



The spontaneous decay and persistence of mental contamination: An experimental analysis



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ARTICLE INFO

Article history:

Received 21 December 2012

Received in revised form

5 July 2013

Accepted 1 September 2013

Keywords:

Contamination

Washing

Exposure and response prevention

Obsessive compulsive disorder

ABSTRACT

Background and objectives: It has recently been identified that feelings of contamination can arise in the absence of physical contact with a stimulus. This concept, known as ‘mental contamination’ has particular relevance to Obsessive Compulsive Disorder in which compulsive cleaning is a common symptom presentation. Experimental studies have begun to examine the psychopathology of mental contamination. The aims of the two experiments reported here were to explore the evocation and spontaneous decay of mental contamination.

Methods: In Experiment 1, a variant of the autobiographical memory task was used in which 40 non-clinical participants were asked to recall autobiographical memories associated with betrayal, harm, humiliation and violation of moral standards. In Experiment 2, 60 participants with moderate levels of mental contamination were asked to complete five short tasks designed to induce mental contamination, including recalling unwanted memories and images.

Results: In both experiments, participants reported significant increases in mental contamination, anxiety, urges to wash and actual washing behaviour. In experiment 1, the effect of the induction decayed spontaneously. Experiment 2 found that re-evoking contamination and repeated washing led to the persistence of mental contamination.

Limitations: The studies were conducted on non-clinical samples.

Conclusions: These findings demonstrated that repeated triggers may be causally connected to the maintenance of mental contamination fears in non-clinical samples.

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1. Introduction

Traditionally the fear of contamination has focused on contact contamination, i.e. feelings of dirtiness that arise from direct physical contact with a dirty or harmful item, person or place. However, it has recently been identified that the feeling of being polluted, dirty, infected or endangered can also be experienced in the absence of physical contact with a tangible contaminant. This phenomenon is known as ‘mental contamination’ and is associated with physical, emotional or moral violation, immorality, betrayal and humiliation. The features of mental contamination are described in detail by Rachman (2006) and have particular relevance to Obsessive Compulsive Disorder (OCD) where compulsive

cleaning driven by a fear of contamination is reported by 38% of patients (Calamari et al., 2004; Foa et al., 1995).

Mental contamination is intriguing as it can arise as a result of intrusive thoughts, memories or images (Coughtrey, Shafran, Lee, & Rachman, 2012; Rachman, 2006). A number of experiments have shown that feelings of mental contamination can be induced by imagining scenarios involving unacceptable conduct (e.g. Elliott & Radomsky, 2009, 2012; Fairbrother, Newth, & Rachman, 2005; Herba & Rachman, 2007). These experiments have used a ‘non-consensual kiss’ paradigm where female participants listened to an audio-recording in which they were asked to vividly imagine being kissed at a party against their wishes. Participants who were asked to imagine experiencing a non-consensual kiss reported greater subjective feelings of dirtiness and stronger urges to wash than women asked to imagine a consensual kiss (Elliott & Radomsky, 2009; Fairbrother et al., 2005; Herba & Rachman, 2007). Furthermore, participants were more likely to spontaneously rinse out their mouths and engage in washing behaviour after imagining a

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non-consensual kiss (Elliott & Radomsky, 2009; Herba & Rachman, 2007). Similar findings have been reported when male participants were asked to imagine being the perpetrator of an unwanted kiss (Rachman, Radomsky, Elliott, & Zysk, 2012).

Using alternative methods to induce feelings of mental contamination, Zhong and Liljenquist (2006) demonstrated that after recalling an immoral autobiographical memory, non-clinical participants were more likely to complete word fragments to produce washing related words, and were twice as likely to choose an antibacterial wipe rather than a pencil when offered a choice of free gift. Reuven, Liberman, and Dar (2010) examined the effects of physical cleaning on threatened morality and asked participants with OCD to write a detailed description of a past immoral act before asking half of participants to wash their hands using an antibacterial wipe. Participants who washed their hands reported reduced disgust, guilt, regret, embarrassment, shame and anger after describing their immoral behaviour, compared to participants who did not wash.

These experiments provide evidence that mental contamination and washing behaviour can be evoked by perceived physical and moral violations and such violations create strong emotional reactions in the form of anxiety, disgust, guilt and dirtiness. However, further information about this phenomenon is required using methods that do not confound contact and mental contamination, and that allow the characteristics of the emotional reaction to be studied in depth.

The aim of the first experiment was to investigate whether feelings of mental contamination could be evoked by memories, thoughts and images in the absence of contact with a tangible contaminant. It was hypothesised that feelings of dirtiness could be induced in response to negative memories elicited by a variant of the autobiographical memory task developed for this study.

The aim of the second experiment was to explore the persistence of mental contamination. In previous experiments, the duration of the induced mental contamination was not examined, however, clinical observations have indicated that mental contamination is long lasting and remarkably persistent (Coughtrey et al., 2012; Rachman, 2006). In cases of contact contamination, repeated washing behaviour is hypothesised to maintain contamination fear, as it prevents the natural and spontaneous decay of feelings of contamination (e.g. Hodgson & Rachman, 1972). Mental and contact contamination fears often overlap and some patients also report compulsive washing behaviours in response to mental contamination (Coughtrey et al., 2012; Coughtrey, Shafran, Knibbs & Rachman, 2012). Clinical observations have shown that feelings of mental contamination induced or exacerbated by mental events such as unacceptable thoughts, images and memories can result in repetitive cleaning in order to wash away the feelings of internal dirtiness. Furthermore, clinical anecdote indicates that mental contamination is repeatedly re-evoked and thus perceived as long-lasting (Coughtrey et al., 2012; Rachman, 2006). We hypothesised that like contact contamination, repeated re-evoking and compulsive washing behaviours are causally connected to the persistence of mental contamination. Experiment 2 was designed to test this hypothesis.

2. Experiment 1

2.1. Aims and hypotheses

This experiment aimed to test the hypothesis that mental contamination can be evoked in response to negative memories.

2.2. Method

2.2.1. Participants

Non-clinical participants enrolled at a local university were recruited via poster advertisements and accessing the psychology student research panel. Forty students (12 males and 28 females), aged between 18 and 44 years ($M = 22.60$ years, $SD = 5.33$) participated in the study. In return for their time, participants received either £10 or a course credit. The study received approval from the local ethics committee.

2.2.2. Measures

Visual Analogue Scales (VAS). Participants completed a number of VAS measures (see McCormack, Horne, & Sheather, 1988) to assess subjective feelings of mental contamination and state anxiety. In mental contamination, people commonly experience feelings of internal dirtiness, in addition to the general dirtiness experienced on the surface of the skin experienced in contact contamination (Rachman, 2006). Therefore, participants were asked to rate “How dirty do you feel inside your body?”, “How dirty do you feel in general?” and “How strong is your urge to wash?” and “How anxious do you feel?” on 100 mm scales from 0 = *not at all* to 100 = *extremely*.

2.2.3. Procedure

After reading and completing an information sheet and consent form, participants were asked to complete the VAS items (Time 1). Participants then completed a memory recall task, based on the Autobiographical Memory Test (Williams & Broadbent, 1986). Participants were asked to verbally recall specific personal memories in response to ten contamination cue words read aloud by the experimenter (AC) and briefly describe each memory. The cue words used were: *Disgust, Humiliate, Shame, Violated, Degraded, Dirty, Betrayed, Contaminated, Impure and Immoral*, and were selected based on the theory of mental contamination (Rachman, 2006).

Participants were then asked to identify the memory that was the most unpleasant or caused the most discomfort and were asked to form a mental image of this memory for 2 min, with their eyes shut, imagining it as if it were happening again, through their own eyes as if they were there and focussing on the negative emotions that they experienced at the time. They were then asked to briefly describe the content of the image to the experimenter. Immediately following the mental contamination induction procedure, participants completed the VAS items for a second time (Time 2).

2.3. Results

Participants reported a range of memories in response to the cue words. These included memories of being betrayed by a partner, being lied to by a friend and cheating on an exam. Thirty-four participants reported an increase in internal dirtiness (a key indicator of mental contamination; Rachman, 2006) following the memory recall task. Changes in ratings following the induction of mental contamination were examined using paired samples *t*-tests. There was a significant increase in general dirtiness ($M = +22.28$, $SD = 23.18$; $t(39) = 6.08$, $p < .001$, $d = 1.07$), internal dirtiness ($M = +25.58$, $SD = 26.24$; $t(39) = 6.17$, $p < .001$, $d = 1.24$), urge to wash ($M = +20.45$, $SD = 27.37$; $t(39) = 4.73$, $p < .001$, $d = .79$) and state anxiety ($M = +27.08$, $SD = 24.12$; $t(39) = 7.09$, $p < .001$, $d = 1.29$), following the induction, indicating that mental contamination had been evoked.

2.4. Discussion

This experiment demonstrated that feelings of mental contamination can be evoked in non-clinical individuals via the

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