

## Special Article - Posttraumatic Stress Disorder

# Cognitive Behavioural Approaches for Post-Traumatic Stress Disorders

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## Abstract

The sequelae of sexual assault affect the psychological, emotional, social, interpersonal, and financial domains in the short and long term. Victim's sexual assault can experience considerable emotional and psychological distress, such as depression. PTSD is a psychiatric label for a collection of psychological symptoms following a traumatic event. In addition, mental contamination is an internal, emotional feeling of dirtiness that may be evoked by unwanted thoughts and images, as well as by memories of negative events, such as sexual assaults. CBT-based therapy appears to be beneficial in reducing or treating victims of sexual assault suffering from PTSD and mental contamination. The paper outlines the cognitive theory of PTSD and mental contamination in order to demonstrate how this problem can be treated.

Sexual assault constitutes both physical and mental violence, and it is not easily recovered from. Victims/survivors of sexual assault may experience severe anxiety, stress, or fear. This paper demonstrates some mental health problems that sexual assault victims may experience, with a specific focus on Post-Traumatic Stress Disorder (PTSD) and mental contamination. Clinical experience and empirical studies have shown that many victims of sexual assault suffer from the distressing feeling of "contamination" for years or decades after experiencing sexual violence. This phenomenon is called mental contamination, and was first identified by Rachman (1994). Mental contamination is defined as the experience of contamination-related feelings of dirtiness in the absence of direct physical contact with a contaminant, and it is prominent among victims of sexual assault and patients with PTSD.

Finally, the paper outlines the cognitive theory of mental contamination in order to demonstrate how this problem can be treated. In addition, the paper presents clinical guidelines for mental contamination based on cognitive behavioral therapy.

## Sexual Victimization Surveys

The sequelae of sexual assault affect the psychological, emotional, social, interpersonal, and financial domains in the short and long term, and are not easily recovered from. The National Crime Victimization Survey, conducted by the U.S. Department of Justice, showed that in 2010, U.S. residents aged 12 or older had experienced an estimated 18.7 million violent and property crime victimizations [1]. These criminal victimizations included an estimated 3.8 million violent victimizations, 1.4 million seriously violent victimizations, 14.8 million property victimizations, and 138,000 personal thefts. Almost 188,380 of the 1.4 million seriously violent crimes were sexual assaults.

Konishi [2] investigated sexual victimization in a sample of 430 Japanese university students. According to the results, half of the female sample had experienced victimization in the form of sexual molestation or exhibitionism. The proportion of students who had experienced rape was 1.8%. Many were the victims of childhood sexual abuse and most of them regarded their experiences as very painful. Sasagawa et al. [3] further investigated the rate of sexual victimization in Japanese adult women. To assess the prevalence of sexual victimization, self-report questionnaires were sent to

666 Japanese adult women. Their results showed that 73.9% of the sample (n = 494) had experienced sexual victimization; of these, 31.4% reported experiencing verbal harassment (being abused or harassed verbally), 58.4% sexual molestation (forced touching, fondling, or grabbing of any part of the body, such as sexual organs, buttocks, breasts, or mouth), 37.2% exhibitionism (being forced to look at a sexual object), and 6.9% reported experiencing rape (i.e., forced engagement in sexual intercourse, including vaginal, anal, or oral penetration by the offender). Sasagawa et al. also found that sexual molestation and exhibitionism tended to be perpetrated by strangers, whereas verbal sexual harassment and rape was more often perpetrated by non-strangers, including the victim's family members, relatives, friends, and teachers [3].

## Post-Traumatic Stress Disorder

Post-Traumatic Stress Disorder (PTSD) is a psychiatric label for a collection of psychological symptoms following a traumatic event (see the Diagnostic and Statistical Manual of Mental Disorders, 5<sup>th</sup> ed. [DSM-5] [4] for a full clinical definition and criteria). PTSD is not a rare or unusual occurrence; in fact, many people experience PTSD as a result of a traumatic experience such as rape or sexual assault. A victim may have PTSD if she/he has experienced the following

symptoms for at least a month:

- a) Stressor: the person was exposed to death, threatened death, actual or threatened serious injury, or actual or threatened sexual violence.
- b) Intrusion symptoms: the traumatic event is persistently re-experienced.
- c) Avoidance: Persistent effortful avoidance of distressing trauma-related stimuli after the event.
- d) Negative alterations in cognitions and mood: negative alterations in cognitions and mood that began or worsened after the traumatic event.
- e) Alterations in arousal and reactivity: trauma-related alterations in arousal and reactivity that began or worsened after the traumatic event.
- f) Duration: Persistence of symptoms (in Criteria B, C, D, and E) for more than one month.
- g) Functional significance: significant symptom-related distress or functional impairment (e.g., social, occupational).
- h) Exclusion: disturbance is not due to medication, substance use, or other illness.

## Cognitive Theory of PTSD

Studies on the cognitive theory of PTSD emphasized the roles of (A) negative appraisals of trauma memories in maintaining the symptomatology of PTSD, and (B) disorganized trauma memories in the development of PTSD [5-12].

### (A) Negative appraisals of trauma

Studies of cognitive theory have suggested that cognitive appraisals play an important role in the persistence of PTSD. These studies have linked the severity of PTSD to specific negative beliefs about the self and the world, to the nature of the traumatic memory, or to both negative beliefs and the nature of the memory [13-18]. Ehlers and Clark [5] demonstrated that victims who go on to suffer persistent PTSD process the trauma in such a way that it leads to a sense of "serious current threat." They suggested that this sense of threat is affected by the individual's appraisals of the trauma and its sequelae. Appraisals about perceived threat generate strong emotions, such as anxiety, anger, shame, or guilt, as well as arousal symptoms [6]. Perceived threats can be focused externally (e.g., "Nowhere is safe," or "I cannot rely on other people.") or internally (e.g., "I can't trust my own judgments," "I am going mad," or "It was my fault."). Such appraisals also motivate the person to engage in maladaptive or avoidance behavior to control the threat. These behaviors may actually exacerbate the PTSD symptoms. For example, rape victims who believe they will go mad unless they control their flashbacks make intentional efforts to suppress trauma-related thoughts. However, such suppression has the paradoxical effect of intensifying their intrusions [7-9]. Other control strategies can maintain PTSD symptoms by preventing the disconfirmation of negative beliefs and appraisals or by preventing changes in the traumatic memory. For instance, victims who ensure they are never alone or who change their appearance to prevent unwelcome advances may exacerbate

the belief that they would have been assaulted again if they had not taken these protective actions. Cognitive appraisals that predict PTSD severity are as follows [6]:

- a) Cognitive processing style during the assault:
  - i. Mental defeat (e.g., "I didn't feel like I was a human being anymore." "I mentally gave up.")
  - ii. Mental confusion (e.g., "I couldn't believe this was happening to me." "My mind went blank.")
  - iii. Detachment (e.g., "I automatically shut down and detached from what was happening.")
- b) Appraisal of assault sequelae:
  - i. Appraisal of trauma symptoms (e.g., "My reactions since the assault mean that I must be losing my mind.")
  - ii. Perceived negative responses of others (e.g., "People who I thought would stand by me have let me down." "I feel like other people are ashamed of me now.")
  - iii. Permanent change (e.g., "I will never recover." "My life has been destroyed by the assault." "I feel like I don't know myself anymore.")
- c) Negative beliefs about self and the world (e.g., "I cannot trust my own judgments." "The world is dark and evil." "There is no justice in the world.")

### (B) Disorganized trauma memories

According to the cognitive theory of PTSD, the sense of current threat can also depend on the nature of the traumatic memory itself. It has been demonstrated that persistent PTSD is associated with traumatic memories that are poorly elaborated and integrated into existing autobiographical memories [9,17-19]. Poor elaboration and incorporation of traumatic memories may account for the difficulty some PTSD sufferers have in intentionally recalling aspects of the memory, which in turn allows trauma-related cues to trigger a re-experiencing of the symptoms and intense emotions. Additionally, when memories are poorly elaborated, incorporation of information that might disconfirm the negative appraisals is hampered.

## Mental Contamination

In clinical psychology, some researchers have suggested a different type of contamination—one that is experienced without physical contact [19-21]. This phenomenon, first identified by Rachman [22], has been called "mental contamination." This psychological sense of contamination involves an internal, emotional feeling of dirtiness that can be evoked by unwanted thoughts and images, as well as by memories of negative events, such as sexual assaults.

Mental contamination is primarily caused by experiences involving humans (e.g., violators or perpetrators) as opposed to substances (e.g., dirt or bodily fluids). For example, feelings of mental contamination may appear following experiences of ill treatment, sexual assault, domination, degradation, manipulation, betrayal, or humiliation [20]. Some studies have demonstrated that traumatic thoughts related to sexual assault are particularly strong predictors of mental contamination [21,23-26].

Rachman, Radomsky, Elliott, and Zysk [26] reported that feelings of betrayal boost the magnitude of mental contamination. They also suggested that mental contamination can arise in some perpetrators of non-consensual acts involving betrayal (e.g., the betrayal of a close friend and his anxious, shy little sister by kissing the sister against her will when asked to look after her). In addition, threats to one's moral standards can also lead to a sense of moral threat, which may provoke a perceived need for physical cleansing. For instance, Zhong and Liljenquist [27] found that non-clinical participants who were asked to copy an unethical story (e.g., sabotaging a co-worker) showed an increased desire for cleansing products (e.g., shower, soap) as compared to participants asked to copy an ethical story. Furthermore, the participants showed that physical cleansing reduces perceived threats to one's moral self-image, suggesting that physical cleansing may be used as a way of "washing away" moral sins through symbolic self-completion.

The feeling of mental contamination is thought to be common in OCD. Coughtrey, Shafran, Knibbs, and Rachman [28] examined the sense of mental contamination in participants with OCD. Participants ( $n = 177$ ) with obsessive-compulsive symptoms were assessed for mental contamination. The analyses showed that 46% of participants experienced mental contamination, and the severity was positively associated with the severity of their OCD symptoms. Of the total sample, 10.2% reported mental contamination without clinically relevant contact contamination, 15.3% reported contact contamination without clinically relevant mental contamination, 36.1% experienced both mental and contact contamination, and 38.5% did not report any contamination fears.

### Mental contamination in childhood sexual abuse

Survivors of childhood sexual abuse often suffer from mental contamination after the abuse. For example, children may feel disgusted when touching or looking at their own bodies, or worry that others can see that they have been victimized. Berman, Wheaton, Fabricant, and Abramowitz [25] examined whether mental contamination would be associated with four factors found in previous literature: (1) Christian religiosity, (2) intrinsic motivation toward the Christian religion, (3) parental guilt induction (e.g., emotional abuse), and (4) childhood trauma. Their study indicated that mental contamination was not associated with the degree of religiosity, yet it was positively associated with exposure to childhood trauma and maladaptive guilt-induction strategies by one's parents (emotional abuse). The study showed that childhood trauma was also positively associated with feelings of mental contamination. They pointed out that this relationship might be explained by the repeated internalization of emotionally hurtful remarks. Given that emotional abuse tends to involve repeated statements or behaviors that target the victim's self-worth or sense of self (e.g., insults, verbal assaults, name calling, feeling hated by the family), the child victim might internalize the abuse and come to view the comments or behaviors as an accurate reflection of him/herself as intrinsically disgusting or worthless, which in turn leads to feelings of contamination. Thus, Berman et al. [25] suggested that clinicians should assess patients who exhibit mental contamination for possible childhood trauma (specifically emotional and sexual abuse) and inquire about patients' exposure to parenting strategies that involved maladaptive guilt induction (e.g., blaming the child for negative outcomes when he/she was not at fault).

## Psychological Treatment for PTSD

Treatment protocols based on cognitive-behavioral theory appear to be beneficial in reducing the severity of PTSD and mental contamination. For instance, Prolonged Exposure (PE) therapy is a type of CBT aimed at helping survivors emotionally process their experiences. PE therapy is the gold standard psychotherapeutic approach to treating PTSD [29-36]; it was derived from the exposure therapy used to treat anxiety disorders. In PE therapy, patients are helped to confront anxiety-arousing situations or stimuli in a safe environment with the hope that the excessive fear and anxiety derived from these situations will decrease with repeated exposure. A typical PE treatment program includes the following procedures:

- i. Psycho-education on normal reactions to trauma (e.g., therapist and patients discuss the common reactions to traumas).
- ii. Breathing retraining (e.g., therapist teaches patients how to breathe in a calming way in order to slow breathing down, thereby decreasing the amount of oxygen in the blood and thus decreasing anxiety).
- iii. Repeated in vivo (i.e., in real life) exposure is practiced for situations, people, or activities that patients are avoiding.
- iv. Repeated, prolonged imagery-based exposure is practiced to alter trauma memories—namely, patients attempt to revise the trauma in their imaginations.

This therapy is rooted in the emotional processing theory of PTSD [34]. The theory emphasizes that a specific type of processing—that is, emotional processing—of the traumatic event must take place for PTSD symptoms to fade. According to emotional processing theory, fear is represented in memory as a "program" for escaping danger. The structure of a fear response—called a fear network—comprises different types of information, including that on the fearful situation, person, or phenomenon, called feared stimuli (e.g., "adult men"); the actual sensations of the fear response (e.g., "an increase in heart rate"); and the meaning the individual associates with the stimuli (e.g., "adult men are dangerous") and response (e.g., "a fast heartbeat means that I am afraid"). It is believed that fear networks are the mechanism governing the development of PTSD symptoms. Emotional processing theory suggests that repeated exposure to a feared stimulus can change how fear networks respond to that stimulus. For this to happen, the network must first be activated by a given feared stimulus, after which new information that is incompatible with information already in the fear network must be encoded. This is accomplished through habituation, that is, the experience of getting used to certain feelings or stimuli such that eventually they are perceived more as irritating than as truly dangerous. Repeatedly accessing a feared stimulus until the fear response attenuates allows for the encoding of new adaptive information incompatible with the feared stimulus (e.g., that it is not dangerous).

Trauma-focused CBT [35,36] is an evidence-based psychotherapy shown to aid traumatized children and adolescents as well as their caregivers. The therapy is designed to improve emotional and behavioral problems in children, and to treat negative beliefs and attributions related to abusive experiences. In addition, the treatment aims to provide support and teach skills to non-offending parents

to cope effectively with their own emotional distress and optimally respond to their children.

The therapy focuses on reducing the conditioned emotional associations to memories and triggers of the trauma, maladaptive cognitions about the events, and negative attributions about the self, others, and the world. Non-offending parents are included in the treatment process to ensure better support for the child, reduce parental distress, and teach parents appropriate strategies for managing the child's maladaptive behavior. Family sessions that include siblings may also be conducted to enhance positive communication between family members. Trauma-focused CBT combines elements drawn from the following:

- i. Cognitive therapy, which addresses a person's thoughts or appraisals, particularly those thinking patterns that create distorted or unhelpful views.
- ii. Behavioral therapy, which focuses on modifying habitual responses (e.g., anger, fear) to identified situations or stimuli.
- iii. Family therapy, which examines patterns of interactions among family members to alleviate problems.

Trauma-focused CBT has proven effective for children exposed to a variety of traumatic events and has received considerable empirical support from studies with abused children [37-44]. It has been used in individual, family, and group therapy and in office- and school-based settings.

## Cognitive Behavioral Therapy for Mental Contamination

The treatment protocol based on the cognitive-behavioral theory of mental contamination [20] appears to be beneficial in reducing or treating patients suffering from mental contamination. Rachman [20] previously suggested that largely cognitive approaches are more suitable for treating mental contamination than are approaches rooted in correcting behaviors, such as exposure-based treatment. Below are some key points to consider in using the cognitive-behavioral approach to treat mental contamination [20,45,46].

- i. Gathering information about the sources of contamination, in particular human sources, and any hyper vigilance to these sources. For example, the therapist may ask questions about vulnerability to morphing (i.e., taking on the undesirable characteristics of another person; "Are you worried you might become like them?" "How would that happen?"). The therapist should also ascertain whether the person believes that they are able to take on the positive characteristics of a desirable person ("Can you ever pick up positive characteristics?").
- ii. Taking a detailed history of the development of the mental contamination. For example, the therapist might ask about when the problem started, the rate of onset, how the client makes sense of the problem, and personal vulnerability (e.g., "How do you make sense of the problem?" "If that happened to someone else, do you think they would become contaminated?" "What was happening in your life when the problem first started?" "What would be the worst outcome?").
- iii. A focus on previous or current physical and psychological violations and betrayals [47]. This typically begins by asking clients,

"Can you tell me about anyone who has been particularly helpful to you? What were their characteristics?" Then, participants are asked "Can you tell me about anyone who has been particularly unhelpful to you? You don't have to identify them if you don't wish to. What were their characteristics?"

iv. Obtaining information about the way the mental contamination spreads. Patients are asked, "Do new items/people/places ever become contaminated? How do they become contaminated?"

v. Focusing on mental imagery. The therapist may ask, "Are there any pictures that cause you to feel contaminated?" Additionally, the therapist could ask about protective images (e.g., "Are there any pictures in your mind that you use to protect yourself?").

A variety of cognitive approaches are used to address maladaptive cognitions, such as changing cognitive appraisals and interpretations of the sources of contamination; modifying self-generated contamination by helping the patient recognize the effects of maladaptive misinterpretations of the significance of the feelings of contamination; and separating feelings of anger, aversion, and disgust from mental contamination. A preliminary case study has shown that these are effective techniques in reducing crippling levels of mental contamination fear [48]. Coughtrey et al. [46] reported on a case series of 12 participants with OCD. All participants experienced 10 to 20 sessions of CBT focusing on mental contamination. As a result of the CBT treatment, 7 participants no longer met the diagnostic criteria for OCD and mental contamination. In addition, these gains were maintained at a 6-month follow-up assessment. Coughtrey et al.'s study had significant implications for clinical practice, guiding the treatment of OCD with mental contamination and suggesting that CBT is an effective treatment approach.

## Behavioral Experiments

Bennett-Levy [49] defined behavioral experiments as "planned experimental activities, based on experimentation or observation, which are undertaken by patients in or between cognitive therapy sessions." Behavioral experiments test the validity of the patients' existing beliefs about themselves, others, and the world [49]. Behavioral experiments are particularly useful for exploring patients' TAF and morality, which are common problems associated with mental contamination. Indeed, the fear of mental contamination is often maintained by such cognitions [50]. Behavioral experiments to change TAF and morality have included a modification of Rachman et al.'s experiment [46,51], in which clients are asked to write down a sentence stating that they wish harm on a loved one in order to explore the influence of TAF. In addition, after completing a survey about appropriate moral standards, clients conduct an experiment in which they act "as if" they had the same moral standards as others for one day, and then on the next day, they revert to their own (usually higher) moral standards. Feelings of contamination on the contrasting days are assessed and conclusions are drawn about the impact of high moral standards on their contamination fears [46].

## Addressing Self-Esteem

In CBT for mental contamination, it may be effective to change the meaning of the source of the contamination. In addition, some cognitive techniques to reinterpret the meaning of self-generated contamination and self-esteem may be important in order to address

the feeling of mental contamination. Issues of self-identity are particularly relevant when tackling beliefs about morphing. Clients can complete behavioral experiments (i.e., making a list of personal characteristics that are stable and unchanging) to reinforce their self-identity and increase self-esteem, thereby reducing their vulnerability to morphing fears.

## Theory A and Theory B

Salkovskis pointed out that “The most effective way of changing a misinterpretation ... is to help the person come up with an alternative, less threatening interpretation of his or her experience [52].” Cognitive methods include helping the client see an issue from another perspective through discussion and cognitive restructuring. One such method is “Theory A and Theory B” [53], which involve reframing a problem as the result of a belief or worry, rather than as a result of an actual situation/fact. This also includes experiments in which the client and therapist compare two theories explaining the feeling of contamination. For example, they may deliberately try to spread the contamination to test whether the person is truly contaminated (Theory A) or whether it is a problem in their thinking (Theory B).

## Cognitive Restructuring and Imagery

Steil, Jung, and Stangier [54] also use cognitive restructuring and imagery modification to treat the distressing feeling of contamination among adult survivors of childhood sexual abuse. The therapist and patient assess the contents of the feeling of contamination. The therapist then teaches the patient to use the Internet to calculate the number of times the patient’s dermal cells in trauma-related body regions have been completely replaced since the last contact with the perpetrator. Skin cells are replaced every four to six weeks, and the cells of mucous membranes are replaced even more often [55]. Therefore, if the last contact with the perpetrator happened 20 years ago, the patient will calculate that the dermal cells of her vagina/mouth/hands have been completely replaced at least 240 times since that time. Finally, the therapist and patient discuss what this new information means to the patient (i.e., “Not one of the dermal cells that cover my body and orifices now has been in contact with the perpetrator or his body fluids”).

The therapist then leads the patient through an imagery exercise in which they rescript the skin renewal. As described by Steil, Jung, and Stangier [56], one patient might imagine that she is wearing a diving suit, which she takes off; at the same time, she takes off her contaminated skin completely. Then, the therapist instructs the patient to activate the feeling of being contaminated and the related distressing images continually until the feeling reaches a moderate intensity. Afterwards, the patient is instructed to use his/her idiosyncratic imagery of his/her old skin being replaced with new skin. For homework, the patient is asked to listen to a tape of the guided imagery modification session at least once a day over a period of seven days.

To evaluate the feasibility and efficacy of cognitive restructuring and imagery modification, Steil, Jung, and Stangier [56] consecutively treated nine women suffering from chronic PTSD and feelings of mental contamination. Patients rated the intensity, vividness, and uncontrollability of their contamination feeling and its accompanying

distress, and completed the Posttraumatic Diagnostic Scale (PDS). The results suggested that cognitive restructuring and imagery modification has the potential to reduce the feelings of contamination, as well as PTSD symptoms, after childhood sexual abuse.

## Conclusion

Victims of rape and sexual assault can experience considerable emotional and psychological distress, such as depression. PTSD is a psychiatric label for a collection of psychological symptoms following a traumatic event. Mental contamination is an internal, emotional feeling of dirtiness that may be evoked by unwanted thoughts and images, as well as by memories of negative events, such as sexual assaults. CBT-based therapy appears to be beneficial in reducing or treating victims of sexual assault suffering from PTSD and mental contamination.

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