

“What if” asked in the shadow of trauma: An analysis of counterfactual thinking in the development and maintenance of Post-traumatic Stress Disorder *

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The present review examines the psychological phenomenon of counterfactual thought (CFT) as a potential mitigating factor in the development and maintenance of Post-Traumatic Stress Disorder (PTSD). CFT is the human proclivity to look back on past events and imagine how things could have been different. The adaptive nature of CFT is dependent on the controllability of the event and the modality of CFT used to reimagine alternatives. The preparative and affective functions that upward and downward CFT provide were not found to retain their adaptive value following a traumatic event. Rather, due to variables beyond an event's controllability, such as counterfactual vividness and frequency, CFT was found to be more harmful than memories of the trauma themselves. However, CFT is not invariably a detriment following trauma. Benefit finding and prescriptions of fate were found to be causal links between CFT and finding meaning in life. Discerning meaning from life is an adaptive state necessary for sustaining well being. As it pertains to trauma, Frankl hypothesized meaning as essential for coping with tragedy. Based on the findings of the review, it is proposed that CFT should be targeted directly during clinical interventions in order to retain the healthy qualities of the cognition. Future research should seek to identify more causal links between CFT and personal meaning following adverse events, in order to tailor treatment to individual differences in CFT and the idiographic manner in which trauma occurs, is experienced, and is subsequently coped with.

Counterfactual thinking (CFT) is a cognitively based psychological phenomenon defined as a reimagination of alternatives to past outcomes. Parsed into two modalities, upward CFT can be understood as the reconsideration of circumstances of a past event which may have led to a better outcome [1]. When a marriage fails, for example, an individual may look back on what they could have done differently to avoid the divorce. Downward CFT is an imaginative act on how an outcome could have been worse. A college student maimed by a drunk driver may engage in downward CFT by thinking to themselves “I could be in a wheel chair.” Upward CFT can calibrate future behavior when reassessing an event under personal control. The individual experiencing marital difficulties, by considering what they could have done differently, may make personal changes in order to salvage the relationship. The preparative function of upwards CFT corresponds with Folkman's [2] problem-focused coping strategy. A problem-focused coping strategy seeks to reduce stress by actively dealing with the situation causing it. However, if the event is outside of personal control, such as being struck by a drunk driver, upward CFT can be maladaptive.

Extensive emotional harm can be done through the upward re-examination of an event for which one's behavior had no influence over the outcome or the imagined alternatives [1]. Con-

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versely, downward CFT is adaptive in such a situation. Through imagining a worse outcome, such as a graver injury or death, the student hit by the drunk driver may experience emotional relief in spite of what happened. Engagement in downward CFT serves as an affective function, aligning with Folkman's [2] emotion-focused coping strategy, which deals with stress through the management of adverse emotions caused by the situation. If the circumstances of controllability were inversed, however, downward CFT may deter the adoption of a problem-focused coping strategy [2]. CFT and the adaptive implication of each direction are dependant on the nature of the event being reimagined. This begs the question, what are the psychological implications of CFT when the event is both outside of personal control and a more adverse outcome is unimaginable?

Post-Traumatic Stress Disorder (PTSD) is a psychiatric disorder that develops within those who have experienced a traumatic event which threatened their notion of physical safety. Combat and sexual violence are events which commonly lead to a diagnosis of PTSD. The symptomology of PTSD is marked by unwanted dreams, intrusive memories, and phobic avoidance related to the traumatic event well after the event has ended. The etiological phases of risk for PTSD development are organized temporally around the event in pre-, during-, and post-trauma phases [3]. The pre-trauma phase concerns itself with how individual differences such as trait neuroticism or a familial history of mental illness can act as potential risk factors [3]. The during-trauma phase focuses on a traumatic event and the way it is cognitively processed [3]. What follows is the post-trauma phase, which examines how poor coping strategies and lack of social support following an event can influence the development of PTSD [3]. Recently, research has shifted from the during-trauma phase to phases which precede and follow the event [3]. The shift is representative of a desire for a better understanding as to how individual differences in psychological functioning may interact before and after the traumatic event in the development and maintenance of PTSD. Due to the retrospective nature of counterfactual thought, the present review will focus on the post-trauma phase. The review will examine CFT under the conditions of a traumatic event, and how the adaptive pathways of upward and downward CFT may mitigate or aggravate the traumatic event in the minds of those effected.

In three experiments conducted by Roesse [1], both the preparative and affective function of CFT were empirically validated. The research provides a structural understanding of both modalities of CFT and how they function as coping strategies. However, outside of its controllability, little attention is paid to the nature of the event itself or other characteristics which may influence CFT and the adaptive functions of each its directions. With regards to events that are unrectifiable, Burgess and colleagues, [4] and Wood and colleagues [5] conducted studies in which downward CFT served as affective protection for victims of sexual violence and cancer patients respectively. Contrary to these findings however, in a sample of terrorist attack survivors, the affective and preparative functions of downward and upward CFT failed to mitigate the development of PTSD [6]. Rather, emotion-focused coping strategies associated with downward CFT correlated with the development of PTSD [6]. The failure of Roesse's [1] findings to replicate in the sample of terrorist attack victims suggests that other variables may hold influence over the adaptive outcomes of counterfactual thought. Counterfactual vividness, which is how clearly the event and its alternatives are mentally generated, was found to be maladaptive in both directions of CFT [6]. Proximity to an alternative outcome, such as downward CFT to death or upward CFT to how an injury may have been preventable, during an already traumatic event, was also found to negate the adaptive qualities of CFT [6]. Additionally, higher frequency of CFT, as well as fluidity, the capability to switch back and forth from each modality, were also found to be maladaptive [6]. These characteristics, when added to an already uncontrollable and traumatic event, not only compound to

dismantle the adaptive value of both directions of CFT, but also serve to make CFT more difficult to cope with than the intrusive memories of the event itself [6]. However, just as how the adaptive coping mechanism of CFT is not assured, engagement in CFT post trauma does not guarantee the development of PTSD. Rather, many subjects (45%) who self-reported engaging in CFT following a terrorist attack, an event that is uncontrollable in which downward counterfactuals are difficult to generate, developed the disorder [6]. The portion of those that did not develop PTSD suggest that CFT is not invariably maladaptive post trauma and that individual differences in CFT may mitigate how effectively an individual copes with a traumatic event.

Interestingly, Kray and colleagues [7] conducted a study which found that CFT was correlated to finding meaning in life. Meaning in life can be understood as the human need to create a personal narrative in order to cope with the inherent absurdity of day-to-day existence [8]. Kray and colleagues [7] hypothesized that considering upward and downward alternatives to crucial moments in life generated greater meaning from them than directly examining the events. What causally links CFT to meaning in life are what Kray and colleagues [7] identify as prescriptions of fate and recognition of positive consequences. Fate prescriptions are defined as appraising events as pre-ordained, which in itself is a form of CFT [7]. Following an adverse event, a person may say “it was meant to be” which aids in the construction of a personal narrative [7]. Benefit finding, similar to Folkman’s [2] positive reappraisal, can be understood as ascribing positive aspects to events despite the adverse repercussions. Being that finding meaning is central across a life span, and is causally linked to counterfactual thought, how may it aid in a life shattered by tragedy? [8] Victor Frankl, an Austrian psychiatrist who survived the Auschwitz concentration camp, argued that discerning meaning from tragedies is a necessity in order to psychologically survive them [9]. In Frankl’s [9] view, those who succumbed to the trauma of Auschwitz, were unable to create meaning for their lives in spite of their suffering.

The findings on CFT offer a better understanding of how PTSD develops and is maintained. The affective and preparative functions of upward and downward CFT are not always adaptive when an event is perceived as both uncontrollable and traumatic. The inability of Roese’s [1] findings to replicate show that CFT is one of the many cognitions post-traumatic stress can distort. Vividness, frequency, and proximity to downward and upward alternatives can amalgamate to not only deconstruct the adaptive qualities of the cognition, but make the alternatives more harmful than the memories of the event itself. The clinical implications of these findings suggest that CFT should be targeted directly during therapeutic interventions, in order for the cognition to retain its adaptive function [7]. Kray and colleagues [7] findings provide a foundation for how clinicians can approach CFT distorted by trauma. A clinician can provide guidance when prescribing fate and finding benefit, when discerning meaning from trauma and life following a PTSD-inducing event proves to be too difficult of task to be undertaken alone.

The limitations of both Kray and colleagues [7] and Roese’s [1] studies are that they were conducted on a sample of undergraduates in which the event was simulated in an experiment. It would be ethically unsound to replicate an adverse event which could be construed as traumatic. Due to these limitations, the boundaries of the adaptive functions of CFT were overlooked in Roese’s [1] research, and possibly the causal links between CFT and the adaptive state of having meaning in life in Kray and colleagues [7] study. Fate prescriptions, for example, would be difficult to employ in a secular population. Moreover, prescribing the cause of a traumatic event to fate could cause a deeply religious person to displace blame to God causing further degeneration of adaptive coping and an already threatened notion of physical safety. However, the weaknesses

of these studies pose a possible direction for future research.

The present review has demonstrated that there is more nuance to how CFT interacts with traumatic events beyond its controllability via the upward and downward modalities of CFT. Researchers should seek to find more causal links between CFT and the adaptive state of meaning post trauma in order to simultaneously expand and enhance models of interventions targeting maladaptive patterns of CFT. Though the Covid-19 virus has and continues to pose a great challenge to society, the pandemic will also offer a unique opportunity for future research into anxiety disorders. This potentially life-threatening pathogen could potentially act as a traumatic event which precipitates the development of PTSD. Studies can be designed around samples of participants with a diagnosis of PTSD stemming from the Covid-19 pandemic. With this form of traumatic event, greater focus can be paid to the post trauma phases in which counterfactual thinking occurs. However, the pandemic has yet to enter a post phase, both stalling, and making, future research into CFT and PTSD ever more vital upon the pandemic's end. A more comprehensive understanding is needed of how CFT, as an individual difference, interacts with the various dimensions of traumatic events, and at what point exactly do the cognition's adaptive functions distort in the minds of those who have suffered trauma. With a comprehensive understanding of the interaction of CFT and trauma, researchers and clinicians can help alleviate the pain of constantly reimagining maladaptive alternatives to devastation, and re-instill healthy coping so those afflicted with trauma can go on to lead full and healthy lives.

References

- [1] Roese, N. J. (1994). The functional basis of counterfactual thinking. *Journal of Personality and Social Psychology*, 66, 805-818.
- [2] Folkman, S. (1984). Personal control and stress and coping processes: A theoretical analysis. *Journal of Personality and Social Psychology*, 46, 839-852.
- [3] North, C. S., Suris, A. M., Davis, M., & Smith, R. P. (2009). Toward validation of the diagnosis of posttraumatic stress disorder. *American Journal of psychiatry*, 166(1), 34-41.
- [4] Burgess, A. W., & Holmstrom, L. (1979). *Rape: Crisis and recovery*. Bowie, MD: Brady.
- [5] Wood, J. V., Taylor, S. E., & Lichtman, R. R. (1985). Social comparison in adjustment to breast cancer. *Journal of Personality and Social Psychology*, 49, 1169-1183.
- [6] Gilbar, O., Plivazky, N., & Gil, S. (2010). Counterfactual thinking, coping strategies, and coping resources as predictors of PTSD diagnosed in physically injured victims of terror attacks. *Journal of Loss and Trauma*, 15(4), 304-324.
- [7] Kray, L. J., George, L. G., Liljenquist, K. A., Galinsky, A. D., Tetlock, P. E., & Roese, N. J. (2010). From what might have been to what must have been: Counterfactual thinking creates meaning. *Journal of personality and social psychology*, 98(1), 106.
- [8] Becker, E. (1973). *The Denial of Death*. New York etc. The Free Press
- [9] Frankl, V. E. (1985). *Man's search for meaning*. Simon and Schuster.