4 respectively, and among matched controls without such complaints, mean scores were 18.5 (DP) and 13.4 (DS). To date, this measure has not been normed on other clinically anxious groups or community samples.

In terms of sensitivity to bodily sensations and changes, some of the results seem particularly striking. The Anxiety Sensitivity Index-3 has a possible range of 0-72. Emetophobic individuals in this sample had a mean ASI-3 score of 29.03, 95% CI [25.16, 32.90], which places their anxiety sensitivity significantly above the non-clinical average and within the range of clinically anxious groups, as reported by Taylor et al. (2007). Participants in this study appeared to experience very similar levels of fearfulness of anxiety symptoms, on average, as do people with primary diagnoses of PD, SA, and OCD, all of which are diagnoses of potential interest in relation to the people with emetophobic fears (see Table 2).

On the Body Vigilance Scale, which has a range from 0-40, the mean score of participants in the current study was 30.42, 95% CI [26.86, 32.16], implying that individuals with vomit-related fears may be even more attuned and reactive to internal panic-related sensations than people with panic disorder, who typically score higher on the BVS than those with other anxiety diagnoses. Schmidt et al. (1997) reported means from a community sample (18.3) as well as groups with PD (22.6) and SA (17.6);

participants in the current study scored significantly higher, on average, than the PD group in the 1997 study (see Table 2). Olatunji et al. (2007) reported that individuals with a primary diagnosis of PD had significantly higher mean BVS scores (25.65) than those of most other clinically anxious groups, including SA (14.97) and SP, (16.74), but not those with hypochondriasis (HP, 21.90). The mean BVS score of the sample in the current study was also significantly higher than those of Taylor et al.'s (2007) SA and SP groups, and was at a level similar to those of the PD and HP groups (see Table 2). The BVS is generally thought to discriminate PD from other expressions of anxiety psychopathology (Olatunji et al.). Finally, the Visceral Sensitivity Index has a possible range of 0 (no GI-specific anxiety) to 75 (severe GI-specific anxiety). In this sample, the mean VSI score was 65.4, 95% CI [61.14, 69.60], which indicates that, as expected, people with emetophobic fears tend to experience extremely high levels of anxiety related to gastrointestinal sensations and changes. Labus et al. (2007) reported mean scores on of 8.2 among non-IBS controls, 28.0 in a non-treated IBS+ group, and 38.0 among IBS+ individuals receiving treatment, all of which are significantly lower than the mean VSI score in the current study (see Table 2).

Additionally, emetophobia was assessed as a continuous variable to preserve the greatest possible amount of information, while avoiding a substantial loss of power and increased risk of Type I error or “false positives” (MacCallum, Zhang, Preacher, & Rucker, 2002; Royston, Altman, & Sauerbrei, 2005). As two of the three measures included in individuals' composite emetophobia scores were developed for this study (i.e., ESBQ and ECS), and no parallel measures are currently available, it was unknown which of the emetophobia measures might constitute a “best measure” of emetophobia in

the current study. Therefore, a composite emetophobia score was calculated for each participant by summing mean scores from each of the three emetophobia measures that yielded a numerical score (i.e., IIRS-E, ESBQ, and ECS).

Simultaneous regression analyses were conducted to examine the relative contribution of hypothesized factors (i.e., health anxiety, anxiety sensitivity, visceral sensitivity, perceived control, disgust) associated with emetophobic symptoms. Bivariate analyses were used to determine which psychological variables were included as covariates in the regression models. Inclusion was based on statistically significant associations (i.e., $p < .05$), as indicated by Pearson correlation coefficients. Since the traditional standard for multiple regression predictors is one per 7-10 participants and there were 60 participants in total, six predictors were also selected based on the study hypotheses, and included SHAI, ASI-3, VSI, DPSS-R, and ACQ-*e* and ACQ-*r* scores. Separate regression equations were examined for each of the potential criterion variables (i.e., six separate emetophobia scores: each of the three numerically scored scales, the two ECS subscales, and the composite emetophobia score), to determine which of these variables might serve as a “best measure” of emetophobia in the current study. Scores on the SHAI, ASI-3, VSI, DPSS-R, and ACQ-*e* and ACQ-*r* as predictors were entered in one block in each regression.

While all regression equations reached statistical significance at a level of $p < .001$, the composite emetophobia score appeared to represent the best measure of emetophobia in the current study, as expected: $F_{(6, 59)} = 29.13$, $R^2 = .77$. Of the six variables entered into the regression analyses, three were significant predictors of this composite emetophobia score: the ACQ-*r*, representing perceived control over internal

reactions; the VSI, indicating visceral sensitivity; and the DPSS-R, denoting disgust responses. In other words, higher composite emetophobia scores were significantly predicted by lower perceived control over internal responses to situations, a higher degree of attentional bias and reactivity to gastrointestinal sensations and changes, and more rapid and negatively experienced disgust responses. As expected (Hypothesis 2), health anxiety was *not* a significant predictor of composite emetophobia scores ($t = -1.15$, $p = .258$), indicating that emetophobia is a phenomenon that is at least somewhat distinct from health anxiety. This pattern of predictor significance largely held across most regression equations (see Table 3). However, there was some variation: SHAI scores emerged as a significant predictor when the ESBQ was used as the criterion variable; the predictive power of disgust failed to reach statistical significance when the criterion variable was the IIRS-E, and none of the variables included were significant predictors of scores on the Consequences subscale of the ECS, perhaps indicating that this subscale requires revision (see Discussion).

Correlational analyses indicated that scores on the Sensitivity (DS) subscale of the DPSS-R were significantly more closely associated ($r = .78$) with the composite emetophobia score relative to scores on the Propensity (DP) subscale ($r = .55$, $z = 2.28$, $p = .013$, two-tailed) and comparably with scores on the entire measure ($r = .73$, $z = 0.62$, $p = .54$, two-tailed). Subsequent simultaneous regression analysis indicated that DS was the stronger predictor of the composite score ($t = 6.90$, $p < .001$), while the predictive power of DP failed to reach statistical significance ($t = 1.16$, $p = .251$). This finding replicates in part the findings of van Overveld et al. (2008), although in that study both subscales were significant predictors. Overall, such a result is not especially surprising, given that the

Table 3: Regression Values for all Potential Criterion Variables

Criterion	Predictor	B	SE of B	β	t	p
Composite	ACQ-r^{**}	-.12	.04	-.40	-3.22	.002
	ACQ- e	.04	.03	.15	1.30	.199
	ASI	.04	.02	.16	1.48	.146
	SHAI	-.04	.04	-.13	-1.15	.258
	VSI***	.09	.02	.43	4.19	<.001
	DPSS-R**	.09	.03	.27	2.82	.007
$F_{(5,61)} = 29.13, R^2 = .77$						
IIRS-E	ACQ-r^*	-.57	.25	-.34	-2.29	.026
	ACQ- e	.20	.27	.12	.89	.377
	ASI	.15	.16	.12	.90	.372
	SHAI	.09	.26	.05	.36	.718
	VSI**	.50	.14	.43	3.46	.001
	DPSS-R	.21	.22	.11	.962	.340
$F_{(5,61)} = 17.57, R^2 = .67$						
ESBQ	ACQ-r^*	-1.21	.49	-.35	-2.47	.017
	ACQ- e	.77	.45	.22	1.72	.091
	ASI	.34	.32	.13	1.06	.293
	SHAI**	-1.37	.51	-.35	-2.71	.009
	VSI***	1.09	.29	.45	3.81	<.001
	DPSS-R***	1.92	.44	.49	4.41	<.001
$F_{(5,61)} = 20.28, R^2 = .71$						
ECS_TOT	ACQ-r^{**}	-.88	.33	-.39	-2.68	.010
	ACQ- e	.40	.30	.17	1.31	.197
	ASI	.34	.22	.20	1.56	.125
	SHAI	-.54	.34	-.21	-1.57	.122
	VSI**	.68	.19	.44	3.54	.001
	DPSS-R*	.67	.29	.26	2.29	.026
$F_{(5,61)} = 18.14, R^2 = .68$						
ECS_CAU	ACQ-r^*	-.69	.29	-.38	-2.38	.021
	ACQ- e	.49	.27	.27	1.87	.067
	ASI	.26	.19	.19	1.37	.178
	SHAI	-.57	.30	-.27	-1.91	.062
	VSI***	.67	.17	.52	3.94	<.001
	DPSS-R*	.55	.26	.27	2.15	.036
$F_{(5,61)} = 14.15, R^2 = .63$						
ECS_CONS	ACQ- r	-.20	.14	-.27	-1.40	.168
	ACQ- e	-.10	.13	-.14	-.77	.445
	ASI	.08	.09	.15	.86	.394
	SHAI	.03	.15	.04	.23	.822
	VSI	.02	.08	.37	.22	.824
	DPSS-R	.12	.13	.15	.96	.341
$F_{(5,61)} = 6.46, R^2 = .43$						

*Note: * = $p < .05$. ** = $p < .01$. *** = $p < .001$. IIRS-E = Illness Intrusiveness Rating Scale – Emetophobia; ESBQ = Emetophobic Safety Behaviours Questionnaire; ECS = Emetophobic Cognitions Scale; ECS_CAU = ECS Causes Subscale; ECS_CONS = ECS Consequences Subscale; ACQ = Anxiety Control Questionnaire; *e* = External Events Subscale; *r* = Internal Reactions Subscale; ASI = Anxiety Sensitivity Index-3; SHAI = Short Health Anxiety Inventory; VSI = Visceral Sensitivity Index; DPSS-R = Disgust Propensity and Sensitivity Scale-Revised.*

Sensitivity subscale contains two items specifically targeting nausea and vomiting related to experiences of disgust. The decision to include overall DPSS-R scores in simultaneous regression analyses was based on several factors: the associations between the composite emetophobia score and scores on both the Sensitivity subscale and the entire measure were not significantly different in magnitude; important questions remain about whether DS and DP are actually distinct facets of disgust; and the limitations on number of predictors due to sample size.

Hypothesis 3: Panic Symptoms

While the DSM-IV-TR (American Psychiatric Association, 2000) states that lifetime prevalence rates of panic disorder in community samples are generally reported to be 1-2% and sometimes as high as 3.5%, recent epidemiological research indicates that this figure may be higher, at 4.7% (Kessler, Berglund, et al., 2005), while 12-month prevalence rates were reported to be 2.7% (Kessler, Chiu, Demler, & Walters, 2005). However, panic attacks themselves appear to be far more common. Kessler et al. (2006) reported that the 12-month prevalence rate of panic attacks among adults in the general population of the United States was over 11%. As anticipated, in comparison with this rate, a substantial proportion of participants in this study appeared to experience panic symptoms to a clinically relevant degree. Thirty-eight of the 60 participants (63.3%) reported having at least one panic attack in the previous month; among these participants,

26.3% (10) said they had 10 or more, including one person who reported having 50. Of those who reported having panic attacks, 46% said they had two or more uncued attacks in the previous month, and the same proportion reported having two or more situationally triggered panic attacks during that time. Therefore, the hypothesis that cued panic attacks related to emetophobic triggers would be more common than uncued attacks was unsupported in this study, but clearly both types of panic attacks are substantially more common among people living with emetophobia than among members of the general population.

Regarding other aspects of panic symptomatology, even participants who had not experienced panic attacks in the previous month expressed unease about future attacks. For example, 68% of all participants (41) said they had at least moderate concern about experiencing future panic attacks; 11 rated their concern as severe or constant. Concern about “something bad” (e.g., dying, vomiting) happening during a panic attack was rated as moderate to severe by 83% (50) of all 60 participants, 18 of whom described this concern as “constant.” Resulting changes in behaviour at moderate to extreme levels were endorsed by 43 study participants (72%), including 12 who characterized these changes as “very extreme.” Consistent with prior research, these findings indicate a fairly strong association between emetophobic fears and panic symptoms. As anticipated, the most intensely experienced symptom among participants who had panic attacks was nausea/abdominal discomfort (which would also be extremely likely to exacerbate their anxiety, creating a feedback loop that might best be characterized as a vicious cycle). With a rating range from 0 (none) – 4 (very severe), the mean intensity of this panic symptom was 3.23. The next most intensely experienced symptoms were “dizzy,

unsteady, lightheaded, faintness” (mean intensity 2.43) and racing or pounding heart (mean intensity 2.42).

Experiences of Emetophobia

The brief measure modelled on Veale’s (2008) Fear of Vomiting Questionnaire, as well as open-ended questions and some other items on the ESBQ and ECS, provided the material for this largely qualitative portion of the study results.

Onset and associated negative experiences. As predicted, respondents generally reported an early age of onset of their emetophobia in terms of an awareness of the fear. Two said simply “as long as I can remember,” while 13 reported being aware of the phobia by the age of five. Another 28 said they became aware of their fear between the ages of six and nine, and 14 said this awareness first occurred when they were aged 10 to 16. Only three reported a later onset, and the latest was at age 20 years. The age at which the phobia became a problem tended to be somewhat later, although this was not always the case. For most participants (34 of 60), emetophobia began to interfere with their lives when they were between the ages of 12 and 20, while 14 reported that this interference began when they were aged 10 or younger. One person simply repeated “as long as I can remember,” and only one said the phobia has never been a “significant” problem. Without providing an age, one participant said the interference coincided with starting school, while another linked it to having children in her thirties. One person reported that the interference did not begin until age 46, but did not elaborate.

Regarding precipitating events, 45 of 60 participants reported some degree of conviction that their fear was connected to negative past experiences. Among them, 12 said they thought it was definitely linked to one or more negative past experiences and 33

reported that it might have been or was somewhat associated with such experiences, which spanned a broad range of situations. Examples included:

“Right around the time my father had lung cancer surgery (followed by ten months of chemo and lots of v’ing) I had gotten sick. There seems to me to be a connection between v’ing and suffering/death.”

“My Dad used to hit me if I was sick. & then I had food poisoning which was when I became very afraid.”

“[At age] 14 - My Mum became very ill and was hospitalised, I thought she might die so took an overdose, result was being sick 18 times after being given a vomit inducing medicine.”

“I am not sure that my fear is connected to previous experiences, although I do remember alot of periods in my past where I was ill or my siblings were ill. I went to see a hypnotist regarding my phobia and she asked me to remember certain situations from my past. One was where my brother has eaten egg mayonnaise and vomited through his nose. I was probably around 4 or 5. I don't remember feeling scared or upset about it, but the hypnotist suggested my fear may have come from the fact that my mum may not have comforted me and my sister as she was busy cleaning my brother up...”

“My mum would get migraines every fortnight, for four or five days at a time. The doctor would be in three or four times during each attack to inject her with pethidene/morphine/anti-emetics. If she lay totally still in a darkened room and didn't move AT ALL, she would vomit every five minutes for up to 36 hours. If she so much as moved her eyes, she would vomit constantly. Through the whole of my childhood I watched this. Then, when I was 10, she fell pregnant and because her migraines were triggered by hormones, she was very ill right up till my brother was born. I remember lying on the couch with a cushion over my head trying to block out the noise of her being sick. When she had migraines, I'd hide because I couldn't stand to hear or see her vomit. Sometimes I'd try to be brave and I'd empty her sick bowl for her. I managed to do it on the odd occasion but the image still haunts me.”

“In elementary school, kids in my class vomited a lot in school. Whether it was in a classroom or on a bus for a field trip, it happened several times per year. I think that since I vomited very rarely as a child, seeing other people do it so frequently frightened me quite a bit. It was never a normal thing for me, as it is for most other people.”

“There may be 2 events that triggered the fear, one was when I was 4 years old, the other when I was 6. When I was 4, everyone in my family got food poisoning, resulting in a lot of vomiting, including myself when I was in bed. My father

cleaned up the mess in my bed, and gave me the heimlech maneuver to force my body to vomit so I wouldn't get more sick while in bed again. Second possible event was when I was 6 years old, I got very nauseous after eating a cheeseburger from McDonalds. My mother was too busy washing the dishes and had my sister help me to the bathroom. I think that not having my mother console me while being sick in the bathroom may have something to do with the phobia."

"I was repeatedly sick with stomach viruses when I was young. I would get sick and vomit repeatedly and was hospitalized many times. I think this has somewhat stuck with me."

"Vomited in front of the entire school during school assembly when I was singled out for good achievement."

Course and experiences with treatment. There appears to be considerable variation in the course of emetophobia experienced by members of this sample, but lasting improvement seemed to be a rare occurrence among them – only five of 60 said that while their fear had been continuous, overall the problem had gotten better with time. Among those who also said the problem had been continuous, four said it had stayed the same, while 17 reported that it worsened over time. Half of respondents (30) said the course had varied, such that at some times it had been much better and at others much worse, but it had never gone away completely. Forty-two respondents (70%) had sought treatment, many of them in more than one form. Cognitive-behavioural therapy was the most common type of treatment received (32), along with medications (27) and "other" (18), including inpatient admissions, hypnotherapy, and EMDR.

Four of the five participants who reported improvement also said they had found treatment (medication for two, CBT for one, hypnotherapy for one) very helpful, while 18 (43%) said it was not at all helpful, and 20 (48%) described it as somewhat helpful. Several respondents who had tried CBT noted that they found the expectations of therapists and the requirements of treatment, especially aspects of exposure, too difficult

to tolerate, and dropped out early despite describing themselves as both “determined” and “desperate for help.” Perhaps relatedly, 42% of participants said they usually or always avoided watching movies or television shows (or reading books) in which someone vomits to manage their fears, reflecting an issue (mentioned earlier, and also seen in other disgust-based phobias) with typical exposure techniques in CBT.

Insight. Participants in this study generally displayed a high degree of insight into the irrational nature of their vomit-related fears. They were asked to rate the degree to which they believed their phobia was reasonable or made sense on a scale from 0 (completely) to 100 (not at all). The mean score on this item was 78.34; almost all participants gave a rating at or above 75, including 13 ratings of 100, and four gave ratings in the 50-60 range. There were several exceptions that substantially lowered this mean score: one participant gave a rating of 0, one of 3, one of 15, and two others gave ratings of 30. Overall, it seems that people living with emetophobia understand that their fears are not realistic reactions to a serious threat.

This expected finding was also supported by participants’ responses to an open-ended item in which they explained the reasons for the rating they provided. Respondents who had given ratings at or above 75 generally said, in sum: they knew the fear didn’t make sense and was unreasonable, and were fully aware that vomiting itself is not harmful and can actually serve a useful or healthy function. A number of them noted, however, that such awareness has little or no effect on their fear – “knowing that doesn’t make any difference.” Among participants who rated their fear as making complete sense or being quite reasonable, one individual responded to this item by saying: “I do not believe it is right to vomit, and it has been such a long time since I vomited.” Other such

explanations included: “(a) My fear is very real to me; (b) If I didn’t have the fear I may vomit more; (c) It is normal sometimes.” Two participants who give mid-range ratings said: “I think it is reasonable to be afraid of being sick but at the same time not reasonable to be as scared as I am”; and “I don't think it is unreasonable to have a fear of vomiting. I feel I have valid reasons for my fear. I think vomiting is the most disgusting thing a person can do.” While poor insight of varying degree appears to be unusual among people with emetophobia, the possibility cannot be ignored during assessment and treatment planning.

Atypical social anxiety. The only measure administered in this study that included a potentially informative subscale regarding possible associations between emetophobia and social anxiety was the ASI-3, which has a Social Concerns subscale. When entered into an exploratory simultaneous regression model, Social Concerns subscale scores were not a significant predictor of composite emetophobia scores ($t = 1.66, p = .102$). Some additional information was available, as items in the Fear of Vomiting measure modelled on Veale’s (2008) questionnaire explored whether participants feared themselves or others vomiting or both, and whether they were more, less, or equally fearful of vomiting in public or in private. Half of participants said their fear was mainly of themselves vomiting, but they also had some fear of others vomiting, while another 33% said they were equally fearful of themselves or others vomiting. They reported that their fear of others vomiting was largely related to the risk of catching something that would make them vomit (84%). Other reasons included: seeing others vomit would force them to realize that they might vomit someday (53%); it would remind them of past experiences of vomiting (36%); and the possibility of vomiting themselves

as a disgust response (21%). None of the participants said they only feared others vomiting or that they did not fear others vomiting.

Only two participants said they were exclusively afraid of vomiting in social or public situations; 10 said this was their main fear, but they also had some fear of vomiting in private or when alone. Two others reported that their main fear was of vomiting when alone. The majority – 45, or 75% – said they were equally afraid of vomiting in either context. Additionally, in response to ECS-Consequences subscale items, 35 participants (58%) said they strongly or very strongly believed that others would think badly of them if they vomited in a public place; however, only 14 (24%) said they agreed or strongly agreed that others would avoid, reject, or abandon them if they vomited.

Several responses to ECS-Causes item 11, regarding the worst thing(s) participants thought could happen if they vomited, included allusions to disgust, experienced by both the self and others. For example: “I would feel extremely dirty and disgusting.” These responses may also relate in some way to social anxiety. While a few contained references only to the self, the majority of answers related to disgust were focused on others being disgusted by them, and in some cases, the participants’ resulting feelings of embarrassment or humiliation. For example: “(a) Everyone would see and be disgusted; (b) People would be disgusted with me; (c) People being disgusted and horrified; (d) Embarrassment on behalf of myself and my friends.” The somewhat variable patterns of responding to items related to social anxiety in this study strongly imply that this construct should be a specific consideration in future research.

Physical health issues. Psychological distress and related psychopathology do not appear to be the only health concerns relevant to emetophobia. For example, markedly restricted eating as a related safety behaviour and food-related fears or rituals may have consequential implications. Half of participants in this study said they usually or always avoided eating certain foods to manage their phobia. Perhaps connected with food-related rituals, 52 of the 60 participants (86%) reported that they usually or always pay very close attentions to best-before dates on food; 39 (65%) said they usually or always overcook food; and 42 (70%) said they usually or always throw away food to manage their vomit-related fears. There are also implications for regular and illness-related health care. In this study, 41 participants (68.3%) said they avoided visiting medical clinics, doctors, or hospitals at least sometimes to manage their vomit-related fears. Seventeen participants (28.3%) said they avoided seeing a dentist regularly at least sometimes to manage their phobia, while six reported that they sometimes or usually avoided brushing their teeth to do so. Additional issues relate to use or refusal of medications: 76% of participants said they often or always avoid taking medications to manage their phobia, with the exception of anti-emetics, which 41 (69%) said they take at least sometimes (13, or 22%, “always”).

What’s the worst that could happen? ECS-Consequences subscale item 11. A number of participants responded to the open-ended item that concludes the ECS Beliefs about Consequences subscale (“The worst thing(s) that might happen if I vomited would be _____”) by saying that vomiting itself is clearly the worst thing that could happen; several of them prefaced this statement with an admonition: “That’s a stupid/silly/foolish question.” One participant said:

“Vomiting doesn’t cause other bad things to happen. IT IS A BAD THING BY ITSELF! [sic] To an emet it is the WORST THING.”

Several other themes also emerged quite clearly in the responses to this item, and relate to other aspects of this study in ways that seem worthy of note. Aside from vomiting itself, the most (and almost equally common) concern was, to paraphrase, “If I started vomiting I wouldn’t be able to stop.” One participant expressed it this way:

“I just keep doing it and doing it and never get better. I will just vomit and vomit until I die from dehydration.”

Another said “I think that it might never stop.” Perhaps related to this feared outcome were the frequent responses “I would lose/be out of control [of my body]/lose my mind.” Some were concerned that losing control and vomiting might make their emetophobia worse. For example:

“The act playing over and over in my mind afterwards, prompting an even more severe form of emetophobia, would be the worse thing. If I could vomit and be OK afterwards, or cured of emetophobia, then it would only be a good thing, but I don’t trust my mind or my very active imagination.”

Forty-five participants (75%) had responded to the previous ECS item by saying they strongly or very strongly agreed that vomiting would mean they didn’t have control over their bodies; on an earlier item, 32 (54%) said they strongly or very strongly believed that vomiting might make them “go crazy” or lose their minds.

Death might be described as the ultimate loss of control. While “I’d rather die” is an expression people use quite commonly in everyday conversation, everyone tends to assume that it is meant figuratively, to make a point. A number of participants referred to death in some way when responding to this item (as in the previous example). Several answered the item indirectly by saying they would rather die than vomit, often with considerable intensity; for example:

“From my rational mind? Nothing. From the part of my mind controlled by this fear? I absolutely cannot vomit. I would rather die than vomit. It is complete and utter panic. I cannot vomit. Please kill me. I can’t take this.”

The entire response of two participants was “dying,” and a third said “I would say death but that’s irrational.” Several also mentioned being alone and unsupported; for example:

“I would be alone and there wouldn’t be anyone to help me or anyone to call. I might choke because I am so panicked about vomiting I wouldn’t be able to catch my breath.”

Choking, along with nausea and other sensations and physical experiences associated with vomiting, were mentioned by several participants in response to this item: for example, “(a) physical sensations - taste, smell, retching, etc; (b) it would taste, feel, smell, look and sound horrible; (c) the feeling of vomiting and the actual feeling of nausea scares me.” All of the themes discussed in this section will be considered in refinements of this ECS subscale.

Discussion

Emetophobia, or a cluster of fears related to vomiting or vomit, appears to be more common than generally thought, and can exert a powerful negative influence over many aspects of health, functioning, and quality of life. Recent evidence suggests that emetophobia affects many people, often has an early onset and a chronic, unremitting course, and in many instances needs to be a focus of clinical attention, although many affected individuals avoid seeking help or even disclosing their fears to professionals or to others in their lives. Definitive prevalence rates have yet to be determined, and a reluctance to disclose the phobia or to seek treatment for it is likely to make the determination of accurate prevalence rates quite challenging for researchers and clinicians.

In general, there is little published research to date that describes the nature of emetophobia or investigates how it might be most effectively managed, although this situation has started to change. Researchers who have begun to explore the nature and consequences of emetophobia, many of whom approach the phenomenon within a cognitive-behavioural framework, suggest that it is a poorly understood, under-researched phenomenon that warrants further enquiry. The purposes of the current study were to investigate several predictions based on existing evidence regarding anxiety in general, and emetophobia in particular, within a cognitive-behavioural framework, as well as to provide information that might widen recognition and contribute to greater understanding of vomit-related fears.

Hypothesis 1: Anxiety-Relevant Constructs

As anticipated, participants tended to score at more extreme (higher or lower) levels than members of the general population, and similarly to clinically anxious groups, on several relevant constructs assessed in the current study. These trends were especially notable in terms of perceived control, body vigilance, and visceral sensitivity, all of which are characteristics that appear highly likely to require attention in the effective management of emetophobia. For example, given the significant results on the ACQ, the measure of perceived control used in this study (particularly in terms of perceived control over one's internal reactions), responses on Item 11 of the ECS-Causes subscale served to underscore the potential role of an intense desire for control over what may be uncontrollable, and a simultaneous sense that one has little or no control, in expressions of emetophobia. However, based on the length of time that people with emetophobia often manage to avoid vomiting – sometimes for decades – even in situations where

vomiting may be almost inevitable, such as during pregnancy or while undergoing chemotherapy, it appears that many affected individuals do possess a high degree of such control, even though they believe they do not. As such, this low perceived control over one's internal responses to events and situations might constitute a key cognitive bias or misappraisal in many people with emetophobic fears.

In particular, visceral sensitivity, an attentional bias toward (and fearful reactivity to) gastrointestinal sensations and changes, seems to be intensely heightened in emetophobic individuals. Compared to the population for whom the VSI, a standard measure of this construct, was created – people with irritable bowel syndrome – members of this sample reported substantially higher levels of visceral sensitivity on average than those who were in treatment for IBS. This finding may be especially telling in light of the fact that of the 36 participants who responded to an item (added after survey activation) inquiring about whether they had ever received an IBS diagnosis, 27 (75%) said they had not. While the *n* of this subsample is small, and some of those who said no might still meet IBS diagnostic criteria, the trend seen here implies that assessing and addressing visceral sensitivity may be of primary importance in case formulation and treatment planning with individuals with emetophobic fears.

It seems possible that emetophobia is, at least in some instances, a psychological manifestation of visceral sensitivity, as IBS may be its physiological consequence. It is also worth noting that some VSI items are worded quite specifically for physical symptoms of IBS (e.g., bloating, distension); scores in this sample might have been even higher if those items had been omitted or revised. As mentioned earlier, measuring and addressing visceral sensitivity may be crucial in case formulation and treatment planning

for people seeking help with emetophobic fears. Additionally, since there is a strong relationship between VSI scores and IBS incidence and severity (Labus et al., 2004; Labus et al., 2007), and given the substantial impact of IBS symptoms on sufferers, the association between emetophobia and visceral sensitivity may be an important physical health consideration in some instances as well.

Hypothesis 2: Health Anxiety

As predicted, emetophobia emerged in this study as a phenomenon that is somewhat distinct from health anxiety (HA) as measured by the SHAI; however, associations between the two were evident in study analyses. These findings may imply that emetophobia is an as yet unrecognized addition to psychological problems characterized by HA, which include hypochondriasis as well as somatization (i.e., a propensity to express symptoms of physiological distress unaccounted for by physical evidence of illness, to assume a biological cause for and to seek medical treatment for the symptoms), and “illness phobia”, an intense, irrational fear of developing an illness (Asmundson et al., 2001). Anecdotally (Heaton-Harris, 2007) and based on personal communications with participants, it appears that people living with emetophobia are often labelled in error as “hypochondriacs” by health care professionals as well as by members of their social support networks (usually the same people who express a lack of understanding of the depth and breadth of the phobia by saying “Well, nobody likes to vomit” when they are told about such fears). This labelling may occur because of typically intense reactions among people with emetophobia when they believe they have been exposed to a stomach virus or have inadvertently consumed something that could make them sick (e.g., panic attacks, refusal to eat for several days, inability to sleep or

carry out routine activities such as work), and their subsequent monitoring of potential symptoms in themselves and others around them.

One central component of HA that also appears to be an aspect of emetophobic fear is the perception that one will be unable to cope with or manage one's symptoms or illness. A key distinction between emetophobia and hypochondriasis (and other related psychopathology) may be that while the latter expressions of HA tend to relate to beliefs about serious or life-threatening illnesses that require medical attention (e.g., cancer), emetophobic anxiety is focused on an illness or symptom that people with emetophobia, at least intellectually, generally perceive in different ways. This hypothesis, however, should be tempered with the observation that for individuals dealing with vomit-related fears, few illnesses or symptoms feel – emotionally, psychologically, and perhaps even physically – more threatening or risky than those that involve vomiting, even if “just” due to mild food poisoning or a 24-hour stomach flu. As one participant noted in the open-ended insight item: “I know it won't hurt me but I feel I'd rather die than actually vomit!”

Additionally, the fact that some people with emetophobic fears perceive vomiting as “serious” even while they report that intellectually, they are aware that it is not dangerous or typically a sign of a life-threatening illness, may influence their responses to items on the SHAI and other measures of health anxiety in a manner that produces somewhat inflated scores. While the hypothesis that distinctions exist between emetophobia and currently recognized psychopathology characterized by health anxiety received preliminary support in this study, the nature of the relationship between these issues is likely to merit further investigation, particularly as there may be instances when they co-occur.

Hypothesis 3: Panic Symptoms

As expected, participants in this study reported a much higher incidence of panic attacks than members of the general population, including both uncued and situationally triggered attacks. They also reported experiencing other symptoms characteristic of panic disorder, including concerns about having more attacks, and changing their behaviour in response to such concerns, sometimes in ways that approximate agoraphobia. In relation to cued attacks, 10 of 44 participants who had experienced this type of attack at some point listed being in crowded or public places among their triggers, and three more specified leaving the house. It is also worth noting that the reportedly high prevalence of panic symptoms among participants in this study might account, at least in part, for their elevated BVS scores. While the PFQ is not an established diagnostic tool for panic disorder, these results are consistent with the findings of Lipsitz et al. (2001) and strongly suggest that a substantial proportion of people with emetophobic fears also experience panic symptoms to a degree that could markedly impair them in various functional domains, as well as having a negative impact on their quality of life. Whether DSM-IV-TR diagnostic criteria for panic disorder with or without agoraphobia are met, these symptoms are likely to require clinical attention, and it would be useful if future research investigates how treatment planning might be influenced by this common co-occurrence (e.g., comparative efficacy of simultaneous or temporally ordered treatment).

Experiences of Emetophobia

The investigation of this set of general predictions was largely exploratory and qualitative in nature, but what was anticipated was generally supported by the data, which were drawn from the abbreviated Fear of Vomiting measure as well as the ECS and

ESBQ. Participants' responses to various items on these scales provided support for preliminary findings of other studies, as well as adding novel information to what is currently known about the phenomenology of emetophobia.

Onset and associated negative experiences. Participants in this study reported a fairly early age of onset, and a number of them related negative past experiences that might have been associated with the onset of emetophobic fears, many of which included themes of punishment, unexpectedness, embarrassment, and suffering and death. While a few other studies to date have reported that many or most people with emetophobia endorse having had such associated negative experiences, none have investigated the precise nature of such experiences.

Course and experiences with treatment. Participants in this study reported a variable but generally chronic course, with a very small proportion of respondents endorsing meaningful or lasting improvement, even after having received treatment. Consistent with the limited research available to date, many participants in this study had sought treatment for their fear, often in more than one modality, and the majority of those who had received treatment found it less than fully effective, as well as often intolerable. It is worth noting that many of the alternatives to CBT and medications that were sought by these participants included treatments that lack strong empirical support (e.g., hypnotherapy, EMDR), or may not constitute treatment at all (e.g., shiatsu, reiki, "reading about the condition"). It may also be worth noting here that there is some evidence suggesting that hypnotherapy can be an effective treatment for the psychological distress and reduced quality of life associated with IBS; it appears that one

mechanism underlying its benefits is cognitive change, even when such changes are not a direct target of treatment (Gonsalkorale, Toner, & Whorwell, 2004).

Is there empirical evidence to support the idea, suggested by some, that emetophobia is qualitatively different in some meaningful way from other specific phobias? No – or at least, not yet. However, there are people – both researchers and individuals living with these often debilitating fears – who believe that such a difference exists, and that it may be crucial to name and understand this difference before effective treatment is truly possible for people with emetophobia in general, as opposed to sporadic successes with a minority of affected individuals. Perhaps this difference resides within the feared stimulus itself – perhaps because it is, in some sense, always inescapably present and can never truly be avoided. One can walk away from a snake; one can use mosquito netting against the spiders lurking in dark corners – but one can never step outside one’s own body. People with blood-injection-injury phobias may also encounter situations associated with their fears in nightmares, but the risk of awakening to experience nausea or vomiting is more realistic than that of sprouting spontaneous wounds during sleep.

The potential difference might be related to the high rates of comorbidity of emetophobia with other psychopathology, particularly with other anxiety disorders, that are apparent in studies to date (yet to be empirically established and delineated), although such comorbidity is not uncommon in specific phobias. However, in such cases, the specific phobia is not generally the principle diagnosis, nor is it typically the main target of treatment (American Psychiatric Association, 2000). Conversely, with the exception of Childhood Separation Anxiety Disorder (CSAD), people with emetophobic fears

typically report (as did several participants in this study) that these fears definitely preceded the development of other psychological symptoms, including those associated with panic disorder, agoraphobia, obsessive-compulsive disorder, social anxiety, and depression (Lipsitz et al., 2001). If such a difference does exist, it may be a combination of these factors – or none of them.

Alternatively, the explanations for reportedly high rates of treatment resistance, dropout, and failure may be simpler. One such possibility is the presence of one or more behavioural or cognitive characteristics (e.g., the nausea avoidance suggested by Boschen (2007); visceral sensitivity) that require specific and direct assessment and intervention, perhaps existing in combination with pervasive anxiety. Such anxiety does not generally characterize individuals whose principle presenting problems are specific phobias (American Psychiatric Association), but might be present in many individuals with emetophobic fears. Another challenge for clinicians is the reluctance on the part of individuals with emetophobia to disclose this fear to mental health professionals, even when they seek therapy for other psychological problems that they believe are related to or arise from the emetophobia (Lipsitz. et al, 2001). Clinicians cannot be expected to administer effective interventions for a problem of which they are unaware.

It also seems possible that the “obvious” exposure stimulus – vomiting repeatedly – would also be the most effective, but at least for most affected individuals it is simply not a viable alternative. Utilization of such exposure techniques raises significant practical and ethical concerns, as noted by Veale and Lambrou (2006). Additionally, as mentioned previously, effective exposure experiences must be predictable, controlled, and elicit and sustain anxiety or fear until it peaks *and begins to subside*. Repeated bouts

of vomiting induced by administration of an emetic are not likely to be either predictable or controllable, and – perhaps crucially – the process, once begun, cannot be stopped if the client is unable to cope with the experience. Veale and Lambrou (2006) described a case in which a woman did undergo this type of exposure, and found that it actually confirmed her perceptions of the “awfulness” of vomiting, leading to an exacerbation of her fear and an increased determination to avoid vomiting in the future, as well as a reluctance to attempt any further treatment. This outcome is not always the case (for example, another participant in that study became ill with a stomach virus that caused repeated vomiting and reported a subsequent reduction in fear and related problems). However, the possibility of risking such negative results, as well as subjecting a client to such horrible experiences, seems to preclude the consideration of using this “obvious” exposure stimulus, especially since other, less extreme stimuli appear to have considerable potential as effective exposure techniques.

A number of participants included the physical sensations and experiences that precede and occur during vomiting among their responses to the open-ended ECS-Consequences subscale item regarding the worst thing(s) that could happen if they vomited. However, an aversion to vomiting is not unique to people with this phobia. How many people without such fears (or an eating disorder) would voluntarily engage in repeated bouts of self-induced vomiting? This question is an empirical one, albeit very challenging to answer – it would be exceedingly difficult to simulate an equivalent motive among non-fearful controls. Fortunately, there is some evidence that exposure to simulated video and audio of vomiting, as well as relevant physiological sensations, can

lead to a meaningful reduction of related fears in at least some instances (Datillo, 2003; Hunter & Antony, 2009; Moran & O'Brien, 2005; Philips, 1985; Whitton et al., 2006).

Proponents of CBT have published reams of research evidence supporting both the efficacy and the effectiveness of this modality as the “gold standard,” particularly in the psychotherapeutic treatment of anxiety disorders (Olatunji, Cisler, & Deacon, 2010; Stewart & Chambless, 2009) as well as depression, and it may be the most efficacious treatment that currently exists for chronic pain, marital distress, and childhood somatic disorders, among other issues (Butler, Chapman, Forman, & Beck, 2006). As review authors often note (Holmes, 2002), what often passes largely unacknowledged in studies included in such reviews is that CBT as it is administered in these studies does not work for everyone. There is always a substantial proportion of people for whom treatment fails, or who drop out of treatment for various reasons (up to 60% in some studies, according to statistics cited in 2006 by Butler et al., for example). CBT certainly appears to be the best hope for effective treatment of emetophobic fears, particularly if a cognitive-behavioural model of this phobia continues to gain empirical support. Case-study evidence suggests that this treatment modality can be beneficial in terms of reducing emetophobic fears. However, the majority of (largely anecdotal) findings to date indicate that people with emetophobia struggle with some aspects of CBT, are highly likely to drop out of treatment, and often report unsatisfactory results.

Are people with emetophobic fears less likely than those with other phobias to complete treatment, to benefit from it, or to attempt it in the first place, as suggested by most evidence available to date? If so, what stands in the way? These are empirical questions for future research, and important ones, especially if the fear is in fact

characterologically distinct in some way from other disgust-based phobias that generally respond well to established CBT regimens (e.g., blood-injection-injury, spiders, snakes). Although some researchers and many affected individuals propose that this distinction exists, emetophobia shares many qualities and characteristics with a range of anxiety issues within existing diagnostic classifications. Therefore, another important possibility is that emetophobia is, at least in most cases, something more than, or different from, a specific phobia as it is currently categorized in the DSM-IV-TR. The high rates of co-occurrence of vomit-related fears with symptoms of various anxiety disorders, particularly panic disorder, as well as obsessive compulsive disorder, social anxiety, and manifestations of health anxiety, suggests that it may be a relatively common component of presentations of psychopathological anxiety in a broad range of forms. For example, the apparently high degree of overlap between emetophobic and panic symptoms, as well as the fact that a substantial proportion of people with emetophobic fears also report panic attacks and other panic symptoms unrelated to those fears, may imply that rather than being two distinct and comorbid issues, emetophobia and panic may be two aspects of one anxiety disorder. The same might be said for other relevant diagnoses mentioned previously.

Taking this line of speculation a step further, it might be possible that the confluence of a number of anxiety symptoms commonly reported by individuals with emetophobic fears (e.g., panic attacks, agoraphobic avoidance, contamination obsessions, food-related and other ritualistic behaviours, preoccupation with fears of loss of control and humiliation, anxiety and disgust relating to bodily functions, and associated cognitive and attentional biases and safety behaviours) represents a currently unrecognized but

potentially not uncommon form of anxiety disorder. Alternatively, such symptom clusters might be atypical presentations of existing diagnoses that are not addressed in the DSM-IV-TR or assessed in any diagnostic interview, and of which the majority of mental health professionals are therefore unaware. In any case, the creation of a brief, psychometrically sound emetophobic severity measure (discussed further in a later section), or at least the inclusion of relevant questions during the assessment process, may lead to increased awareness on the part of professionals, and allow them to incorporate intervention strategies into treatment plans that target emetophobic fears when they are present.

Information about the etiology of the phobia and the nature of potential precipitating events might help to inform treatment choices regardless of modality. For example, the most effective exposure stimuli or a key conversational focus in sessions might differ considerably for individuals who report that the onset of emetophobia coincided with a publicly humiliating experience of vomiting versus punishment or perceived abandonment after vomiting, two very different situations commonly described by members of this sample. It seems important to note, based on the evidence currently available, that effective treatment of emetophobia using well-supported, often successful CBT techniques can be achieved, and may simply require the therapists who use them to apply their considerable ingenuity and flexibility in novel and palatable ways that are specifically and carefully designed to address vomit-related fears. It will also be important to consider the potential contributions of techniques from other treatment modalities, such as interpersonal and emotion-focused therapies, which have yet to be adequately investigated (if at all), even in case-study contexts.

Insight. Regarding the degree of insight that people with emetophobia express about the reasonableness of their fear, a topic that has received little attention in research to date, most participants in this study reported that they believed their emetophobia did not make sense, and acknowledged that vomiting is not inherently dangerous, does not necessarily or even usually imply the presence of a “serious” illness, and in fact often serves an adaptive health function. However, some added that knowing this “makes no difference” in the experience of their fears. It seems important to note that there were several exceptions to this finding, implying that assessing and, when appropriate, addressing poorer insight is an issue that cannot be ignored in the management of emetophobia in clinical settings. Interventions for individuals who express a high degree of insight regarding the irrational nature of their emetophobic fears might also be usefully informed by this awareness. For example, good insight might serve as an effective means of challenging some of these individuals’ erroneous beliefs and perceptions about vomiting in ways that allow them to perceive it as less threatening or personally or socially unacceptable.

Other Areas of Note

Linguistic Avoidance. While such avoidance can be characteristic of people with other phobias, one of the potential ways in which emetophobia may be relatively unusual among specific phobias might be the degree of intensity of the aversion shown by many affected individuals toward using or exposing themselves to fear-laden vomit-related language. An awareness of this issue led to the deliberate inclusion of the word “vomit” in several places in the consent form, even though such inclusion was not strictly necessary, as all participants were recruited from emetophobia support sites, strongly

implying that they knew what the phobia was. This word was used deliberately to allow potential participants who did not feel willing or able to cope with the language to exit the survey before giving consent. Several individuals did, in fact, make this choice. Several others who shared personal stories and other thoughts when they contacted the researcher mentioned that they would be completing the survey via an “interpreter,” a trusted individual who could read the items aloud, substitute safe words or euphemisms for problematic language, and enter the participants’ responses on their behalf. Although the avoidance of relevant language is not universal among people with emetophobia, words that commonly raise concerns for many affected individuals usually appear in forum posts “in code”:

- Vomit = v*
- Sick = s* or s***
- Sickness = s*ness
- Nausea = n*
- Stomach virus = stomach v* or sv*
- Stomach bug = sb*
- Bug = b*g
- Diarrhea = d*
- Morning sickness = MS or morning s*

This avoidance extends beyond the forums to spoken language for some affected individuals (e.g., “ess” for “sick” and “vee” for “vomit”) and may be of particular importance in terms of assessment, and carry implications for research and treatment as well. For example, the two pilot measures included in this study (i.e., related cognitions and safety behaviours) both contain several forms of the word “vomit” numerous times. Completing such measures, or having a conversation with a health care or mental health professional addressing the same kinds of questions, might amount to an exposure experience for many individuals with emetophobia. The presence of such language is

likely to discourage these individuals from participating in research, and quite possibly from seeking support and treatment from professionals; at the very least, it would make these activities difficult and aversive for them. For all of these reasons, revision of the pilot measures to incorporate more tolerable language should be considered.

The reasons or beliefs underlying such linguistic avoidance are not entirely clear, although disgust may be implicated; anecdotally, there is evidence that similar avoidance may occur among individuals with other phobias associated with disgust responses (e.g., blood-injection-injury; snakes, spiders, and insects). However, there is evidence suggesting that a number of people with emetophobia might describe themselves openly as “superstitious,” as several participants did during data collection. Therefore, it seems possible that the avoidance may stem in part from erroneous beliefs that using or even seeing such language might make it more likely that one will vomit.

These kinds of beliefs may also contribute to a reluctance on the part of some emetophobic individuals to state or discuss how long it has been since the last time they vomited, although many appear to recall this amount of time vividly, and often know the precise date and time when they last experienced the feared situation, as well as many other details. Evidence of such reluctance, and of the vividness of recall, emerged in responses to items on the amended Fear of Vomiting measure. For example, when asked how long it had been since the participant had vomited: “(a) prefer not to answer; too afraid to say. (b) don't want to tempt fate but it's been a long time; (c) 1 year but before that it was 5 years and before that it was 3 years and before that it was 10 years.” Another participant, describing a potential precipitating event, said:

“I was 5 and went to a childrens Birthday party, I ate too many party frankfurts and they has either gone bad or I just over ate but I got home and my mother was

ironing clothes while I lay on the wood floor in front of her rolling around complaining of a sore tummy and asking her to make it go away. My sister was sitting on the floor with me trying to comfort me, this went on for around an hour and then my mum finally went to get something to try to settle my stomach, as she came back in I started to v everywhere, I was crying and asking her to make it stop and my sister also started to cry, she picked me up and ran me into the bathroom and left me to v* into the bath tub, I couldnt move away from the smell or sight of the bright red v* as I could not stop being sick and I cried the entire time. I do not remember what happened after this but every other detail is vivid, from what I was wearing to how many times I v*. After this I would not eat for a few days for fear of it happening again, I lived off toast and jelly only for the next year until when I was 6 I was on stage for a sunday school concert and an older boy who was behind me on the stage v*ed in the middle of the show in front of over 100 people on me, I was hysterical and could not be consoled and from that day onward had the same hysterical reaction every time I saw him”*

It seems likely that certain attentional and memory biases can play a role in maintaining or even exacerbating emetophobic fears; these cognitive tendencies to focus on frightening aspects of vomit-related situations, and to process them in particular ways, might also be areas of interest in future studies.

However, such erroneous or “superstitious” beliefs do not appear to account completely for the linguistic avoidance that seems to be characteristic of many people with emetophobia, nor is this avoidance part of every affected individual’s repertoire of safety behaviours. Even though several of the participants in this study reported that they used interpreters to allow them to complete the questionnaires, 60% of ESBQ respondents said they rarely or never avoided using the word “vomit,” and 63% said they rarely or never avoided using synonyms of “vomit,” to manage their emetophobia. Of course, it is highly likely that the majority of people who participated in this study are among those who do not usually engage in linguistic avoidance except in contexts where it serves others, such as the support site forums. Nevertheless, avoidance of vomit-related language and the beliefs underlying such avoidance seem to merit further investigation in

future studies, especially since they may be important practical and ethical considerations during case formulation and treatment planning with a substantial proportion of individuals with emetophobic fears.

Atypical social anxiety. As noted in the Results section, addressing every question of interest was beyond the scope of this exploratory investigation; however, in light of some of the responses to items on various measures, the potential relationship between social anxiety and emetophobia appears to merit some discussion. The administration of a measure of social anxiety (among others) was strongly considered, but ultimately postponed in order to limit the length and duration of the survey to a manageable scope that participants would be willing and able to complete in one session. This consideration seemed especially important given the nature of the incentive to participate.

The resulting decision means that the current study has little to contribute to the line of speculation initiated by Marks (1987) that some cases of emetophobia may be an atypical presentation of social anxiety, related to a fear of humiliation. Based on more recent research (Lipsitz et al., 2001), it seemed that symptoms related to panic were reported as the most common anxiety issues to co-occur with emetophobia; therefore, the PFQ was administered instead. Although 21% of the sample in the Lipsitz et al. (2001) study said they had “problems with” social anxiety (compared with 50% endorsing panic attacks, and 40% self-reporting panic disorder or agoraphobia), the authors stated that in general, concerns regarding humiliation among participants with emetophobia appeared to be “secondary” to their fears related to vomiting itself, noting that similar secondary

concerns are often present among people with panic attacks, and may be associated with agoraphobic behaviours.

The data in this study did offer some information regarding the potential relationship between social anxiety and emetophobia. Most participants feared themselves vomiting as much or more than they did others vomiting, and the most common reasons given for the fear of others vomiting were related to issues that might cause the fearful person to vomit. These findings suggest that many instances of reluctance to socialize, and avoidance of social situations or contact with certain individuals (which might also be characterized as agoraphobic behaviours), may be due to a fear of contagion or the risk of extreme disgust experiences, rather than to social anxiety. A very small proportion of the total sample said they were only fearful of vomiting in public or social situations, implying that while most instances of emetophobia are neither an aspect nor an atypical expression of social anxiety, this possibility cannot be dismissed in all cases.

Additionally, a number of participants listed vomiting in public or in the presence of others as among the “worst things” that they believed might happen if they vomited, linking the negative impact of such occurrences to causing others to be disgusted and often to their own resultant embarrassment or humiliation. Taken together, these findings appear to indicate that while a few instances of emetophobia may be an atypical expression of social anxiety, most of them are, at least primarily, distinct from it. However, the relationship between these forms of anxiety may be more complex, as many participants did consider the consequences of vomiting in public as part of their fear experience.

Potential Limitations and Additional Future Directions

Sample. It is becoming increasingly common for researchers in psychology to follow the example of researchers in other areas (e.g., marketing) and seek their participants on the internet. There continues to be some debate in the field regarding the quality of data gathered from participants via online survey software (e.g., Qualtrics). However, there is increasing evidence that such data may be of comparable quality to those which are gathered in more traditional ways (i.e., in person, either pencil-and-paper or computer-administered). This evidence continues to accumulate as more researchers avail themselves of the larger samples and hard-to-reach participants who may be more accessible when they have the option to participate online, probably because of the remote access and the greater sense of privacy and anonymity provided by the internet (Gosling, Vazire, Srivastava, & John, 2004; Kraut et al., 2004). There is also considerable evidence that the results of studies using internet samples are likely to be generalizeable and are not apt to be substantially influenced by frivolous or repeat participation. This evidence also strongly suggests that such samples yield data of equivalent reliability and validity to data gathered via more traditional methods, and may be larger and more diverse (although not necessarily representative) than might otherwise be available (Best, Krueger, Hubbard, & Smith, 2001; Gosling et al., 2004; Kraut et al., 2004; McGraw, Tew, & Williams, 2000).

Online data collection is intrinsically different than more traditional methods, and some of the assertions cited previously about data obtained in this context may require qualification: for example, the quality of data collected via the internet is likely to depend on the design and goals of the study, what is being measured and by what means, and

who the target participants are. There is also poorer control over testing conditions (e.g., in this study, potential differences when participants completed the survey themselves versus through an interpreter). Based on the findings of research regarding online data collection described earlier, the fact that the data in this study were collected from an online sample does not, in and of itself, necessarily mean that the information obtained is of poorer quality, reliability, or validity than that which might have been gathered from the same individuals in a more traditional context. It should also be noted that participants who completed the study with the help of interpreters would either have been unable to participate at all, or their responses might have been very different, in more traditional contexts where this “safe” alternative was not available.

The recruitment methods and mode of data collection, utilized largely for practical reasons, and the composition of the resulting sample, may represent meaningful limitations of the current study. For example, it is unknown whether participants would receive a DSM-IV-TR diagnosis of specific phobia (“Other”) related to their emetophobic fears in clinical settings, and if so, whether it would be characterized as the principle diagnosis or a secondary one. Based on findings of this and other studies, it seems likely that many people with vomit-related fears who seek treatment will do so to address other, possibly associated symptoms (e.g., panic attacks) rather than the fears themselves. While panic symptoms were measured among these participants, the PFQ can not be used independently to establish a diagnosis of panic disorder; assessment for this and other potential diagnoses of interest would be important and informative additions to future studies, and would best be accomplished via administration of relevant

sections of an established diagnostic interview (e.g., the Structured Clinical Interview for DSM-IV), in person or possibly by telephone.

Given the practical limitations under which the study was conducted, this method of gathering data seemed desirable for a “high” and therefore probably most informative emetophobic sample, for two related reasons: (1) many people affected by emetophobia are at least somewhat limited in mobility, and in some instances this limitation is severe; and (2) as one of the website administrators pointed out, people with these fears are exceptionally reluctant to “come out” or reveal their phobia to others. There is anecdotal evidence (Heaton-Harris, 2007), supported by some research (e.g., Philips, 1985) that many affected individuals refuse to disclose their phobia, even to health care professionals, unless they feel it is absolutely necessary (e.g., when becoming involved in a serious relationship; when refusing medical treatment). As noted previously, people with emetophobia are unlikely to disclose this issue to mental health professionals even when seeking treatment for other psychological problems that they believe are connected to their vomit-related fears (Lipsitz. et al., 2001) According to a number of participants and Heaton-Harris (2007), the reasons for this intense reluctance to acknowledge the fears include intense shame and embarrassment because many people find the idea so odd and illogical, as well as negative past experiences with disclosure, both socially and in health care and mental health settings. The reluctance is often bolstered by the belief that disclosing the fear is pointless because no one can help (Heaton-Harris, 2007).

However, due to recruitment and administration methods, this study reflects some of the same sampling limitations that also appear to be present in other studies of emetophobia to date. These convenience samples recruited from online support sites are

highly unlikely to be representative of the “true” population that would be most informative about emetophobia and its implications and, as a result, would provide the strongest foundations upon which to draw any conclusions. Like previous studies that used similar recruitment methods – which constitute almost all studies to date investigating the phobia from an “emetophobic group” approach – the sample in this study is extremely unlikely to be representative of the population of interest, a crucial gap in the literature that was noted by Boschen (2007). Like other such samples, this group of participants was predominantly female, Caucasian, and well-educated. These characteristics may inform as much about the typical online support site user as they do about characteristics and experiences of people with emetophobia. The true picture of individuals affected by emetophobic fears is likely to include a somewhat less gender-skewed and much more variable and diverse group in terms of factors such as age, precipitating events, ethnic affiliation, educational attainment, and socioeconomic status, among others.

A related issue in terms of representativeness may be apparent in the high rates of treatment failure and dropout, low rates of treatment gains and completion, and generally held negative or sceptical views toward treatment reported by participants in this study and others with similar samples. An accumulating body of case-study evidence suggests that successful treatment of emetophobia is more likely and less onerous for clients than these findings would suggest. It can be logically inferred that the vast majority of people who use these support sites experience ongoing difficulties with emetophobic fears despite reportedly seeking treatment in a range of modalities, while those whose treatment is successful are less likely to utilize these sites or to remain active members

after their symptoms improve or remit. In other words, there is a strong possibility that samples accessed in this context are composed largely of individuals whose emetophobic fears are, for a variety of potential reasons, at the high end of the spectrum in terms of chronicity and treatment resistance. There is no evidence to date to either support or refute the possibility that this sub-group of affected individuals comprises the majority of people with emetophobic fears – these limitations raise important empirical questions for future research.

The fact that all data was self-report in nature may be another limitation of this study. Although much of the information gathered during data collection could not be acquired in any other way, the inclusion of alternative modes of data collection (e.g., from collateral sources such as health care and mental health professionals as well as significant others; administration of a standardized diagnostic interview) could have strengthened the quality of the data overall. Another limitation of the design and methods employed in this study is that they did not provide a means of establishing whether the participants actually represent a “high” emetophobia sample, nor does it offer a way to determine whether they are representative of people with emetophobia or of people who belong to emetophobia support sites. Additionally, the study did not include the administration of a measure of emetophobic severity, nor was there a control group (“low” or no emetophobia), which would have been important for potentially informative between-groups comparisons, both in terms of constructs of interest (e.g. visceral sensitivity) and the severity of vomit-related fears. Only one published study to date (van Overveld et al., 2008) has included such comparisons on the constructs assessed in this study; van Overveld et al. (2008) addressed group differences in disgust between

individuals with “emetophobic complaints” and a substantially smaller number of gender- and age-matched controls recruited by members of the former group.

It might also have been useful to include a comparison group composed of members of online support sites for another anxiety disorder (e.g., panic disorder) to investigate whether affected individuals who are likely to utilize these sites differ in meaningful ways (e.g., mobility) from those who are not. The sample size and characteristics were probably adequate for the purposes of this exploratory study, but a larger and more diverse (e.g., gender, ethnicity) sample would certainly have been preferable, and accessing such samples will unquestionably be a goal of future studies. Of the almost 20,000 site members who might potentially have participated, only 60 completed the survey, which remained posted at the top of the discussion forums for over four months. In the course of recruitment through support site forums, it was suggested that, despite most site members’ strong interest in contributing to research that supports the recognition, understanding, and effective treatment of their phobia, their intense desire for privacy and their common problems with relevant language can create barriers to participation. These issues appear to merit serious consideration in future research, including the collection of reliable prevalence data. The relative importance of devoting time and resources to studies of emetophobia will best be established when there is clearer, replicated empirical evidence (implied by the support site membership numbers, for example) that a substantial number of people are living with emetophobia and its deleterious effects.

Emetophobia measures. Given the preliminary state of research investigating emetophobia and its assessment and treatment, few measures specifically targeting the

phobia exist, and most that do either require further tests of reliability and validity or are not amenable to such evaluations. While the pilot measures administered in this study appeared to hold up fairly well for its purposes, several changes to the measures and comprehensive evaluation of their psychometric properties will be necessary to improve their utility in research and potentially in clinical practice. For example, as mentioned earlier, amending the language to be more tolerable for the population to whom these measures are relevant will be considered. Additionally, several of the safety behaviours included in the ESBQ received relatively low endorsement among participants in this study and may not be useful items to retain in the measure, while several behaviours suggested by a substantial number of participants might be added (e.g., carrying and using hand sanitizers).

The current form of the Beliefs about Consequences subscale of the ECS does not appear to capture all relevant beliefs held by people with emetophobic fears, and participants' responses to the open-ended item that concludes this subscale will be considered during revisions (e.g., vomiting itself, losing control of one's body, dying, choking, disgusting others, the possibility of not being able to stop). Following revisions, additional data will be gathered for both scales with the inclusion of non- and low-emetophobia groups. Subsequent evaluations, including factor analysis and comparisons with scores on established measures of relevant constructs, will be necessary to assess various aspects of the measures' reliability and validity. In this study, the ECS and ESBQ provided a snapshot of some of the cognitive biases and safety behaviours that may be typically characteristic of emetophobia, but much remains to be learned about these factors as well.

Although current wisdom regarding social sciences research discourages the dichotomization of continuous variables (MacCallum et al., 2002; Royston et al., 2005), it will be important in future studies to investigate potential differences (or lack thereof) between people whose vomit-related fears are substantially more or less extreme, or between groups in which such fears are present versus absent. As noted earlier, few assessment tools targeting any aspect of emetophobia yet exist, but a 115-item scale developed by Dutch researchers might be a useful measure of emetophobic severity. The process of translating this scale for use with English-speaking samples is under way, as is the composition of a briefer English-language scale for the same purposes. Use of these scales may allow for meaningful between-groups comparisons in follow-up studies. The composite emetophobia score calculated from scores on the ESBQ, ECS, and IIRS-E was used as an alternative in analyses in this study, but the potential ability of this score to serve as an approximation of emetophobic severity is unknown, as are the implications of combining scores from scales measuring diverse facets of the fear, using different numerical ranges. In sum, the lack of a measure of emetophobic severity, and the calculation of an untested emetophobia composite score based largely on scores from pilot measures, impose meaningful limitations on the strength of any conclusions that may be drawn from the findings of this study.

Associated psychopathology. Investigating the co-occurrence of emetophobia and all potentially related psychopathology was beyond the scope of the current study, but the information provided by participants (also see Quality of life section) adds to the existing research evidence that these issues will warrant consideration in future studies. To augment the findings based on assessment with the DASS-21, and in support of a

cognitive-behavioural model of emetophobia, administration of an additional measure of anxiety, such as the Trait scale of the *State-Trait Inventory for Cognitive and Somatic Anxiety* (STICSA; Ree, MacLeod, French, & Locke, 2000), would be useful in future studies. Psychometric evaluations of this scale with both nonclinical and clinical samples indicate that the STICSA has strong internal consistency and convergent and discriminant validity, and is likely to be a “purer” measure of anxiety than the State-Trait Anxiety Inventory (Grös, Antony, Simms, & McCabe, 2007). The inclusion of items designed to assess somatic aspects of anxiety might also be particularly useful in a trait anxiety scale administered to individuals with emetophobia.

Along with panic symptoms, health anxiety, and social anxiety, other associated psychological problems that may be of interest include (but are not necessarily limited to): specific phobias (e.g., travel by boat or plane; dentists), disordered eating, and depression. Based on information from prior research and this study, it appears that another topic meriting evaluation in future is the presence and severity of agoraphobic behaviours, which could be assessed with an instrument such as the *Mobility Inventory for Agoraphobia* (Chambless, Caputo, Jasin, Gracely, & Williams, 1985). Obsessive-compulsive disorder is also a concern; it is worth noting that several strongly endorsed ESBQ items might be characterized as compulsive behaviours, and Lipsitz et al. (2001) reported that 75% of the sample in that study engaged in rituals related to food and eating, while some study participants reported rituals related to bedtime and to relevant language. The presence and severity of OCD symptoms among people with emetophobia could be investigated in future studies using the *Yale-Brown Obsessive-Compulsive Scale* (Y-BOCS; Goodman et al., 1989). It might also be useful to administer a measure of self-

efficacy, possibly including items specifically related to nausea and vomiting, and to investigate instances when there is poor insight into the reasonableness of vomit-related fears.

Several participants in this study related that after becoming ill and vomiting repeatedly, sometimes during pregnancy, their emetophobic fears actually worsened. This exacerbation is likely to be the uncontrolled nature of the exposure experience, as discussed previously – effective exposures involve predictable, controlled experiences in which fear and associated arousal are maintained until they peak and then begin to abate (Clark & Fairburn, 1997). It seems worth repeating that such requirements might not be easily managed if the act of vomiting (e.g., through administration of an emetic such as ipecac) were chosen as the exposure stimulus in treatment. Some participants also mentioned having vivid recurring nightmares and what they described as “flashbacks” for months afterward, as well as experiencing worsening of mood and anxiety symptoms, particularly panic attacks. The question of whether potential symptoms of acute stress might be clinically or practically meaningful among emetophobic individuals who experience “involuntary” exposure to themselves vomiting due to life circumstances has yet to be raised in the emetophobia literature, although it may be of concern to some people who are living with this fear, as noted previously (“The act playing over and over in my mind afterwards, prompting an even more severe form of emetophobia, would be the worse thing”). In any case, it is likely to be important for therapists to closely monitor clients who experience such events while treatment is ongoing, as it is possible that these clients will experience a rebound of fear or loss of treatment gains, as well as other problematic associated symptoms.

Some of the participants who had these experiences reported that, in addition to a worsening of fear, they also experienced an intensification of existing avoidance behaviours as well as the addition of new, sometime situationally specific ones. One participant related experiencing a similar worsening of fear, as well as the re-acquisition of prior avoidance behaviours and acquisition of some new safety behaviours, vicariously: when a friend had recently vomited repeatedly in the participant's presence due to fairly severe food poisoning (even though the participant had not vomited). Perhaps such vicarious acquisition of these kinds of behaviours is an experience shared by some or even many people with vomit-related fears; if so, it could certainly have implications for treatment. Perhaps it is part of what may set emetophobia apart in some way from many specific phobias. As such, these questions may be worth addressing in future research. In sum, there are a number of psychological symptoms – whether they cause, contribute to, coincide with, or arise from emetophobia, or some combination thereof – that appear to warrant both research and clinical attention.

Physical health. Psychological issues are not the only health concerns that appear to commonly affect people with emetophobia. Aside from irritable bowel syndrome, discussed previously, there are other potential physiological implications of emetophobia. One of the most important may be the consequences of disordered, sometimes severely restricted eating, including malnutrition, low Body Mass Index, and loss of bone mass – in fact, quite possibly many of the same physical effects seen in “typical” anorexia nervosa. Some affected individuals have lists of “safe” foods (e.g., crackers, nuts, chocolate, bananas, oranges, pasta, and potato chips) to which they rigidly adhere in an attempt to avoid food poisoning (Heaton-Harris, 2007; Lipsitz et al. 2001). They are

unlikely to take dietary supplements that might mitigate the effects of such a restricted diet because some supplements (e.g., calcium, iron) come with warnings on the labels about nausea and vomiting as possible side effects. As previously noted, half of study participants reported at least some dietary restriction in order to manage their vomit-related fears, and an even higher proportion acknowledged engaging in food-related safety and avoidance behaviours that might be characterized as obsessive or ritualistic.

Avoidance of necessary dietary supplements relates to another potential health concern: use of medications. Many people with vomit-related fears report using anti-emetic medications (Heaton-Harris, 2007; Lipsitz et al., 2001), some of which are more commonly prescribed in the United Kingdom, particularly during pregnancy. Conversely, many affected individuals also refuse to take medications for illnesses and infections because of fears that the drugs may lead to vomiting (Lipsitz et al.). In a 1998 survey of Gut Reaction members, 92% said they consistently refused medical treatment because of their fear, and 97% described themselves as reluctant to take medication (Heaton-Harris, 2007). While reluctance about taking medication was not a topic of direct enquiry in this study, and the numbers were not as pronounced among these participants, a large majority of them did report avoidance of medications, with the exception of anti-emetics, which a number of them took as a means to manage their vomit-related fears. There is evidence, including survey responses as well as personal communications during data collection in this study, that people with emetophobic fears often avoid routine or illness-related medical care due to fears of contagion and other risks related to vomiting (e.g., due to some medical procedures, such as barium x-rays). Some affected individuals avoid

dental care due to concerns about gagging and choking (Heaton-Harris, 2007); these safety behaviours were also endorsed by some study participants.

Sleep, night, and bedtime can also be challenging for people who fear themselves vomiting (Heaton-Harris, 2007). Several participants in this study stated that night and bedtime are common triggers of their emetophobic fears, while others said the same in regard to panic attacks, at least in part because of past experiences of waking up sick. Some affected individuals report suffering from intense, frequent recurring nightmares or insomnia, or both. Based on all of this information, it seems clear that the physical as well as the psychological implications of emetophobia can be broad and consequential, and as such should be a topic of further investigation.

Quality of life. Future studies of emetophobia, and recognition of the importance of such research, would in all likelihood be strengthened by the inclusion of measures assessing quality of life (QOL), an issue of growing interest in psychopathology research. Themes of death emerging in ECS responses were mentioned previously, perhaps tapping into the tip of an iceberg. A worrisome 31% of respondents to the 1998 Gut Reaction survey reported being suicidal; 73% described themselves as depressed (Heaton-Harris, 2007). There is limited information available in research to date regarding the potential relationship between emetophobia and depression, but consistently with other samples (e.g., Lipsitz et al., 2001), a number of participants in this study alluded to it in the course of data collection, and mean scores on the Depression subscale of the DASS-21 were substantially elevated in this sample. Also, there is some suggestion in the literature that emetophobia is associated with major depression, suicidal ideation and attempts.

Therefore, assessing depressive symptoms and screening individuals with vomit-related fears for suicidality are likely to be important in both research and clinical contexts.

Another key aspect of quality of life is social support, which is an important determinant of both physical and psychological health at a level similar to other, more conventionally accepted factors such as smoking, diet, and exercise (House, Landis, & Umberson, 1988; Uchino, Cacioppo, & Kiecolt-Glaser, 1996; Uchino, Uno, & Holt-Lunstad, 1999). A number of related questions will be of interest in future investigations of emetophobia: How does it impact social support, including friendships, intimate and family relationships? How often do adults with emetophobic fears, especially women, postpone or forego parenthood? How do they – and significant others in their lives – cope with the challenges inherent in raising children for people with vomit-related fears? In response to ESBQ items, 59% of participants in this study said they sometimes, often, or always avoid spending time around children to manage their phobia, while 25% said they have always avoided or postponed having children because of it, and another 24% said they did this sometimes or often.

As implied elsewhere in this paper, the disclosure of emetophobic fears to significant others, as well as negotiating the effects of emetophobia on one's life, including engaging in safety behaviours, are likely to be fraught with perceived and potentially real risks for people who have this phobia. Such risks may include rejection, ridicule, an essential lack of understanding, and failure to accommodate avoidance and other safety behaviours. Some safety behaviours may in and of themselves take a toll on close relationships. For example, 56 participants (93%) reported that they ask others repeatedly how they are feeling, such as whether they might be feeling sick or nauseous,

at least sometimes; 18 of them (30%) said they usually do this, while 20 (33%) said they always do. Several participants noted in personal communications that this safety behaviour can create considerable tension with family, friends, and intimate partners. There were also several mentions of conflict when people with emetophobic fears cancel planned activities to avoid direct or indirect (e.g., the child of a friend with whom the activity was planned, even though the child is not physically present) contact with someone who has recently vomited. This kind of avoidance can also have an impact on affected individuals' ability to go to, or remain at, school or work. An additional risk of disclosing emetophobic fears is that others may subsequently lie about being or having been sick, either in an attempt to shield the fearful person from worry (Heaton-Harris, 2007), or to prevent "inconveniences" such as cancelled or postponed plans. No matter how well-intentioned, the end result of such dissembling may be loss of trust and corresponding increases in anxiety and avoidance.

As well as examples of open-ended responses to some items on the Fear of Vomiting measure seen elsewhere in this paper, several participants agreed to speak for themselves about various aspects of QOL through excerpts from e-mailed stories they shared spontaneously when contacting the researcher during data collection:

"I'm not in a relationship now, and I don't think I ever will be again, although I have been in the past. I was engaged once and thought I would be married (but never have children!). It was hard, humiliating to tell my fiancé about my phobia, but it wouldn't be fair not to tell someone you're going to live with. I told him early on, because if he was s I didn't want to be around him. He used my phobia for his own entertainment. He would purposely take me places where he knew I would be exposed to things and then wait to see if I'd catch anything and what would happen then. I never did, thank goodness. A friend told me after he took me there and she'd just had a stomach b* and he knew it. He'd asked her not to tell me. She hadn't at the time. I got rid of him that day. Her soon afterward."*

"I've been diagnosed with panic disorder with agoraphobia (yes, yes), ocd (on and off), depression (sometimes, and why not), hypochondriasis (I don't know), and my GP said I am the only occasional anorexic he has ever met (no). But when I told him about emet he laughed. Said no one LIKES it but there's nothing to fear, no one dies from it. Nobody gets that that's not the point."

"It is all I can think about. From sun up to sun down I think about vomit. Scaring myself to death, losing weight, closing myself off from other people, only eating saltines."

"Going to the dentist is horrid, and taking antibiotics is worse. Sometimes I just can't. In restaurants I only eat french fries, and I hardly ever travel. You couldn't pay me enough to go on a boat. I like kids but hate being around them. I hold my breath in elevators. I've gone shopping and overheard the cashier say something about having been ill and put everything I just paid for in the trash on my way out. You can't know if it was just a cold or something else and you can't ask. I throw away a fortune in food. My hands are always raw from washing and sanitizers. Strangers notice and ask me what's wrong with them. I drive my family crazy about washing their hands and asking how they feel all the time. I've lost friends over that. I dread going to sleep. I dread waking up. I have terrible nightmares."

*"I am so grateful that people are beginning to take an interest in this subject as I have faced so many doctors and psychiatrists whom have had no idea about it; I have even been asked whether I am bulimic by one psychiatrist!!!! It is a seriously debilitating condition that seemingly has no cure and this leads to other problems such as depression and other phobias. My current situation is that I am signed off from working as an English teacher because of the phobia and awaiting CBT. I am unable to leave my house due to the anxiety it provokes and have been diagnosed with a specific phobia, depression, acute anxiety, OCD and, a few years ago, anorexia nervosa (which I believe is a misdiagnosis, I restrict my eating due to emetophobia). Certain words can trigger severe anxiety/panic attacks (I refer to v*ing as being ill)... I have recently taken part in another research project here in the UK being conducted by Dr. David Veale at the Bethlem Royal hospital in London (via an online questionnaire and a home visit). I had a system worked out with my partner when I did the other questionnaire whereby he would ask me the questions and act as a censor, replacing any words that cause anxiety with an agreed word. I asked him this morning whether he would be able to do this again and he agreed so I would love to go ahead with it if that's okay... [When contacted later for permission to share this excerpt]... I have my first session of CBT next week (been on the waiting list since March) and I'm very nervous about it but determined to give it my best. Since we last spoke I have become pregnant and although I am happy with this it has been a very scary time and I'm more in need of help than ever. I'm very lucky in that I have incredible support from my partner and family and they have assured me I won't have to ever deal with 'it' but I know that's not realistic or acceptable."*

Conclusions

This study, while preliminary and exploratory in nature, provides support for and adds to the findings of much of the limited research to date addressing emetophobia. All available evidence indicates that emetophobia is a legitimate focus of research interest and clinical attention, and may underlie other presenting problems that are currently thought to be “principle” or represent an as yet unrecognized form or component of anxiety psychopathology more generally. The bottom line: many people’s lives are profoundly affected by vomit-related fears, and these people require recognition, respect, understanding, and effective treatment. Such goals can only be met, in the long term, in two interdependent ways: (1) by conducting empirically sound quantitative and qualitative research clarifying the relationships among emetophobia and other anxiety symptoms and the implications of these relationships, and investigating what factors contribute to the onset and maintenance of emetophobia, how it affects people’s lives and functioning, and what can be done to help them reduce the fear, or at least its impact on their lives and health; and (2) by ensuring that the findings of such research come to the attention of health care and mental health professionals, so they will have the awareness and the tools with which to put these findings to beneficial use.

Appendix A : Recruitment Paragraph

I have been contacted by Megan Pearson, a BAH Psychology Graduate Student in Clinical Psychology at Ryerson University who writes the following - I hope everyone will help by completing her questionnaire to both help raise the profile of emetophobia and, hopefully, help find methods of successfully treating our fear:

I am a mature student in the second and final year of a Master's degree in Clinical Psychology at Ryerson University (Toronto, Ontario, Canada). I have chosen to do my thesis research on the topic of emetophobia, a decision I made, in part, because I have some first-hand knowledge of this fear and the powerful influence it can have on virtually every aspect of one's life. It is my hope that this research will help to increase awareness and understanding of emetophobia, which may, in turn, contribute to finding effective ways of supporting those who live with emetophobic fears.

The study involves the completion of an online survey through Qualtrics, a password-protected, secure survey website. It consists of a questionnaire package that includes some basic questions about demographics and 12 brief measures that are relevant to emetophobic experiences.

The survey takes approximately one hour to complete, and participation is completely voluntary and confidential. As an expression of appreciation for participation, a donation will be made on each participant's behalf to an internationally recognized, registered charity of his or her choice. I would like to assure you that I will conduct this research with the utmost respect for participants, their individual experiences, and their privacy. Your participation would be very helpful and greatly appreciated.

If you are interested in participating, or if you have any questions about the study, please contact me at mpearson@psych.ryerson.ca
Once people contact me by e-mail, I can send them the link to the survey.

Appendix B: Emetophobic Safety Behaviours Questionnaire

The list below includes a number of behaviours that are sometimes used by people to cope with a fear of vomiting and/or vomit. Please read each brief description carefully and select the option that **generally** applies to you or would apply to you in that situation.

Response options:

- 0 = I do this, BUT NOT to manage a fear of vomiting/vomit
- 1 = NEVER to manage a fear of vomiting/vomit
- 2 = RARELY to manage a fear of vomiting/vomit
- 4 = SOMETIMES to manage a fear of vomiting/vomit
- 5 = USUALLY to manage a fear of vomiting/vomit
- 6 = ALWAYS to manage a fear of vomiting/vomit

How much/often do you do the following to manage a fear of vomiting/vomit:

1. _____ carry water with you
2. _____ carry mints or cough drops with you
3. _____ carry a mobile/cellular phone with you
4. _____ ensure that you have a certain person with you or within easy access (for example, by phone or pager)
5. _____ check the location of bathrooms or exits wherever you are
6. _____ stay close to bathrooms or exits whenever possible
7. _____ **avoid** sleeping away from home
8. _____ ask people repeatedly how they are feeling (for example, whether they may be feeling sick or nauseous)
9. _____ take anti-nausea medication (e.g., Gravol, Dramamine) to prevent nausea or vomiting
10. _____ **avoid** touching objects that may contain germs (e.g., shaking hands, touching door handles, elevator buttons, or money)
11. _____ **avoid** using public bathrooms and/or bathrooms in other people's homes
12. _____ **avoid** travelling or going to unknown places
13. _____ **avoid** driving
14. _____ **avoid** travelling by car as a passenger
15. _____ **avoid** using public transit
16. _____ **avoid** flying
17. _____ **avoid** travelling by boat
18. _____ **avoid** reading in a moving vehicle (for example, a car, train, or airplane)
19. _____ **avoid** going to movie theatres, plays, concerts
20. _____ **avoid** going to clubs or bars, or anywhere that there is an increased likelihood that people may vomit due to excessive alcohol consumption
21. _____ **avoid** returning to places where you have seen or heard someone vomiting or encountered vomit

- 0 = I do this, BUT NOT to manage a fear of vomiting/vomit
1 = NEVER to manage a fear of vomiting/vomit
2 = RARELY to manage a fear of vomiting/vomit
4 = SOMETIMES to manage a fear of vomiting/vomit
5 = USUALLY to manage a fear of vomiting/vomit
6 = ALWAYS to manage a fear of vomiting/vomit

22. _____ pay very close attention to “best before” dates on foods and beverages
23. _____ overcook food (such as meat, poultry, or eggs)
24. _____ throw away food
25. _____ **avoid** handling certain foods (such as eggs, raw meat or poultry)
26. _____ **avoid** eating certain foods (for example, mayonnaise/salad dressing, dishes containing raw egg) because they may cause food poisoning, nausea, or vomiting
27. _____ **avoid** eating certain foods because of their texture and/or appearance (e.g., Jell-O, pasta, cottage cheese)
28. _____ **avoid** eating food that others have prepared (for example, in other people’s homes, restaurants, or buffets)
29. _____ **avoid** eating or drinking food or beverages that can cause burping (e.g., soft drinks)

30. _____ **avoid** using any form of the word “vomit”
31. _____ **avoid** using synonyms of the word “vomit” (e.g., puke)
32. _____ **avoid** watching TV shows or movies, or reading books, in which someone vomits
33. _____ **avoid** playing video games or seeing 3D movies
34. _____ **avoid** spending time around children
35. _____ **avoid** spending time around anyone who is or has recently been sick
36. _____ **avoid** going out socially or having guests in your home
37. _____ **avoid** people who have recently vomited
38. _____ **avoid** visiting medical clinics, doctors, or hospitals
39. _____ **avoid** medications or medical treatments that may cause nausea or vomiting.
40. _____ **avoid** brushing your teeth
41. _____ **avoid** seeing a dentist regularly

42. _____ **avoid** drinking alcohol
43. _____ **avoid** using illegal or recreational drugs
44. _____ seek information about possible situations where you might encounter vomiting (for example, watching/reading news stories about outbreaks of flu or food poisoning or reading about related topics online)
45. _____ **avoid** making firm time commitments
46. _____ **avoid** going to school or work
47. _____ **avoid** living with other people (e.g., roommate, romantic partner)
48. _____ **avoid** owning a pet
49. _____ **avoid** sexual activity

50. _____ ***avoid*** or postpone getting pregnant or having children

51. other (please specify):

Appendix C: Emetophobic Cognitions Scale

Part 1: Beliefs About Triggers and Situations

Not at all 0	Slightly 1	Somewhat 2	Strongly 3	Very Strongly 4
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The following list includes some common thoughts and beliefs about possible causes of vomiting among people who have a fear of vomit, vomiting, or seeing others vomit. Please read each statement carefully. Using the scale provided, where 0 = not at all and 4 = very strongly, please rate **how strongly you agree with each item**.

1. Triggers that could make me vomit are everywhere.	0	1	2	3	4
2. If I am in the presence of someone who vomits, it will make me vomit.	0	1	2	3	4
3. If I see and/or hear someone on TV or in a movie vomiting, it will make me vomit.	0	1	2	3	4
4. Seeing or smelling spoiled food will make me vomit.	0	1	2	3	4
5. If I accidentally eat spoiled food, I will vomit.	0	1	2	3	4
6. Seeing someone who is bleeding or injured will make me vomit.	0	1	2	3	4
7. The sight or sound of phlegm will make me vomit.	0	1	2	3	4
8. The sight or smell of feces will make me vomit.	0	1	2	3	4
9. If I have a lump in my throat or my throat feels tight, I will vomit.	0	1	2	3	4
10. Nausea or stomach discomfort means that I am going to vomit.	0	1	2	3	4
11. Sudden bowel changes (e.g., diarrhea) mean I am going to vomit.	0	1	2	3	4
12. If I choke on food or it gets caught in my throat, I will vomit.	0	1	2	3	4
13. Travelling by car will make me vomit.	0	1	2	3	4

14. If I travel by boat I will vomit.	0	1	2	3	4
15. Eating certain foods will lead to vomiting.	0	1	2	3	4
16. If I say, think, or hear the word “vomit” it could make me vomit.	0	1	2	3	4
17. Going on amusement park rides will make me vomit.	0	1	2	3	4
18. Drinking alcohol will make me vomit.	0	1	2	3	4
19. Swallowing pills or taking medication will make me vomit.	0	1	2	3	4
20. Having dental work done will make me vomit.	0	1	2	3	4
21. Being around someone who has a stomach virus will make me sick and cause me to vomit.	0	1	2	3	4
22. If I go to a doctor’s office or hospital I will catch something that will make me vomit.	0	1	2	3	4
23. Eating food prepared by others will lead to vomiting.	0	1	2	3	4
24. I am more likely to vomit when I am away from home.	0	1	2	3	4
25. I always need to be close to a bathroom in case I vomit.	0	1	2	3	4
26. I am more likely to vomit when I am alone.	0	1	2	3	4
27. I am more likely to vomit when I am in a crowded place.	0	1	2	3	4

28. What other situations, objects, or experiences (if any) can trigger vomit-related fears for you?

B. Beliefs about Consequences

The following list includes some common thoughts and beliefs about possible consequences of vomiting or seeing others vomit. Please read each statement carefully. Using the scale provided, where 0 = not at all and 4 = very strongly, please rate **how strongly you agree with each item**.

- | | | | | | |
|-------------------------------------------------------------------------|---|---|---|---|---|
| 1. Vomiting is a sign that something serious is wrong with me. | 0 | 1 | 2 | 3 | 4 |
| 2. Vomiting is dangerous. | 0 | 1 | 2 | 3 | 4 |
| 3. If I vomit, something terrible will happen. | 0 | 1 | 2 | 3 | 4 |
| 4. People would think badly of me if I vomit in a public place. | 0 | 1 | 2 | 3 | 4 |
| 5. I could not cope with vomiting. | 0 | 1 | 2 | 3 | 4 |
| 6. If I vomited, I might go crazy or lose my mind.. | 0 | 1 | 2 | 3 | 4 |
| 7. Vomiting is a sign of weakness. | 0 | 1 | 2 | 3 | 4 |
| 8. People would avoid, reject, or abandon me if I vomited. | 0 | 1 | 2 | 3 | 4 |
| 9. I will be overwhelmed with disgust if I vomit or encounter vomiting. | 0 | 1 | 2 | 3 | 4 |
| 10. If I vomit, it will mean that I don't have control over my body. | 0 | 1 | 2 | 3 | 4 |

11. The worst thing(s) that might happen if I vomited would be

Appendix D: Online Participant Consent Form

Study Title: Characteristics and Correlates of Emetophobia

You are being asked to participate in a research study about emetophobia, which is a term used to describe vomit-related fears. Before you agree to be a participant in this study, it is important for you to read all of the information in this form carefully and ask the researchers any questions that arise about what you will be asked to do.

Investigators: Megan Pearson, BAH, Master's candidate in Clinical Psychology, Ryerson University. Supervisor: Maria Gurevich, PhD, Department of Psychology, Ryerson University.

Purpose of Study: This study will explore various aspects of vomit-related fears in a non-clinical sample in order to promote recognition, increase understanding, and contribute to more effective treatment of emetophobic fears.

Study Description: Participation in this study involves the completion of a survey that includes a brief demographics measure and 12 questionnaires that are thought to be particularly relevant to emetophobic fears. The questionnaire package will take approximately one hour/60 minutes to complete online at Qualtrics, a password-protected, secure survey site. None of the questionnaires included in the package are of an experimental nature; all participants will complete identical forms of the same measures, and all data collected will be used for the purposes of analyses only.

Risks or Discomforts: The potential risks or discomforts associated with participation in this study are expected to be minimal and to pass in a short time with rest. These include mild fatigue due to sitting at a computer and completing the questionnaires, and discomfort or mild distress associated with responding to vomit-related questions. In the unlikely event that distress or discomfort are more pronounced or lasting than anticipated, participants are advised to contact their family doctor.

Benefits: Although we cannot guarantee that you will receive any personal benefits from participating in this study, we anticipate that the results of the study will widen recognition and contribute to effective management of vomit-related fears. These outcomes are important, because such fears appear to be as common as other, more well-known fears and often lead to substantial distress and/or impairment. Participation may contribute to long-term benefits for individuals who experience these fears, either on their own or in association with various types of anxiety.

Confidentiality: The responses of all participants will remain confidential throughout the study. Each participant will be assigned an identification (ID) number which will be used to link the data from all questionnaires in the package. All data collected during the study will be kept in password-secured files on private-access computers used solely by researchers until all analyses of the data are complete. Any presentation or publication of part or all of the results of the study will be in aggregate form only; that is, the data or results from any participant who participates in the study will only be used and reported as part of the overall findings, never in an individual format. All raw data will be destroyed within five (5) years of completion of the study. Only the Investigator and trained research assistants will have access to the data.

Incentives to Participate: To thank you for your participation in this study, a donation will be made on your behalf to an internationally recognized, registered charity of your choice. Options include the United Nations Children's Fund (UNICEF), Educational, Scientific, and Cultural Organization (UNESCO), and Development Fund for Women (UNIFEM), as well as Médecins Sans

Frontières/Doctors Without Borders (MSF), Amnesty International, and the World Wildlife Fund (WWF). The amount of the donations will be a minimum of \$5 CAD per participant or \$500 CAD total, whichever is greater.

Participation in this study is completely voluntary and participants are free to withdraw at any time. If you decide not to participate or choose to stop at any point during the completion of questionnaires, you are free to do so without penalty or loss of any benefits to which you are entitled. **You will not be able to re-enter the survey once you have closed the survey window.** You are free to decline to answer any question. If you skip or decline to answer a large proportion of the questions or an entire questionnaire, your data may not be included in the study analyses. If you choose not to participate or decide at any time to withdraw from the study, your potential relationship or association with Ryerson University, currently or at any time in the future, will not be affected in any way.

If you have any questions about this research or your participation now, please ask the researcher. If you have questions at a later time, you may contact the primary investigator at:

mpearson@psych.ryerson.ca, 416-979-5000 ex. 2191

If you have any questions regarding your rights as a research participant and participant in this study, you may contact the Ryerson University Research Ethics Board for information at:

Research Ethics Board
c/o Office of the Vice President, Research and Innovation
Ryerson University
350 Victoria Street
Toronto ON Canada M5B 2E8
(416) 979-5042

If you would like to know about the outcomes of the study, you may provide the researcher with your contact information and you will be notified by e-mail or regular mail or directed to an online source for information when it becomes available.

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