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Autobiographical memories of vomiting in people with a specific phobia of vomiting (emetophobia)

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ABSTRACT

Background: Vomiting is an almost universal phenomenon, but little is known about the aetiology of a specific phobia of vomiting (SPOV). The associations with vomiting during childhood and autobiographical memories may have relevance for our understanding of the development of SPOV and its treatment.
Method: Two groups: (a) a group with SPOV (n = 94) and (b) a control group (n = 90) completed a self-report questionnaire assessing their lifetime memories of both their own vomiting and others vomiting.
Results: People with SPOV recalled the memories of their own and others vomiting experiences from an earlier age and rated them as significantly more distressing than the control group. There was no difference between the groups in the number of memories of their *own* vomiting recalled *before* the age at which vomiting became a problem. However, the SPOV group recalled more memories of *others* vomiting before the onset of the problem. After the age at which the phobia became a problem they recalled less memories of their *own* vomiting and more memories of *others* vomiting than the control group. They recalled significantly more memories of vomiting associated with inter-personal events, health or emotional or unrelated life events.
Conclusions: Avoidance and hyper-vigilance for others vomiting after the onset of the phobia may have slightly reduced the risk of vomiting. There is some evidence for associative learning in SPOV with aversive consequences of vomiting and an unrelated life event. It suggests a model of autobiographical memories of vomiting that have lost a time perspective and context, which are being reactivated with cues for vomiting. The limitations of the study are those of memory biases in both groups.

1. Introduction

Vomiting is an almost universal experience for human beings. It is an unpleasant but necessary consequence of gastritis and serves the function of expelling toxins from the stomach. It may also be a non-specific consequence of a range of medical emergencies such as a brain tumour, renal failure, or appendicitis. A small number of people develop a specific phobia of vomiting (SPOV), yet there is very little evidence regarding its aetiology.

SPOV (also known as emetophobia) occurs predominantly in women and can be significantly handicapping. For example, women may avoid a desired pregnancy, or become significantly underweight from food restriction (Lipsitz, Fyer, Paterniti, & Klein, 2001; Veale, Costa, Murphy, & Ellison, 2011; Veale & Lambrou, 2006). Typically a person with SPOV will avoid a wide range of situations including potentially unwell, and therefore contagious, children or adults; people who are at risk of vomiting (e.g. people who are drunk); activities such as going abroad; or visiting people who are ill. Individuals with SPOV may also restrict their alcohol or food intake to reduce the risk of vomiting. They may also be excessively vigilant for cues for vomiting and frequently checking others for signs of illness.

The only epidemiological survey of specific phobias, which specifically enquired about a phobia of vomiting, found the prevalence of SPOV to be 0.1% (Becker et al., 2007). This prevalence may be under-estimated, however, as the symptoms often overlap with those of health anxiety, obsessive-compulsive disorder and anorexia nervosa for which the person with SPOV may be misdiagnosed (Veale, 2009; Kirkpatrick & Berg, 1981 as cited in Phillips, 1985) reported a prevalence of 1.7%–3.1% in males and 6%–7% in females for subclinical levels of a *fear of vomiting* that did not reach diagnostic criteria for SPOV.

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The origins of SPOV are unknown. There are several competing hypotheses for the origins of phobias in general. Associative theories suggest that phobias develop as a consequence of relevant associative learning experiences (Coelho & Purkis, 2009). Watson and Rayner (1920) originally argued that specific phobias are simply intense classically conditioned fears that develop when a neutral stimulus is paired with a traumatic event, such as when Little Albert acquired an intense fear of rats after hearing a frightening gong paired with the presence of a rat several times (Mineka & Zinbarg, 2006). Several studies have confirmed that many people with specific phobias can recall a traumatic conditioning event when their specific phobia began (see Muris & Mercklebach, 2001, for a review). However, these studies were based on retrospective recall, and therefore it is likely that there are interpretive biases in people's recollection of events (Mineka & Öhman, 2002). One case series showed that children developed a fear of nausea and vomiting shortly after a stomach virus or medical procedure (e.g. surgery), which had led to vomiting (Klonoff, Knell, & Janata, 1984). To account for the observation that many people with specific phobias do not appear to have had any relevant history of classical conditioning, Rachman (1978) suggested vicarious learning could also be a route for associative learning. He argued that simply observing others experiencing a trauma or behaving fearfully could be sufficient for some specific phobias to develop. The results of some retrospective studies support this idea (e.g. Muris & Mercklebach, 2001; Ost & Hugdahl, 1981). One such case involved a boy who had witnessed his grandfather vomit while dying; shortly afterwards the boy developed SPOV.

Non-associative theories of fear acquisition suggest that some fears (e.g. a fear of heights, strangers, loud noises or water) develop without any critical learning experiences (Poulton, Davis, Menzies, Langley, & Silva, 1998; Poulton & Menzies, 2002a). For example, Poulton et al. (1998) conducted a longitudinal study examining the relationship between conditioning events (before the age of 9 years) and the presence of height fear (at ages 11 and 18 years) and found no positive relationship between relevant traumatic events (e.g. head injury) and fear of heights. In fact, falls resulting in head injury between the ages of 5 and 9 occurred more frequently in those without a fear of heights at 18, a finding in the opposite direction to those predicted by associative theories. In this case, a response of fear may be acquired through evolution and innate pathways, and may have had the evolutionary advantage of avoiding dangerous situations or objects (Poulton & Menzies, 2002a, 2002b). It is hypothesised, however, that an innate pathway would be less likely in SPOV since vomiting allows harmful toxins to be purged and a response of fear is therefore not evolutionary advantageous.

There is a comorbidity between SPOV and other anxiety disorders, such as panic disorder and social anxiety, in so far as they all share a common general anxiety vulnerability (Boschen, 2007). A cognitive behavioural formulation of SPOV (Boschen, 2007) highlights processes that occur in SPOV, which are similar to the ones occurring in panic disorder (Clark & Salkovskis, 2009), and contribute to the maintenance of the disorders. These include a catastrophic misinterpretation of certain bodily sensations (gastrointestinal symptoms in SPOV, and palpitations, breathlessness and dizziness in panic disorder), hypervigilance to the presence of interoceptive cues, and avoidant behaviour. The latter strategy maintains the patients' negative beliefs as the non-occurrence of the catastrophe (vomit in SPOV, and panic attack in panic disorder) is attributed to avoiding certain stimuli.

A previous survey conducted by our group found no significant differences between the number of lifetime memories of vomiting in those with SPOV and those with panic disorder (Veale & Lambrou, 2006). In this exploratory study, there were 100 participants with SPOV but a smaller group with panic disorder ($n = 28$). Furthermore, specific details about each memory of vomiting were not recorded and no attempt was made to separate the number of memories of vomiting before and after the age of onset of the phobia. The present study addresses these methodological limitations with a much larger control group in the community. Secondly, the current study enquires into the individual's autobiographical memories and those of others vomiting before and after the age of onset of the phobia. Both studies were designed as exploratory and may have relevance in our understanding of the development, maintenance, and treatment of SPOV.

The main aims of the current study were to explore memories and associations of vomiting in people with SPOV. A secondary aim was to determine if the number of memories of vomiting was influenced by the phobia. Specifically, it was hypothesised that people with SPOV compared to a control group would (a) recall more memories of their own and others vomiting experiences, (b) rate the memories as more distressing, (c) be more likely to associate the memories with aversive consequences, and (d) engage in excessive vigilance and avoidance behaviours after the onset of their phobia, which would be somewhat successful in reducing the frequency of vomiting (or the sense of influence) and were therefore reinforcing the hypervigilance and avoidance behaviour.

2. Method

2.1. Participants

2.1.1. SPOV group

2.1.1.1. Recruitment. We recruited participants with SPOV (Total $n = 94$; females $n = 88$ and males $n = 6$). Twenty four (25.5%) were recruited from a clinical setting and 70 (74.5%) from a website or an Internet support group (Gut Reaction, International Emetophobia Society and Anxiety UK). Participants completed the Psychiatric Diagnostic Screening Questionnaire (PDSQ) (Zimmerman & Mattia, 2001). The screening questionnaire was used to identify possible Axis 1 diagnoses before the Structured Clinical Interview for DSM Disorders (SCID) (First, Spitzer, Gibbon, & Williams, 2002) was used to confirm a diagnosis of SPOV and to determine any co-morbidity suggested by the screening questionnaire. The researchers contacted participants recruited over the web in order to conduct the SCID over the phone. Participants recruited in the clinic were interviewed face to face. The only inclusion criterion for the study was that they had a diagnosis of SPOV.

2.1.2. Control group

Due to the aforementioned higher proportion of women with SPOV, the control group was matched for gender and age.

2.1.2.1. Recruitment. A community group (total $n = 90$; females $n = 87$ and males $n = 3$) was identified using the Mind Search database at the Institute of Psychiatry, King's College London. This database contains over 3500 individuals in the local community who have volunteered to participate in psychological or psychiatric research. The inclusion criterion was that they had no previous history of a psychiatric disorder and this included a diagnosis of SPOV.

2.1.3. Exclusion criteria

To ensure that the clinical and control groups were at a similar risk of vomiting we sought to exclude participants that were at a greater risk of vomiting and would be regarded as outliers in the control group. Therefore we excluded people who:

(a) had an eating disorder with self-induced vomiting
(b) had severe suicidal intent and could take an overdose that could induce vomiting