

The Cognitive Theory of Post-traumatic Stress Disorder

Yutong Dai^{1,a,*}

¹Ningbo Hanvos Kent School, Ningbo, Zhejiang, 315202, China

a. daiyutong@hanvos-kent.com

*corresponding author

Abstract: Stress refers to stress in physics, that is, a kind of pressure, which has the meaning of stimulation and reaction in biology. Post-traumatic stress disorder (PTSD) is a mental disorder that occurs within a few days to six months after an individual is exposed to an unusually strong traumatic shock or trauma. Human events such as rape, abuse, violent assault, kidnapping, major traffic accidents and severe natural disasters such as strong earthquakes and tsunamis can cause mental disorders. Post-traumatic stress disorder (PTSD) is one of the few mental disorders with relatively clear etiology and unique clinical features, such as frequent flashbacks of traumatic events and hyper vigilance. This paper briefly introduces and reviews the cognitive theory of post-traumatic stress disorder. And it also outlines various famous academic experiments on these theories, elaborates on the breakthrough theories made by these academic experiments in these fields, and their contributions to psychiatry and its subsequent treatment. This paper finds that some theories about the cognitive theory of PTSD still have some limitations and need to be further perfected.

Keywords: post-traumatic stress disorder (PTSD), social cognitive theory, information processing theory, dual representation theory

1. Introduction

Post-traumatic stress disorder (PTSD) is one of the few mental disorders with a relatively clear cause [1]. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), the main symptoms of PTSD include recurrences of experiences, such as flashbacks to traumatic events and nightmares; Protective responses, such as emotional numbness, insomnia, and cognitive avoidance; There is also hypervigilance, hypersensitivity, and negative emotions such as sadness and anger, as well as negative perceptions of self-blame.

The most salient feature of PTSD is that the sufferer is constantly in conflict between reliving the traumatic experience and trying to get rid of the trauma-related memories. Those memories related to trauma, will quickly, involuntarily flash in the mind of the patient, this situation is often frequent, and the memory of the scene is extremely vivid, so that the patient as if through the original disaster situation, psychological arousal state. Some memories and distant traumatic experiences, although fragmented one day, will make people feel the sight, hearing, smell, touch, even if people forget the traumatic event itself, these feelings will suddenly flash.

This sudden flash is different from the way people often search and retrieve information about traumatic events from their long-term memory. Although both voluntary and involuntary recall of

trauma is accompanied by recollections of the emotions at the time, autonomous retrieval is fundamentally different from spontaneous responses, in which the emotional response is often as strong as it was at the time of the disaster. Herman called these spontaneous emotional reactions "frozen memories" based on their repetitive and unchanging characteristics. Over time, although the victim is able to recall and describe their experience calmly and autonomously, he or she may still be stimulated by a detail of the traumatic event or by a person associated with the trauma, triggering an involuntary reaction and intense mood swings [2].

More and more attention has been paid to the theoretical discussion and empirical research on PTSD. At present, apart from biology and physiology, some psychological schools have also put forward theoretical explanations for PTSD, such as psychodynamic school, learning theory and cognitive school. Specifically, there are considerable differences among various theories. Here, this paper will make a brief introduction and review of various cognitive theories of PTSD.

2. Social Cognitive Theory

The social cognitive theory of PTSD focuses on the impact of trauma on individual life, emphasizes the arduous readjusts that individuals need to make to integrate traumatic experiences into the preexisting model, and emphasizes the extensive impact of traumatic events and their consequences. Social cognitive theories mainly include Horowitz's stress-response syndromes and Janoff-Bulman's cognitive-appraisal theory [3].

Horowitz's theory of stress response syndrome is a comprehensive and influential social cognitive theory of PTSD. Horowitz's theory is influenced by the classical psychodynamic school, but it mainly focuses on the cognitive processing of traumatic information. According to Horowitz, the main driving force for such information processing comes from the completion tendency, which is the psychological need to integrate new information into existing cognitive models or schemas.

According to Horowitz, after experiencing a traumatic event, people will initially scream or cry, or be stunned, followed by a period of information overload, when people's thinking, memory, and imagination about the trauma cannot be reconciled with the existing schema. As a result, a variety of psychological defense mechanisms kick in to keep trauma-related information out of the mind, and people appear numb and in denial for a while. However, the tendency to complete causes trauma-related information to become active in memory, allowing it to break through defences and break into consciousness in the form of flashbacks, nightmares and obsessive thinking, forcing it to be integrated into existing models. The conflict between completion tendency and psychological defense mechanism makes people constantly oscillate between compulsive recall thinking and denial, confusion and confusion in the gradual process of integrating traumatic information and existing schema. In Horowitz's theory, information processing failure can also refer to the fact that part of trauma-related information is still active in memory and not fully integrated, which leads to chronic post-traumatic response.

Janoff Bulman's cognitive-assessment theory focuses on the nature of individual prestorage models. Janoff Bulman believes that people develop PTSD because some of their basic beliefs about the world have been shattered. These beliefs include the belief that you can't be harmed, that you are worthy, that the world is just and reasonable, and so on.

What is unique about Janoff Bulman's cognition-assessment theory is that it illustrates the ways in which people's preexisting models and assumptions about the world of Guantingii are out of step with information about trauma. However, it does not explain how these prestored models are represented, nor what the process of breaking these models is. In addition, according to Janoff Bulman, people with a history of mental illness should be less susceptible to PTSD because they see themselves as vulnerable and have a relatively negative view of themselves, and their preexisting models are less likely to be shattered by traumatic experiences, which should instead be more likely

to reinforce their beliefs. However, Kilpatrick et al. found that people with a history of mental illness were more likely to develop stress disorders after traumatic events. How explain the high rate of PTSD in people with a history of psychosis is one of the major problems facing cognitive-assessment theory.

3. Information Processing Theory

The information processing theory of PTSD pays more attention to the fear related to trauma, how the information related to trauma is represented in the cognitive system and how it is processed. Foa et al. is a representative theory of information processing. In addition, Chemtob et al. 1988 cognitive action theory and Creamer et al. cognitive processing theory are also available [4-6].

The information-processing theory of PTSD, proposed by Foa and colleagues, revolves around fear networks formed in memory. This fear network includes the stimulus information of traumatic events, the cognitive, behavioral and psychological responses to traumatic events, and the information connecting the stimulus and response. The activation of the fear network by evoked stimuli (i.e. reminders of traumatic events) makes the information of the network enter consciousness and form compulsive recall symptoms. Attempts to avoid and suppress the activation of the fear network lead to the emergence of avoidance response syndrome. Only by integrating information from the fear network into existing memory structures can PTSD be lifted. To carry out this kind of integration, firstly, the fear network needs to be activated, and only in the activated state can it be modified. Secondly, information incompatible with the fear network needs to be available so that the entire structure of memory can be corrected. There are a number of factors that can make this integration problematic. Foa and her colleagues argue that the unpredictable and uncontrollable nature of traumatic events makes it difficult to assimilate relevant information into prestorage models, where people think the world can be controlled and predicted. In addition, when trauma occurs, the severity of the event interferes with cognitive processes such as attention and memory, which fragmentates the fear network and makes it difficult to integrate it into an organized living model.

Foa and his colleagues' information processing theory is more effective in explaining the underlying cognitive processes of PTSD than the social cognitive theory of Horowitz and Janoff-Bulman. Information plus: Theory, which emphasizes the predictability and controllability of traumatic events, but also emphasizes people's attribution and interpretation of traumatic events. In addition, information processing theory holds that the availability of information incompatible with traumatic experience is a necessary condition for successful integration. This view can be used to explain the role of social support in traumatic events and to explain the effectiveness of PTSD exposure therapy. However, the fear network is not enough to explain the range of symptoms of PTSD. For example, Foa et al. describe the representation of the fear network as a single level, which makes it difficult to account for symptoms such as denial, numbness, and psychosomatic arousal. These phenomena can be explained by postulating a higher level of representation that has nothing to do with the information in memory. Foa et al. use the term "consciousness" to refer to this level of representation, but the question arises whether consciousness is represented by networks or by some other cognitive structure. In addition, the information Plus one theory does not explore how the prestored model is represented by a network, how new information is integrated, or why some people have fear networks and others do not.

Based on the study of Vietnam veterans, Chemtob et al. proposed a cognitive activity theory of PTSD. This theory is similar to Foa et al. 's information theory, but it analyzes the structure of fear network in more detail and regards it as a hierarchical system of parallel distribution. Chemtob et al. believed that in PTSD patients, the constant activation of the fear network puts the patients in a functional state of emergency escape, which is an adaptive behavior in a disaster situation. The

constant activation of the fear network leads to symptoms such as hyperalertness and obsessive recall.

Chemtob et al. 's theory of cognitive activity provides an alternative framework for my understanding of PTSD. However, this theory is rather narrow, based on war-related trauma, and, like the previous theories, it does not explain why some people maintain emergency escape patterns while others do not. Also, the theory does not address the impact of other important factors, such as attribution and social support, on PTSD.

Creamer et al. proposed a cognitive processing theory of PTSD based on the main ideas of Horowitz and the network structure concepts of Foa and Chemtob. Creamer and others argue that fear networks must be activated to be neutralized. They call this network resolution processing, a concept similar to the completion tilt at Horowitz. But there is a difference between Creamer's fading and Horowitz's completion. Horowitz argues that it begins with numbness denial and then oscillates between forced recall denial and numbness: Creamer et al. believe that the initial forced recall can be used as an indicator of subsequent network regression to a certain extent. High level of forced recall predicts better regression, while low level of forced recall implies a poor prognosis and a longer illness. Longitudinal studies of office shooting victims by Creamer and others support this prediction. But other studies have found that patients with high levels of forced recall tend to have a poor prognosis [7].

Creamer et al. 's theory is unique in making a clear prediction of PTSD progression, based on the results of longitudinal studies. But in addition, some of the flaws of the previous theory still exist in this theory.

4. Double Representation Theory

Brewin et al. proposed a dual representation theory of PTSD based on social cognition and information processing theory [1]. Brewin argues that traumatic experiences form dual representations. One is people's conscious experience of trauma, which Brewin calls verbally accessible knowledge, which can be consciously extracted from their own experiences. Verbal access memory contains the sensory information of the traumatic situation, the emotions and psychological reactions experienced, and the understanding of the meaning of the traumatic event. Another type of representation is largely the result of unconscious processing of traumatic situations. Brewin calls it situationally accessible knowledge. Situationally accessible knowledge enables individuals to be placed in a situation with similar physical characteristics or meanings. Similar contexts may be internal, such as consciously thinking about a traumatic event, or external, such as seeing or hearing about a similar traumatic event on television. In addition, people also have emotional reactions to traumatic events. Emotion processing has at least two components. One component is involved in the activation of highly unusual situational accessible memory, which AIDS cognitive adaptation by providing detailed sensory and physiological information (flash of light) about traumatic events. The other component is the conscious adaptation to the conflicting information provided by traumatic events by means of finding meaning, judging cause and culpability. The goal of emotional processing is to reduce negative emotions by restoring a sense of security and control, or by making appropriate adjustments to your outlook on yourself and the world. Emotions and emotions often create internal cues that cause the contents of the situational access memory to spontaneously enter consciousness, causing people to produce forced recall.

According to Brewin et al., emotional processing involves a variety of emotional responses. It firstly involves conditioned emotional responses, which are encoded in situational accessible memory and is the activation of specific emotional states (mainly fear, but also anger and other emotions) experienced during traumatic events. Sadness and fear of the future arise as people recover from loss of loved ones, disability, displacement, and diminished prospects. Attributing

from responsibility can also lead to such emotions as self-blame (attributed to oneself) and anger (attributed to others). All of these emotions that come with trauma, Brewin calls them secondary emotions. Because information about trauma is easy to extract, people with PTSD overestimate the likelihood that something bad will happen and show hypervigilance.

To eliminate the inconsistency between the prestored model and the new information, various strategies can be adopted, such as attributing the responsibility to external causes, giving up self-evaluation, attributing the victim, denying the new information, and so on. From a cognitive point of view, trauma is essentially the result of people's previously tried and true strategies no longer working, and more radical measures must be taken to eliminate the inconsistencies. Emotional processing is affected by many factors, such as the severity and duration of an injury event, the significance of the event to the victim, and whether the victim can get appropriate social support, etc. Emotion processing may lead to three different outcomes: (1) Complete integration: the memory of the trauma is fully integrated with the prestored model of the individual's previous association with the world, and the individual no longer shows symptoms of PTSD; (2) Persistent emotion processing: the individual has been addicted to trauma for a long time, is troubled by forced recall, emotional processing is repeated many times, but can not change the existing representation, or even have no impact on the existing representation. In this case, the individual is in an overalert state due to chronic mood generalization of influence, individuals will also show depression, anxiety, terror, avoidance and other reactions; (3) Premature inhibition of emotional processing: victims try to avoid reviewing traumatic experiences so as not to cause negative emotions. Over time, individuals develop automated avoidance patterns that monitor sensory input to trauma-related stimuli without conscious processing. At this point, the individual seems to have recovered from the effects of the trauma, but later in life, if the individual encounters a similar situation or is in the same frame of mind, those raw memories are easily reactivated.

Dual representation theory looks at PTSD as an unsuccessful adaptation to trauma. The innovation of this theory is to point out the difference between verbal access knowledge and situational access knowledge, and to put forward the idea of premature inhibition of emotional processing. Dual phenotype theory, by combining different theories, can more fully explain the existing findings of PTSD, which is certainly true, but for the same reason, the whole theoretical system is too complex, and a lot of the ideas are speculative rather than empirical. With further study and discussion of PTSD and its treatment, people will have a more accurate evaluation of the real value and limitations of the dual processing theory.

5. Conclusion

A mature cognitive theory of PTSD should meet the following criteria: (1) it can explain the pathological characteristics of PTSD, including a series of related disorders and their manifestations at different periods; (2) It should identify conditions associated with the severity and prognosis of PTSD and explain their relationship; (3) It should distinguish PTSD from other related conditions; (4) It should reasonably interpret existing data on PTSD and be able to predict and empirically test it. According to this standard, the above theories have some limitations and need to be further perfected. In addition, experimental studies on the cognitive characteristics of PTSD patients are also scarce at present, so further exploration is needed to provide "bricks" for theoretical construction.

References

- [1] Brewin C R, Dalgleish T, Joseph S.A dual representation theory of post-traumatic stress disorder *Psychological Review*,1996, 102(4): 620-686.

- [2] Horowitz M J *Stress response syndromes* New York: Jason Aronson, 1986.
- [3] Janoff-Bulman R *Shattered assumptions: Towards a new psychology of trauma* New York: Free Press, 1992.
- [4] Foa E B, Zinbarg R, Ro-baum B O *Uncontrollability and unpredictability in post traumatic stress disorder: An animal model* *Psychology Bulletin*. 1992. 112: 218-238.
- [5] Chemtob C, Roitblat H L, Hamada R S, Carlson J G, *Twenty man C T A cognitive action-eory of post traumatic stress disorder* *Journal of Anxiety Disorders*, 1988, 2:253-275.
- [6] Creamer M, Burgess Pattison P *Reaction to trauma: A cognitive processing model* *Journal of Abnormal Psychology*, 1992, 101: 452-459.
- [7] McFarlane A C *The aetiologi of post-traumatic morbidity: Predisposing, precipitating, and perpetuating factors* *British Journal of Psychiatry*, 1989, 154:221-228.