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‘Things that shouldn’t be’: a qualitative investigation of violation-related appraisals in individuals with OCD and/or trauma histories

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Abstract

Background: Cognitive models of mental contamination (i.e. feelings of internal dirtiness without contact with a contaminant) propose that these feelings arise when individuals misappraise a violation. However, an operational definition of ‘violation’ and identification of specific violation misappraisals is limited.

Aims: This study’s aim was to elaborate on cognitive models using qualitative data from those with lived experience to fill these gaps.

Method: Twenty participants with a diagnosis of obsessive-compulsive disorder and/or a trauma history took part in a semi-structured interview about violation. Grounded theory was used to analyse interview transcripts.

Discussion: Three categories emerged, each with several themes – *qualities of violation*, *violation-related appraisals*, and *violation-related behaviours*. Different violation-related appraisals were associated with different emotions and urges. Specific self-focused appraisal sub-themes (i.e. *permanence of consequences*; *self-worth*; *responsibility*, *self-blame and regret*) were most closely related to emotions tied to mental contamination. These findings support and expand upon existing cognitive models of mental contamination, identifying key violation-related appraisals and differentiating between mental contamination-related appraisals and those related to other emotional sequelae. Future quantitative and experimental research can evaluate the potential of these appraisals as intervention targets.

Keywords: Cognitive appraisals; Mental contamination; OCD; Qualitative; Trauma

Introduction

Violating intrusive thoughts, images and memories are central to both obsessive-compulsive disorder (OCD) and post-traumatic stress disorder (PTSD). In PTSD, individuals experience intrusive memories about past trauma (e.g. flashbacks) while in OCD, individuals can experience repugnant intrusive thoughts (e.g. thoughts about incest or paedophilia). These mental violations can lead to a range of negative emotions (e.g. fear, shame, anger). A recently acknowledged, yet lesser understood consequence of these violations is mental contamination (Rachman, 2004). Mental contamination is defined as feelings of internal dirtiness and/or washing behaviour that arise without direct contact with a physical contaminant (Rachman *et al.*, 2015). Cognitive models of mental contamination suggest that these symptoms arise from specific appraisals of violating events. However, a clear definition of what constitutes a ‘violation’ is limited, and little research has been done to identify the kinds of violation-related appraisals that may lead to these symptoms. Therefore, the goal of this study was to elaborate on existing theoretical models to

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understand the experience of violation more thoroughly in individuals with OCD and/or histories of trauma.

Mental contamination is prevalent and has a serious impact on individuals' lives; indeed, approximately 44% of individuals with OCD report clinically significant levels of mental contamination (Coughtrey *et al.*, 2012) and over 83% of a sample of women with sexual trauma histories reported at least moderate levels of mental contamination (Brake *et al.*, 2021). Mental contamination symptomatology also appears to be predictive of more severe symptoms of both OCD and PTSD (Badour *et al.*, 2023). Finally, symptoms of mental contamination appear to be less responsive to exposure and response prevention (ERP) interventions, with higher pre-ERP levels of mental contamination predictive of higher post-treatment contamination-related symptomatology (Mathes *et al.*, 2019). Theorists propose that this may be due to the cognitive nature of mental contamination, which may require more targeted cognitive interventions than contact contamination concerns (Coughtrey *et al.*, 2013; Rachman *et al.*, 2015; Radomsky *et al.*, 2014).

Cognitive models highlight the central role of beliefs and appraisals in the onset and maintenance of OCD and PTSD (Ehlers and Clark, 2000; Rachman, 1997; Rachman, 1998; Resick *et al.*, 2016; Salkovskis, 1985). Within OCD, the appraisal of intrusive thoughts as an indication that one is 'mad, bad, or dangerous' is proposed to be a key mechanism (Rachman, 1997; Rachman, 1998). Similarly, Ehlers and Clark (2000) propose that PTSD symptoms result from appraisals of trauma cues as an indication of current threat (e.g. 'I am in danger') or of lasting changes to one's self-concept (e.g. 'I am tainted'). For symptoms of mental contamination, specifically, appraisals relating to violation seem to be particularly relevant (Rachman *et al.*, 2015). However, less is known about the specific violation-related appraisals at play in mental contamination due to its relative under-representation in clinical research in OCD and PTSD.

Experimental research on the situational factors that contribute to feelings of mental contamination provides some clues about potential cognitive mechanisms. Namely, the moral character of a perpetrator of a violation (Elliot and Radomsky, 2009); degree of, or proximity to, a violation (Elliot and Radomsky, 2009; Krause and Radomsky, 2021; Radomsky and Elliot, 2009); physical dirtiness of a perpetrator (Elliot and Radomsky, 2012); and pre-task levels of disgust (Fong and Sündermann, 2020) have all been shown to heighten reported levels of internal dirtiness. Taken together, these findings suggest that appraisals related to betrayal, the violation of one's moral code, and crossing one's physical boundaries might be important for understanding mental contamination.

Not only do violations take many different forms, but the emotional sequelae of violations are also varied. Along with feelings of dirtiness, this also includes feelings of shame, guilt, anger, contempt, fear, and disgust (e.g. Rozin *et al.*, 1999). Cognitive theory suggests that the way in which an individual appraises a violation will dictate which of these emotions they will experience in response to the violation (e.g. anger: 'You intentionally wronged me' vs disgust: 'You wronged society' vs contamination: 'I could become "infected" by your wrongdoing'). Therefore, not only is it important to identify violation-related appraisals that are relevant to mental contamination, but also to distinguish between the types of appraisals that lead to feelings of contamination from those leading to other negative emotional experiences.

While our understanding of mental contamination has developed substantially, there remains a lack of clear operational definitions for key concepts (e.g. 'violation'). Additionally, while ERP is currently the gold standard treatment for OCD, symptoms of mental contamination appear to be less responsive to these interventions than contact contamination concerns and may require more targeted cognitive interventions (Coughtrey *et al.*, 2013; Mathes *et al.*, 2019). Therefore, theoretical models of, and clinical interventions for, mental contamination could be enhanced by identifying specific types of violation appraisals that lead to mental contamination in a systematic, inductive manner. Finally, distinguishing between the types of appraisals associated with feelings of contamination and other negative violation-related emotions would allow for greater nuance in our understanding of violation-related psychological sequelae. We aimed to address these gaps by

exploring the meaning of violation in individuals with OCD and trauma histories and identifying their thoughts, emotions, and behaviours from past experiences of violation with semi-structured qualitative interviews. Specifically, we aimed to elaborate theoretical models of mental contamination inductively, grounded in the lived experience of those with OCD and/or trauma histories.

Method

Design and researcher characteristics

The semi-structured interview was initially developed in line with the study goals (i.e. to explore participants' definitions of the construct of 'violation', qualities that make events feel violating, and the cognitive, behavioural, and emotional correlates of past experiences of violation). The interview was semi-structured, consisting of a combination of open-ended questions and follow-up as needed. The interview was piloted in an analogue sample to refine questions, and ensure acceptability, clarity, and focus on study aims.

Given the study's goal of taking an inductive approach to the development of theory around violation, grounded in the lived experience of those with OCD and/or trauma histories, a grounded theory approach was used (Corbin and Strauss, 1990). As such, data analysis was conducted in an iterative manner, with insights from early interviews contributing to more focused interview prompts in subsequent interviews.

All interviews were conducted by S.K. who identifies as a straight woman. She is a clinical psychology PhD candidate with experience assessing and treating individuals with OCD and trauma histories from a cognitive-behavioural orientation. She had no relationship with study participants prior to their participation in the current study. Her credentials were shared with participants prior to the interview.

Other members of the research team for this study included A.R., S.K.'s academic supervisor and a clinical psychologist with extensive expertise in the study and treatment of mental contamination and OCD more broadly, along with other anxiety-related problems who identifies as a gay man. Finally, Kenneth Kelly-Turner (K.K.-T.) is a male clinical psychology PhD candidate with clinical and research expertise in OCD and qualitative methods.

Participants

Participants ($n = 20$) met criteria for a diagnosis of OCD and/or had experienced a traumatic event that satisfied the *DSM-5* Criterion A of PTSD (i.e. an event that included actual or threatened death, serious injury, or sexual violence). Inclusion criteria required participants to be at least 18 years of age, located in Canada, fluent in English, and have access to a computer with Zoom capability. Exclusion criteria included acute substance use and/or a diagnosis of a psychotic disorder. Diagnostic inclusion/exclusion criteria were established using the Mini International Neuropsychiatric Interview (MINI) (Sheehan *et al.*, 1998).

Of the 26 individuals who expressed interest in participation, six were deemed ineligible – two did not meet the diagnostic threshold for OCD, and four did not satisfy Criterion A of PTSD. Of the final sample, three had an OCD diagnosis only, seven had a trauma history only, and 10 had both. There was a mean subclinical level of mental contamination symptoms ($M = 29.60$; see Table 1 for demographics).

Measures

Semi-structured violation interview

The interview guide was developed by S.K., in consultation with other clinicians and researchers with expertise in OCD and trauma. Interview prompts were guided by experiences reported by clients of the research team with symptoms of mental contamination and by theoretical models of

Table 1. Participant demographics

Sample demographics		MINI diagnoses	
Age	$M = 30.53$ ($SD = 10.74$)	OCD only	15% ($n = 3$)
Gender	Man 30% ($n = 6$)	Criterion A Trauma history only	35% ($n = 7$)
	Woman 55% ($n = 11$)		
	Non-binary 15% ($n = 3$)	OCD and trauma history	50% ($n = 10$)
First language	English 70% ($n = 14$)	PTSD	30% ($n = 6$)
	French 10% ($n = 2$)		
	Other 20% ($n = 4$)	Mood disorder	25% ($n = 5$)
	Marital status	Married 10% ($n = 2$)	Anxiety disorder
Ethnicity	Single 85% ($n = 17$)	Eating disorder	15% ($n = 3$)
	Separated/divorced 5% ($n = 1$)		
	Caucasian 60% ($n = 12$)		
	Middle Eastern 5% ($n = 1$)		
	East Asian 10% ($n = 2$)		
Mental contamination symptoms	South Asian 15% ($n = 3$)		
	Black 10% ($n = 2$)		
	$M = 29.60$ ($SD = 20.97$)		

MINI, Mini International Neuropsychiatric Interview.

mental contamination. The interview was designed to capture participants' definitions of 'violation' (e.g. 'What does "violation" mean to you?'), qualities that make 'violations' feel violating (e.g. 'I'd like you to think of a past violation. What is it about that instance that made it feel violating?'), and the cognitive, behavioural, and emotional correlates of violating events (e.g. 'During that instance, what was going through your mind? What did you do? How did you feel?'). The interview was semi-structured, consisting of both open-ended questions and follow-ups as needed. The interview was pilot tested in an analogue sample to ensure its clarity, acceptability, and focus.

Mini International Neuropsychiatric Interview, 7th edition (MINI; Sheehan et al., 1998)

The MINI is a structured diagnostic interview that assesses for the presence of mental disorders based on *DSM-5* criteria. The MINI has excellent convergent validity, and inter-rater reliability (Sheehan et al., 1998).

Vancouver Obsessional-Compulsive Inventory – Mental Contamination Scale (VOCI-MC; Radomsky et al., 2014)

The VOCI-MC is a 20-item measure of mental contamination. The VOCI-MC is a valid and reliable measure (Radomsky et al., 2014) and had excellent internal consistency in the current sample ($\alpha = .96$).

Procedure

Interested individuals who saw study advertisements online and/or via the Anxiety and OCD Laboratory's clinical registry, were invited to contact the research team. A screening call was then conducted to confirm their interest and their demographic and diagnostic eligibility via the OCD and PTSD sections of the MINI (Sheehan et al., 1998). Eligible participants were then scheduled for an interview appointment.

At their interview, the interviewer (S.K.) ensured that participants were given full study details (i.e. that participants would be asked to recall and provide information about an experience of violation) prior to providing informed consent. Participants were informed that they could share

as much or as little detail as they wanted and could end the interview without penalty at any point. S.K. was trained in relaxation interventions in case participants became acutely distressed while participating. However, this situation did not arise.

Participants were first invited to complete the full MINI (Sheehan *et al.*, 1998) followed by the semi-structured violation interview. Finally, participants were thoroughly de-briefed and provided with a list of community mental health resources. They were compensated \$50 for participation.

Analysis

The study was conceptualized and is reported in accordance with Consolidated Criteria for Reporting Qualitative Research (COREQ; Tong *et al.*, 2007). Qualitative interviews (19–50 minutes, $M = 33$ minutes) were conducted via Zoom. Interviews were audio-recorded, transcribed verbatim, anonymized, and quality checked to ensure accuracy. Data were collected until saturation of key concepts was reached (Braun and Clarke, 2006). The Corbin and Strauss (1990) grounded theory approach was used for analysis.

Using NVivo, one member of the research team (S.K.) initially coded the data line by line in an iterative manner alongside data collection. The constant comparative method was used to generate codes by identifying patterns in excerpts within and between participants, using the participants' unique language to label codes whenever possible. Memo-ing was used to document this decision-making process, reflect on the ways in which the researchers' perspectives may have influenced these decisions, and improve inter-code reliability. Related codes were then nested together to establish categories.

Regular meetings were held with the research teams (A.R., S.K., and K.K.-T.) where sections of transcripts were examined to develop, refine, and reach consensus on key codes and categories and to increase validity (Seale, 1999). Codes were added, removed, or adapted throughout the coding process until no new codes emerged. Relevant categories of codes were those that related directly to the study's goals, and came up frequently within individual interviews and across participants.

Results

Three categories emerged, each with several themes and sub-themes (Table 2).

Qualities of a violation

Participants identified a range of kinds of violating events including those that were both mental (e.g. intrusive thoughts/memories) and physical (e.g. assault, lying). The violations reported ranged from common themes in PTSD (e.g. sexual assault, exposure to warzone) to more idiographic violations (e.g. giving into peer pressure). Despite this variation, participants identified common qualities that make these events violating. Three themes emerged – *contradicts previously held belief*; *lack of consent, agency and control*; and *crossing boundaries*.

Contradicts previously held belief (n = 20)

All participants reported that for an event to be violating, it must *contradict a previously held belief*. As one participant described: 'Well I guess if you want to define [violation], I'd say, an external action by somebody else, or an internal action, as in, a thought that occurs in my mind destroying my world view whether it be my present, my future or my past.' (P3)

The same appeared to be true in reverse. Even when events were seen as objectively wrong, they were not considered violations if they reinforced one's pre-existing beliefs about themselves,

Table 2. Themes and sub-themes

Category	Theme	Sub-theme
Qualities of violation	Contradicts previously held belief Lack of agency, control, choice Crossing boundaries	
Violation-related appraisals	Self-focused appraisals	Control and choice Responsibility, self-blame, regret Self-worth Self-trust and self-doubt
	Other-focused appraisals	Unfairness and injustice Trust in others Safety in the world Permanence of consequences
Violation-related behaviour	Future-oriented appraisals Reclaiming sense of control Avoidance/distraction Self-punishment/self-destructive urges	

others, and/or the world. In describing why an instance of being mugged was not perceived as a violation, one participant explained:

‘Maybe because like there’s a form of normalization to it in my - Well like, people get jumped and stuff, and so for me it was like “this is a thing that happens”. And obviously it shouldn’t happen, but I’m also like well, it does happen, like there are bad people and this happens. So maybe that’s why I feel that [it wasn’t a violation]. And maybe if someone else thinks it shouldn’t happen, maybe they would feel more violated by that.’ (P6)

Lack of consent, agency and control (n = 16)

Most participants also identified the *lack of consent, agency and control* as a key quality of violation (e.g. control-related power differentials).

‘I guess how I’ve experienced violation had to be for control and power over . . . and abusing that power over someone else whether it be physical or mental or whatever . . . financial. So I’d say that control and violation go hand-in-hand, you can’t violate someone you don’t have some sort of control over or power over, I don’t think.’ (P18)

This included instances where another person did not seek consent before doing something (e.g. sexual assault) as well as times when individuals felt coerced into acting in ways they would not normally act (e.g. peer pressure, manipulation).

For violating mental events, participants highlighted that it was their perceived lack of control over the occurrence and content of these thoughts that made these thoughts violations.

Crossing boundaries (n = 15)

Finally, most participants identified *crossing boundaries*, both physical and metaphorical, as a key quality of a violation. As one participant described, *‘Um, it can be both physical and mental, in my opinion. It is uh . . . an invasion of someone’s body, and it’s also someone’s soul.’ (P4)* When participants discussed crossing boundaries in the context of physical boundaries, this often centred around intrusions on one’s personal space, unwanted physical contact, and/or mistreatment of one’s property. Discussions of crossing emotional boundaries included reference to things like manipulation, bullying, degradation, and moral transgressions.

Violation-related appraisals

All participants reported that experiencing a violation shifted their beliefs or expectations in one way or another (see *contradicts previously held belief*). Three themes emerged from these new appraisals following a violation – *self-focused appraisals*, *other-focused appraisals*, and *future-oriented appraisals*.

Self-focused appraisals

All participants reported changes in the way they appraised themselves following the violation. For some, these shifts were transient and subsided with time. However, for those who experienced repeated and/or more severe violations, these appraisals became cemented in their perceived identity. Despite acknowledging the distorted nature of these self-perceptions, they still had difficulty letting them go. The emotions reported in response to these self-focused appraisals were shame, guilt, anxiety, dirtiness and self-disgust. Four sub-themes of violation-related appraisals about the self were identified:

Control and choice ($n = 19$). Most participants described feeling less in control of their thoughts and other aspects of their life after experiencing violations. For these individuals, they appeared to generalize the lack of control they experienced during the violation itself to more general beliefs about their ability to control other non-violation-related events. For example:

‘So I feel like this ideal of perfection is invaded, or violated if you will, by these random negative thoughts that I have absolutely no control over. So, bottom line, it means I have no control over my own life because it’s predicated on something that I can’t control, which is random intrusive thoughts’ (P3)

Others, who experienced violations wherein they felt their autonomy was taken away appraised themselves as no longer in control of future decisions in their life: *‘I feel like I wasn’t able to make my own decision. So I feel like I’m following . . . like I’m a sheep. I feel like I’m living . . . I’m living somebody else’s life now’* (P5). In terms of emotional correlates, appraisals related to *control and choice* were discussed in the context of anxiety and fear.

Responsibility, self-blame and regret ($n = 17$). The sub-theme of *responsibility, self-blame and regret* was closely tied to appraisals of *control and choice*. Interestingly, even in cases of violation where individuals felt they lacked control, there was still an inflated sense of responsibility for the intrusive thought and/or violating event.

‘It feels like you’re no longer in the driver seat, so to speak. It’s just like things are happening to you and then at the same time you do feel like you’re responsible at least as far as the guilt is concerned. So you do feel like it’s your fault, but you don’t feel like you’re in control’ (P15)

While many participants could acknowledge that they are not to blame for others’ violating actions, they still expressed regrets about not acting differently during/after the violation. This self-blame pertained to both acts of commission and omission. Participants reported feelings of shame, guilt, dirtiness, and self-disgust in response to these appraisals. As one described:

‘I don’t know, like, I remember feeling disgusted with myself after it happened, directly after, which is kind of weird because again it’s not my fault but I think the feeling of guilt from letting it happen and not doing something to stop it, you know, I had more power, I could’ve stopped it. I think that just made me feel disgusted with myself I couldn’t believe that I would allow that to happen’ (P17)

Self-worth ($n = 17$). Most participants discussed global judgements about *self-worth* that arose after a violation (e.g. being bad, worthless, damaged, blemished). As one participant expressed: ‘*I feel unworthy, usually. I don’t feel like I am equal to others, I feel I am blemished*’ (P4).

Self-worth appraisals in the context of trauma-related violations, specifically, centred on specific judgements of the self as being ‘weak’, ‘small’ or ‘stupid’. For some participants with OCD, there was the added belief that they could ‘contaminate’ others with these qualities. For example:

‘Yeah, I think I spent a lot of time worried that I’m going to infect other people, cause I think so many negative thoughts, that [. . .] I need to work on being a better person, being a cleaner person, being a prettier person, like that type of thing before I can interact with other people’ (P9)

Regardless of diagnosis, appraisals of self-worth were associated with feelings of shame and dirtiness.

Self-doubt and self-trust ($n = 14$). Finally, many participants reported experiencing self-doubt after a violation. For many, this manifested in doubting their ability to make good decisions. For example:

‘I like do doubt myself a lot, lot, lot more. Like every decision that I make, – I really stress that I’m making the right decision, and I am really, really indecisive like it takes me forever to choose. And I think it’s because [pause] I don’t know, I don’t want to make the wrong choice sometimes, and . . . It’s not that I – Like – The sexual abuse was like a choice, but, um . . . [. . .] I get so worried that, I’m gonna make a wrong choice and something similar to that’s gonna happen, but I’m not gonna realize that it’s, like, negative for my like mind and not, like, not good for me’ (P16)

For others, this extended beyond doubting their judgement in particular situations and led to a more general lack of trust in themselves as a whole and an instability in their sense of identity. One participant explained:

‘You feel out of sync with yourself because I think that all of us know deep down who we really are and so when someone says like for example if I say “you’re a bad researcher” [. . .] but then deep down you know you’re a good researcher. [. . .] So there’s that sort of that dissonance there between what you’ve always believed in and what this new information you’re receiving [. . .] So because internalizing so much of these violating opinions of others somewhere along the way I lost a sense of who I really am’ (P3)

The emotion expressed by participants in response to appraisals of *self-doubt and self-trust* was fear/anxiety, particularly in the context of decision making, interpersonal dynamics, and future planning.

Other-focused appraisals

Many participants described specific appraisals about others – both specific individuals and the world at large – that stemmed from their experience of violation. Given the focus on others, these appraisals were typically discussed in the context of violating external events and were associated with anger and fear/anxiety. Three sub-themes of violation-related appraisals about others were identified: *unfairness and injustice*; *trust in others*; and *safety in the world*.

Unfairness and injustice ($n = 9$). Several participants expressed that the experience of violation highlighted the degree of *unfairness and injustice* in the world. For many, this was expressed in

discussions about why they experienced the violation and others did not, or why they were not better protected from the violation that they experienced. These thoughts were described alongside feelings of anger or resentment. In describing the abuse one participant experienced from her sister growing up, she described:

'I think there's an instinct of like "well so you just get to hit me? Like . . . you just get to violate me and I get . . . I have to just sit there and you get to have all this anger that I had too?" . . . like we were all going through difficult times, we were all depressed, we were all incredibly anxious with like a caregiver who was like clearly depressed too, but she got to just cause havoc and get a release on me and I had to just be calm and . . . I don't even know like . . . I had to . . . I had to just act responsibly. That was very aggravating so I'm sure there was a moment I thought of like well "I wish I could do the same back to you", but I couldn't and that just feels unfair, you know?' (P18)

Trust in others (n=9). Many participants also expressed the perception that experiencing a violation was an indication that others and the world were less trustworthy than they previously thought. As one participant describes: *'Uh, it's painful, it's deflating. And . . . It . . . [pause] Makes me distrustful, and generally, just lose faith in humanity in general just because of the potential that anybody is capable of doing these things' (P12).* These appraisals were accompanied by feelings of anger toward the perpetrators, as well as fear about trusting others in the future.

Safety in the world (n=8). Finally, many participants expressed that their sense of the world as a safe place was drastically altered by their experience of violation. As one explained, *'[Being mistreated] like that reinforces the notion that the world is a fundamentally fraught place and can be a dangerous place' (P7).* These appraisals about being unsafe in the world were discussed in the context of anxiety/fear.

Future-oriented appraisals

The third and final theme of violation-related appraisals were *future-oriented appraisals*. These included appraisals participants made about the impact their experience of violation would have on them moving forward and involved feelings of contamination, self-disgust, fear, and anxiety. The one sub-theme was: *permanence of consequences*.

Permanence of consequences (n=10). Many participants reported the appraisal that they would never be the same again after a violation. One participant described: *'So, your body . . . this is a good way to put it, your body was temporarily violated but your mind was permanently violated' (P19).*

These appraisals related to feelings of contamination. Specifically, participants reported feeling as though they would be forever tainted and that they could never effectively 'cleanse' themselves from the impact of these events. As one participant explained:

'Well, the disgust would be about my body and the way people have touched it and hurt it and feeling like it's going to forever be like soiled by that. Or also memories and things that may have been unrelated to the event but related to the person that acted in these events are like contaminated forever' (P10)

Violation-related behaviour

All participants reported engaging in, or having the urge to engage in, behaviours in response to the appraisals and emotions above. The specific behaviours varied greatly, and the same behaviour appeared to serve different functions for different participants. That said, three themes emerged around the function of the behaviour – *reclaiming a sense of control, avoidance/distraction, and*

self-punishment/self-destructive urges. All behaviours appeared to provide participants with temporary relief from their distress. However, they seemed to either maintain the appraisals mentioned above or participants became dependent on them to cope.

Reclaiming a sense of control (n = 20)

All participants reported *reclaiming a sense of control* as a function of their violation-related behaviour. Participants expressed feeling distressed by the notion that they no longer had control over the violation itself. To neutralize the distress associated with the lack of perceived control, participants engaged in different behaviours that gave them a perception of control. These behaviours were typically used in response to appraisals related to *control and choice* and *responsibility*. As one participant described:

‘... the coping mechanisms are an attempt to exert control, that I didn’t have but even though I have control over it, it doesn’t mean it’s helping me progress in any particular way. Just in the moment, I have control over this instance and that will give me the dopamine and then I’ll be able to go on with the rest of my day’ (P20)

Efforts to reclaim a sense of control took on many different forms – controlling one’s environment (e.g. counting rituals, physical cleansing, restricting eating, ordering and arranging); hypervigilance and taking extreme precautions to prevent future violation (e.g. excessive problem-solving, rumination, avoiding situations with any risk of contaminants, being hypercautious with the people one trusts); urges to confront, violate, or exert control over others in response to feelings of anger.

Avoidance/distraction (n = 12)

Many participants also reported that they had urges to avoid reminders of violations or engaged in behaviours to distract themselves from violating thoughts. This sometimes took the form of cognitive avoidance. One participant explained:

‘So, if my psyche were this room, there are several doors leading into it and many of the doors that go into places in the past that I don’t like or to images of things that I don’t want to see have been permanently sealed off and my present is preoccupied with making sure those doors never become unsealed and resealing them when they start cracking open, I guess is a metaphorical way to put it’ (P3)

Other participants engaged in physical behaviour to distract from unwanted thoughts.

‘Also when I skate, um, it helps a lot because it’s really like, physically and mentally draining and so, it like completely washes it out of my brain because I need to put all my focus in my training, and so there’s no room for me to think about that situation because I need to focus on something else, and like when you’re really tired you don’t have the energy to think about it, and so that does help temporarily, too, yeah’ (P16)

How participants distracted themselves from violating thoughts was highly idiosyncratic. Some examples included thought replacement, counting, watching television, and physical exercise.

Self-punishment/self-destructive urges (n = 8)

Finally, some participants described engaging in risky behaviour and/or behaviour aimed at self-punishment because of past violations. This was typically linked to appraisals related to *self-worth* and *self-blame, responsibility and regret*, which led them to feel unworthy of being treated well by

themselves or others. For some, this took the form of a passivity toward standing up for oneself in response to mistreatment from others. For example: ‘*Well maybe a sense of like there’s nothing worth preserving anymore, there’s nothing worth protecting in me anymore, so if another person wants to take advantage of me well then why not? You know?*’ (P15). Others engaged in more active forms of self-punishment. As one participant described:

‘I would actually have to say there’s a sense of punishment . . . so like I would take these scalding hot showers and part of this is “okay I’m trying to wash away what happened” but also “I should feel the pain because I put myself in that situation”. So, that’s what I think kind of like ties with the guilt and the self-blame and the self-loathing afterwards’ (P19)

Finally, several participants described a pattern of engaging in risky behaviours (e.g. reckless driving, excessive drinking) following a violation due to, as one participant describes, ‘*a disrespect of my own life*’ (P20). Behaviour of this nature appeared to reinforce the appraisals related to *self-worth* and maintained these cycles of maladaptive behaviour and interpersonal dynamics.

Discussion

The present study aimed to elaborate existing theoretical models of mental contamination by exploring the meaning of violation to individuals with OCD and/or trauma histories. Three overarching categories (i.e. *qualities of violation*, *violation-related appraisals*, and *violation-related behaviours*) were identified, each composed of themes and sub-themes (see Table 2). The *violation-related appraisals* themes were associated with different emotional experiences and behavioural urges (see Table 3 and Fig. 1).

Within the category of *qualities of violation*, the central theme that emerged was that violations must *contradict a previously held belief*. This aligns with the Moral Dissonance Model (Te Brake and Nauta, 2022), which suggests that psychological distress results from a discrepancy between what ‘is’ and what one believes ‘ought to be’. Negative emotions (i.e. anxiety, anger, contamination) seemed to result from a mismatch between what an individual expected of themselves/others (e.g. being good/trustworthy), and how they appraise themselves/others in a particular situation (e.g. being bad/untrustworthy). This may differentiate violation from depressive thought processes, wherein events are appraised as confirming one’s existing negative views of themselves, others, and the world (Beck, 1967). It may be that over time, the experience of multiple violations (e.g. repeated mistreatment, longstanding repugnant intrusive thoughts) may lead to a more stable alteration in one’s beliefs about themselves, others, or the world. This aligns with the finding that depressive symptoms tend to arise secondarily to OCD (Rickelt *et al.*, 2016) and that more frequent trauma exposure is predictive of PTSD (Vibhakar *et al.*, 2019).

The emotions participants experienced, and behaviour participants engaged in appeared to be driven by their *violation-related appraisals* (see Table 3). Specific *self-focused appraisals* (i.e. *responsibility*, *self-blame and regret*; *self-worth*; *permanence of consequences*) were closely associated with mental contamination-related feelings of shame, guilt, self-disgust, and dirtiness. Other appraisals (i.e. *control and choice*; *self-doubt and self-trust*; *safety in the world*; *permanence of consequences*) resulted in feelings of anxiety and fear. Finally, *other-focused appraisals* (i.e. *unfairness and injustice*; *trust in others*) were associated with feelings of anger and resentment.

Participants reported most frequently engaging in behaviour aimed at *reclaiming a sense of control*, with the specific behaviour dictated by their specific *violation-related appraisal*. For example, appraisals of *self-worth* may be more likely to result in behaviour like washing to reclaim a sense of control by metaphorically ‘cleansing’ the aspects of oneself one perceives as tainted by the violation. By contrast, appraisals of *unfairness and injustice* might instead result in behaviour like confronting others to reclaim a sense of control. Similarly, behaviour that served the function

Table 3. Themes associated with different emotional experiences and behavioural urges

Appraisal	Emotions	Common behaviour
Control and choice	Anxiety, fear	RSC (e.g. washing, ordering and arranging; excessive problem-solving, restricting eating)
Responsibility, self-blame, regret	Shame, guilt, self-disgust, dirtiness/contamination	RSC (e.g. rumination, hypervigilance, washing) SP/SD (e.g. self-harm)
Self-worth	Shame, self-disgust, dirtiness/contamination	RSC (e.g. physical cleansing) SP/SD (e.g. self-harm, binge drinking, risky sexual behaviour)
Self-trust and self-doubt	Anxiety, fear	RSC (e.g. excessive problem-solving, reassurance seeking) A/D (e.g. avoiding decision-making)
Unfairness and injustice	Anger, resentment	RSC (e.g. confronting others, violating others, advocacy work)
Trust in others	Anger, fear	A/D (e.g. avoiding emotional intimacy, social isolation)
Safety in the world	Anxiety, fear	RSC (e.g. hypervigilance, superstitious behaviour to prevent harm) A/D (e.g. social isolation, avoidance of busy places)
Permanence of consequences	Dirtiness/contamination, self-disgust, fear, anxiety	RSC (e.g. washing) A/D (e.g. thought replacement, activities [e.g. exercise, television, music] to distract, avoidance of physical/emotional intimacy) SP/SD (e.g. self-harm, risky interpersonal relationships)

RSC, reclaiming a sense of control; A/D, avoidance/distraction; SP/SD, self-punishment/self-destructive urges.

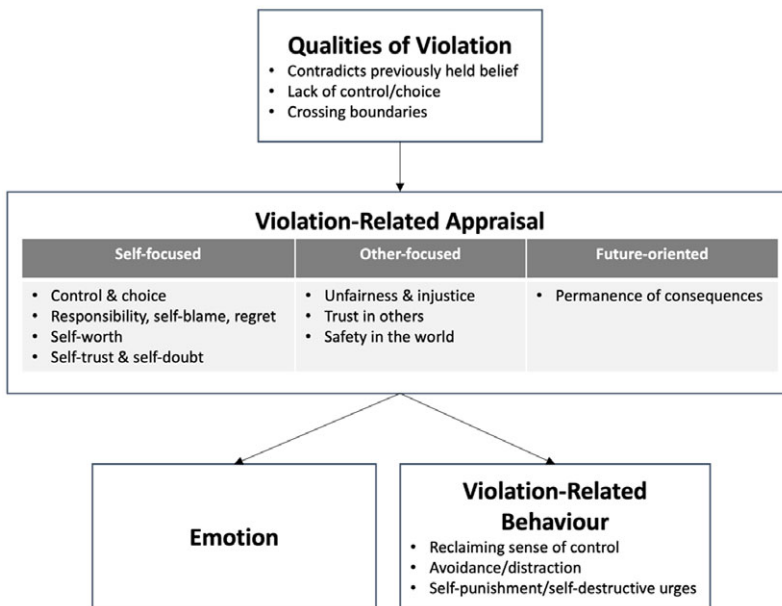


Figure 1. Summary of grounded theory analysis themes and framework.

of *avoidance/distraction* was common across all appraisals. However, the specific targets of avoidance differed depending on the specific appraisal (e.g. avoidance of decision making for *self-doubt* and *self-trust*, avoidance of busy places for *safety in the world*). Finally, participants engaged in behaviours that served the function of *self-punishment/self-destructive urges* most commonly in response to appraisals of *self-worth* and *self-blame, responsibility and regret*.

These findings support existing cognitive models of both OCD (Rachman, 1997; Rachman, 1998; Salkovskis, 1985) and PTSD (Ehlers and Clark, 2000; Resick *et al.*, 2016), supporting the

notion that the way people interpret a violation leads to different emotional outcomes and behavioural urges. Furthermore, they shed light on violation-related appraisals that may be particularly relevant to mental contamination. Research on the cognitive mechanisms driving mental contamination has largely focused on appraisals relating to betrayal thus far (e.g. Millar *et al.*, 2016; Pagdin *et al.*, 2020; Rachman, 2010). Betrayal may be an important type of violation (i.e. a mismatch between one's expectations of others and others' actual behaviour). However, these findings suggest that it may be most relevant to examine the self-focused appraisals people make after experiences of betrayal (e.g. 'I was betrayed because I am worthless') than on appraisals of betrayal itself (e.g. 'others are likely to betray me').

The *violation-related behaviour* themes suggest that the behaviour itself is less relevant than the function it serves. These findings add to a growing literature emphasizing the importance of directly targeting the beliefs driving behaviour, rather than the behaviour itself (e.g. Craske *et al.*, 2014; Ehlers and Clark, 2000; Rachman *et al.*, 2015; Resick *et al.*, 2016). For example, exploring the concept of control and highlighting the difference between the illusion of control (e.g. washing) and actual control (e.g. not making decisions driven by one's anxiety) may prove to be more effective than focusing on the washing itself, particularly in the context of mental contamination. Similarly, the findings reinforce the idiosyncratic nature of behaviour and highlight that the same behaviour can serve different functions for different people. For example, washing can be an attempt to *reclaim a sense of control*, a form of *avoidance/distraction*, or a method of *self-punishment/self-destructive urge* depending on the context (Radomsky and Taylor, 2005). Therefore, it is critical for clinicians to understand *why* someone uses a particular behaviour to effectively intervene and to conceptualize washing as one of many possible behaviours relevant to mental contamination. Therefore, it is important to study and assess for broader neutralization behaviour in this context (e.g. mental rituals, ordering/arranging, etc.).

Although data were collected until saturation, it is likely that these themes do not represent an exhaustive list of experiences of violation. Furthermore, most participants in the sample had both OCD and a trauma history. While this is reflective of the close relationship between trauma exposure and OCD (Dykshoorn, 2014), it may represent a unique subset of individuals with OCD and trauma histories. Furthermore, most study participants met criteria for other disorders in addition to OCD and trauma. Therefore, the themes identified here may not be specific to these clinical populations, but rather represent a more transdiagnostic perspective on these topics. While connections between the themes identified in this study are proposed above, an empirical evaluation of these connections is needed to make more conclusive claims. Developing a quantitative measure of these violation-related appraisal themes would help to assess their differential impact on mental contamination as well as other OCD- and PTSD-related symptoms.

This study highlights key violation-related appraisals and interfering behaviours and their relationship with various negative emotions, including feelings of dirtiness and disgust. For mental contamination, appraisals relating to *permanence of consequences*, *self-worth* and *responsibility*, *self-blame* and *regret* appear to be particularly relevant. These findings expand our definition of violation and enrich existing models of mental contamination (Rachman *et al.*, 2015). The identification of specific violation-related appraisals associated with mental contamination serve as promising cognitive intervention targets and an important focus of future quantitative and experimental research.

Data availability statement. The authors confirm that the data supporting the findings of this study are available within the article.

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