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The Role of Identity in Trauma and PTSD

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by

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Abstract

There has been extensive research on the consequences of potentially traumatic events (PTEs) on individuals, especially when these events are perceived as self-defining. However, there is a gap in the literature on the specific mechanisms involved in how self-defining events contribute to PTSD. Modern theories of identity may offer insight into these mechanisms as they explore identity structures and the reasons behind our commitment to certain identities. The model proposed in this study offers a unique conceptual framework integrating theories from both social and clinical fields to explain how traumatic events impact one's identities, the strategies employed to maintain one's sense of self, and how this potential change in sense of self contributes to PTSD. Individuals who have experienced a traumatic event in the past year were asked to complete a battery of questionnaires assessing different identity indices and mental health functioning. Results showed that for PTSD Severity, Anxiety Severity, and Psychological Wellbeing, Number of Identities were associated with Identity Maintenance and Identity Change at follow-up while Identity Maintenance and Change were associated mental health outcomes at follow-up. Identity Commitment was also found to moderate the association between Maintenance and mental health outcomes, where this association was significant when Identity Commitment levels were low but not when they were high. However, these associations were not significant when Stress Severity and Depression Severity were used as outcomes. This project allows the advancement of knowledge on how traumatic events contribute to changes in sense of self and PTSD as it establishes a model to uncover the specific mechanisms involved in these processes.

Keywords: Trauma, PTSD, Identity, Maintenance, Change, Commitment

Dedication

I dedicate this work to my family,

my friends, and my teachers

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The Role of Identity in Trauma and PTSD

The field of posttraumatic stress disorder (PTSD) contains in-depth research on the etiology, symptomology, and treatment of this disorder. The literature in this field has shown that there are different mechanisms at play that may influence the development and maintenance of PTSD after the experience of a potentially traumatic event (PTE) and delineates risk and protective factors in various cognitive, behavioral, and social domains. These factors include but are not limited to functional and structural social support, stigma, help-seeking behaviors, coping styles, childhood adversity, personality traits, and cognitive abilities (Brewin, Andrews, Valentine, 2000; Carlson et al., 2016; Charuvastra & Cloitre, 2008; Chung et al., 2003, DiGangi et al., 2013; Declercq & Palmans, 2006). Similarly, functional problems in these three domains, cognitive, behavioral, and social, also make up the symptomology of PTSD and are targets for treatment. However, even though these domains are reported to play significant roles in the makeup of PTSD, research has mostly concentrated on the cognitive and behavioral domains and has not delved much into the social domain.

Currently, the research on social factors is limited and includes several inconsistencies and overgeneralized conclusions. Social factors, specifically social support, have been found to be strongly associated with PTSD. However, most of the research concentrates on the negative associations between levels of perceived positive social support and PTSD symptom severity and fails to provide data on the specifics of the relationship, as there is limited to no data exploration of the mechanisms involved in these relationships. A social psychological concept that is discussed in trauma and PTSD literature but is rarely empirically explored in relation to PTSD etiology and

maintenance, is that of sense of self or identity. While there have been several investigations into the association between trauma and changes to sense of self, most of the literature has settled on the fact that a relationship exists, specifically that an experience of a PTE could change one's sense of self. However, as with other social factors, the research has not taken the necessary steps to explore the mechanisms behind the changes or how these changes could lead to either adaptation or distress, thus limiting what might be an important treatment target.

This study explored how the perception of a PTE being central to one's sense of self is associated with PTSD through changes in various identity factors and how identity theories from the field of social psychology may provide a mechanism to explain how the concepts of centrality, identity, and PTSD fit together. The aim of this proposal was to identify a model that may explain the mechanism that exists between different identity indices, trauma, and PTSD. The goal was to aid researchers to determine the impact a traumatic event has on the personal salience and behavioral commitment to important identities that are central to one's sense of self in people who are endorsing symptoms of PTSD, to examine how adaptive changes in identity hierarchy content and maladaptive identity maintenance strategies are used to maintain commitment to existing identities in the aftermath of exposure to a trauma, and finally to determine the effects these adaptive and maladaptive strategies and changes in commitment have on PTSD symptom severity. The analysis of this model opens a potentially new area of research in the field of trauma and PTSD and provides a framework to understand the identity changes associated with PTSD and other mental health outcomes. Social problems, such as increases in levels of isolation, low self-esteem, high rates of self and public stigma, and negative perceptions

of others and of the world, could be addressed in a more effective manner when they are seen through the lens of the identity factors that were explored in this framework. Additionally, the findings of this study could provide future direction on various points of intervention and techniques that can be utilized to either aid the patient in adopting new identities or finding more adaptive ways of increasing commitment to current identities.

Current Research into Identity and Trauma

The field of clinical psychology has focused on a specific view of identity when it pretrains to trauma and PTSD. Looking at identity more broadly and incorporating a holistic view such as the one taken by researchers in the field of social psychology may broaden our ability to make generalized conclusion that may aid in clinical intervention and treatment. The most common construct that has been used to measure identity change in the field of trauma has been centrality of a PTE to one's sense of self. This view of identity does provide vital information on how PTE's may impact an individual's perception of themselves and others. However, this provides a generalized picture of identity, that an individual's overall identity or sense of self is impacted by a PTE and does not explore what precisely about one's identity is being impacted. In the field of social psychology, specifically modern identity theories, researchers view overall identity as made up of different components that can be quantified in terms of identity hierarchy, commitment, and maintenance. In the next section, I will first explore the current research that ties identity to PTSD through various trauma memory theories and then introduce how identity is construed from a social psychology perspective and how this specific perspective can be integrated within the current PTSD literature.

Potential Centrality of PTE to Sense of Self

It has been demonstrated that individuals who experience PTEs may begin to perceive the event as being central to their sense of self and identity (Berntsen & Rubin, 2006). This perception entails the individual defining themselves as someone who has experienced or been exposed to a traumatic event and integrating the event as a significant part of their life narrative. This centrality of event or integration into life narrative, as measured through a self-report survey created by Berntsen and Rubin (2006), includes the trauma memory becoming a reference point for other autobiographical memory, a turning point in the life narrative, and a core component of sense of self (Boals, 2010). This integration then influences the individual's interpretation of past, current, and future events and impacts several cognitive, emotional, and behavioral processes such as cognitive reappraisal and restructuring, problem- and emotion-focused coping, and social isolation and interaction (Boals & Schuettler, 2011; Sutin & Robins, 2008).

The degree to which a PTE becomes central to one's life has been found to be associated with increases in PTSD Severity, increases in reported posttraumatic growth (PTG), as well as several other mental and physical health outcomes. Individuals who rate a PTE as central to their identity also tend to report higher PTSD and depression Severity (Berntsen & Rubin, 2006; Brown et al., 2010; da Silva et al., 2016; Keshet, Foa, & Gilboa-Schechtam, 2019; Reiland, 2017; Robinaugh & McNally 2011), with self-blame and avoidance being the strongest symptoms linked to centrality of event (Guineau et al., 2021; Wamser-Nanney, 2019). Moreover, the relationship between event centrality and PTSD has been identified as unidirectional in two longitudinal studies. In the first,

participants who experienced a terrorist attack and reported high levels of event centrality reported higher levels of PTSD up to two years after the event (Blix et al., 2015). In another study, college students who reported experiencing a PTE were asked about event centrality and PTSD Severity at two different time points and the results showed that increases in event centrality predicted increased PTSD Severity a few months later, supporting the findings in the previous study (Boals & Ruggero, 2016). This highlights the predictive power of event centrality and the significant role it plays in the development and maintenance of PTSD. This relationship between event centrality and PTSD has been found in several different trauma populations, including college students, survivors of childhood abuse, veterans, and victims of violence (Blix, Solberg, & Heir, 2014; Boals, 2010; Rubin, Boals, & Berntsen 2008; Brown et al., 2010; Robinaugh & McNally, 2011), with a particularly strong effect shown in sexual assault victims (Wamser-Nanney et al., 2018).

Centrality of events has been discovered to be associated with other known demographic risk factors related to PTSD onset. For example, gender differences have been found in relation to perceiving a PTE as central, where females tend to rate negative events more central to their identity compared to males (Boals, 2010). Additionally, age effects have been demonstrated, where older adults were less likely to perceive events as central to their identity, as older adults appear to engage in positive cognitive processes that protect them from the severe consequences of being exposed to PTEs (Boals et al., 2012). Moreover, the influence of a traumatic event has extended to physical health outcomes. Researchers have found that individuals who reported PTEs as highly central to their identity had higher illness-related symptoms (Boals, 2010).

A PTE being perceived as central to oneself does not necessarily imply that a person will experience distress. In a sample of college students who have experienced various types of PTEs, it was shown that centrality of events was a strong predictor of PTG when several coping factors were controlled for. More specifically, the higher an event was perceived as central the higher the individuals' levels of PTG (Boals & Schuettler, 2011; Boals, Steward, & Schuettler, 2010; Lancaster et al., 2013). Similar findings of the positive association between centrality and PTG were found with college students when controlling for core beliefs, rumination, and meaning-making (Groleau et al., 2013). Centrality of events has also been shown to have long-lasting effects on PTG, where it has been shown to predict PTG, with decreasing strength, up to two years after the PTE (Blix et al., 2015).

These findings indicate that the perception of a PTE as central to one's sense of self has significant implications on adjustment beyond PTSD symptoms and other trauma-related factors. The specific manner in which the event is perceived seems to contribute to either distress or adjustment, as high levels of the same measure have been associated with both positive and negative factors related to PTSD. However, it remains unclear how the event's centrality contributes to PTSD and PTG. There has been some research on the relationship between event centrality and PTG, and it was found that rumination, the continuous thoughts about negative past or present events, mediated that relationship. Individuals who engage in adaptive cognitive processes like problem-solving and meaning-making are more likely to adopt a more positive PTE outlook even though it is highly central to their sense of self (Kramer et al., 2020).

Another explanation of the relationship between these three variables has been

linked to how the event is integrated into one's memory process and the valency of the centrality in terms of whether it is construed through a negative or positive lens. Broadbridge (2018) showed that attributions of the centrality of PTEs include both positive and negative valanced components. Unsurprisingly, negative perceptions were strongly associated with PTSD compared to positive components. Teale Sapach and colleagues (2019) further developed this concept of valence of event centrality by adapting the commonly used scale to measure both positive and negative event centrality. The authors showed that centrality appraisals were not limited to negative appraisals and that their trauma-exposed sample appraised the PTE as either positive, negative, or not central to their sense of self. Central-positive events were associated with higher PTG and central-negative events were associated with higher PTSD. This indicates that a PTE that is perceived to be central to sense of self that is heavily based on negative perception would lead to PTSD while ones based on more positive perception would lead to PTG and adjustment.

However, there is a mechanism that is still missing from this puzzle piece and that is what causes a person to perceive a PTE as central to their sense of self and ascribe a positive or negative valence. This piece is important as this seems to lead to either adaptive or maladaptive coping which in turn is associated with PTSD or PTG. Thus, further exploration into the memory process and theories behind trauma may provide more insight into how centrality of an event is associated with identity and how this leads to both distress and growth.

Autobiographical Memory and Trauma

It has been proposed in the trauma literature that a major way in which an event

becomes central to one's sense of self and identity is how the traumatic event is perceived and stored in one's memory. There are several theories that describe how traumas are processed in one's autobiographical memory and how this affects PTSD development and maintenance. These theories can be divided into two major competing models of trauma memory, the traditional nonintegrated memory model that most interventions are based on and a more integrated approach to the previous memory model. The main difference between these two models is whether one's memory of the trauma is perceived as a separate fragmented memory that does not fit one's life narrative or whether the trauma memory is coherent and integrated with the rest of the autobiographical memories.

Non-integrated Trauma Memory Model. The first model emphasizes the fragmentation of the trauma memory and the lack of integration into the autobiographical memory and life narrative. These theories include, but not limited to, Foa and colleagues' (1989, 1998) *Information/emotional-processing theory* of PTSD and Ehlers and Clark's (2000) *Cognitive Theory of PTSD*. The basis of their arguments is that trauma memories are difficult to recall voluntarily because they are incoherent, fragmented, and mostly revolve around sensory impressions, while involuntary recall and intrusive thoughts are enhanced and more coherent.

Foa and colleagues' (1989, 1998) theory describes the creation of a fear network or structure in an individual's memory that is separate and distinct from other autobiographical memories. This memory network contains nodes associated with different aspects of the event that can be activated when the person interacts with neutral everyday stimuli that may be similar to some aspects of the traumatic event. When the

fear network becomes activated, the individual will experience a similar response in cognitions, emotions, behaviors, and physiological reactions as they did during the event. The theory further states that this poor integration of the trauma memory leads to poor organization or coherence within the memory structure and thus is associated with the incoherent recall of the memory when asked directly to talk about the trauma, leading individuals to report that they are unable to remember details of what occurred or unable to recall the event in chronological order. However, despite its fragmented state, the memory can be involuntarily triggered giving rise to flashbacks or intrusive thoughts and memories. It is theorized that the reaction towards neutral stimuli and the intrusive memories will cause the individual to engage in avoidance strategies to decrease the amount of distress caused by both neutral and trauma-related stimuli. However, avoidance only exacerbates intrusive memories and re-experiencing symptoms and keeps the fear network from integrating properly with the other autobiographical memories. The researchers further developed their theory to include the negative appraisals that the individual may develop as a response to a traumatic event. These appraisals include perceiving oneself as incompetent and experiencing higher levels of fear due to the perception that the world is dangerous and threatening.

Ehlers and Clark's (2000) theory focuses on the appraisals associated with PTSD and makes specific hypotheses about how these negative appraisals are related to the memory process related to the traumatic event. This model posits that autobiographical memories are organized based on themes and time periods such as romantic relationships, educational and developmental milestones, and different social roles. The recall of a specific memory will bring up that event, general information related to the time period

around the event, and general thematic information related to the event. Similar to Foa et al., it is hypothesized that trauma memories are not well integrated within the individual's autobiographical memory such that recall, and rehearsal of the trauma memories are fragmented which in turn further influences how the individual's overall autobiographical memories are organized.

Ehlers and Clark (2000) argue that, since the trauma memory is not integrated properly, the accessibility of it is higher than other memories and thus is easily triggered by generalized stimuli. This results in intrusive thoughts and re-experiencing effects of the event. The authors state that the appraisal process impacts the overgeneralization and catastrophizing of thoughts where individuals will perceive neutral stimuli as dangerous and will exaggerate the frequency of present and future threatening events. They further state that when the trauma memory is recalled in the future, the recollection will now be biased as it will not only include the memory of the trauma but also information directly derived from the negative appraisals. This addition of the negative appraisals along with the trauma memory will trigger the individual to selectively recall and retrieve specific information that is consistent with that theme, i.e., negative perceptions of the event and their overgeneralization of the threat.

Even though the notion of fragmentation does not specifically address centrality of the traumatic event, these models hypothesize that the experience of the trauma may negatively alter one's memory of the trauma itself and color perception of self and the world- thus directly impacting a person's identity. A second memory model, the integration model (see below), provides a more direct and detailed explanation of the inter-relation between the traumatic event, centrality of event, trauma memories, and

PTSD.

Integrated Trauma Memory Model. In contrast to the non-integrated memory model, Berntsen and Rubin (2003, 2007) have developed an integrated memory model for trauma and PTSD. The main supposition of this model is that significant memories act as reference points or anchor points to how we organize day-to-day situations. Memories that become reference points share three key features: high emotional intensity, frequent recall and rehearsal, and centrality to one's sense of self. Researchers have found that memories tagged as being intense emotionally, regardless of valence, are more likely to be recalled, both voluntarily and involuntarily, and be recalled in a vivid manner (Hall & Berntsen, 2008; Talarico, LaBar, & Rubin, 2004). Since the memory is experienced in a coherent and vivid manner, it makes it more central, salient and maintained as part of the individuals' autobiographical memories (Conway, 2005).

Several studies conducted with individuals who demonstrate high levels of PTSD symptoms support this theory. For example, Rubin, Dennis, and Beckham (2011) investigated the differences between stressful and non-stressful related memories and voluntary and involuntary recall in participants with PTSD and No PTSD. Findings showed that participants with PTSD, compared to the control group, reported experiencing more trauma-related memories, had higher scores on the centrality of events scale, and experienced all memories regardless of whether they were stressful or non-stressful, with higher emotional intensity, greater physiological reaction, higher recall, and rehearsal frequency. These differences indicate that a person endorsing symptoms of PTSD experiences a shift in their memory processes that are not limited only to the trauma memory as their recollection of the trauma memory appears to have a strong

impact on how they process and recall other memories. While the PTSD group in Ruben and colleagues' study may have experienced positive and neutral memories with more positive emotional intensity and frequency compared to the non-PTSD group, the stressful memories still had a higher emotional impact on centrality compared to other memories and thus overshadow the positive reactions the person with PTSD may have when recalling other memories.

Rubin and colleagues further hypothesize that differences between voluntary and involuntary memories were not related to coherence of the memory, as argued by non-integrated trauma theories, but were related to emotional intensity and avoidance of the memory. Involuntary memories are associated with higher emotional intensity because the individual is not prepared for the intrusive thoughts and therefore is unable to manage or adequately regulate their emotional reaction and would perceive the memory as more intense. Additionally, this may attribute to why the individual may want to avoid any cue or stimulus related to the trauma. A second study by Rubin (2011) further showed that trauma memories were rated as coherent as other positive emotional memories and there were no differences between the PTSD and non-PTSD groups. These findings provide evidence that trauma memories, voluntary or involuntary, are perceived as coherent and become integrated into the individual's autobiographical memory as opposed to the previously mentioned theories that describe a lack of coherence and integration of trauma memories.

In terms of centrality of event, when it comes to comparing memory processes of people with PTSD to those without, both process negative events in a similar manner in that they are experienced with high emotional intensity, are more frequently recalled, and

are recalled in a coherent manner. However, for people with PTSD the integration of the trauma memory seems to extend to other memories, and other autobiographical memories can be interpreted through this new lens. Berntsen and Rubin (2006, 2007) argue that due to the similarity of trauma memories to other autobiographical memories, the memory of the event becomes highly integrated and interconnected with the individual's autobiographical memories. They argue that the centrality of the trauma occurs because the memory becomes a reference point for memory organization, a turning point in the life narrative, and a core component of sense of self. Similar to other emotionally intense memories and due to the emotional intensity of the trauma memory, it will be recalled in a highly accessible and vivid manner. Once this occurs, it acts as a reference point for how other memories are organized or recalled. Other memories will be remembered through this new lens and the individual's thoughts and emotions related to these past memories will become altered and be perceived in a more biased light.

Additionally, the changes in memory organization and access will alter attributions and meaning-making of current non-traumatic situations as recollection and reconsolidation will be filtered through the trauma reference memory. The individual is more likely to have a negative and biased perception of the current internal and external cues with an overestimation of the frequency of traumatic events occurring in the future. Thus, intense trauma memories impact an individual's day-to-day life by influencing in-the-moment cognitions, emotions, and behaviors, and become a turning point in life narratives. Once this occurs the trauma memory becomes essential to the individual's identity and these cognitive changes are hypothesized to be at the core of the development and maintenance of symptoms of PTSD, such as intrusive memories, re-

experiencing, alternation in cognition and mood, and hyperarousal.

Several studies with college students support theories of the strong integration of trauma memory into an individual's autobiographical memory and identity. For example, Berntsen, Willert, and Rubin (2003) assessed the quality, integration, and coherence of the autobiographical memory of the PTE in participants with exposure of various PTEs. Participants were asked to recall the traumatic event and ones with PTSD stated having more accessibility to the memory and this was related to a highly vivid and intense emotional recollection of the trauma memory. Additionally, participants with PTSD, compared to the ones without PTSD, reported that the trauma memory acted as a reference for their sense of self and became integrated as part of their identity. Consistent with this finding, Berntsen and Rubin (2006) found that rating of centrality of events had high correlations between items that assessed the integration and importance of the trauma memory and PTSD Severity. In addition, participants with PTSD reported higher scores on the importance, integration, centrality, and connection of the trauma memory compared to individuals with low or no PTSD Severity. In a follow-up study, the relationship between centrality of the event and PTSD Severity remained significant even while controlling for anxiety, depression, and dissociation (Berntsen & Rubin, 2007).

Given this evidence that an experience of trauma can influence several memory processes and impact how we react to future situations, the next step would be to explore the specific mechanisms that occur once a traumatic event is perceived central to one's identity. As stated previously, it is known that centrality of the trauma and its influence on memories is associated with psychological distress and adjustment. However, the theories do not account for how the different parts of our sense of self, describing the

different identities we take on, are altered when an individual experiences a PTE nor do they make predictions on the specific mechanisms of how our commitment to certain salient identities and our desire to maintain those identities may play a role in the development or maintenance of PTSD. A merger between the clinical and social fields may provide insight into the mechanisms behind how self-defining traumatic events influence one's sense of self through specific changes to one's identity and how this plays a role in maintaining PTSD symptoms.

Identity Theory

There are several theories of identity in social psychology, and some have been applied in the clinical field. Social identity theory, which examines identification with and internalization of group ideals, has found that increases in internalization of important groups ideals to be associated with lower levels of depression and higher quality of life (Cruwys et al., 2014a; Cruwys et al., 2014b; Postmes et al., 2018). These social identities are based on one's membership to a group and can be seen as an interpersonal process where a person considers how they fit in as part of the group or how the group perceives them. This research allows us to evaluate which social groups may be more vulnerable to traumatic events and to PTSD. However, it does not describe the mechanism of how a person's sense of self is impacted by trauma.

Other theorists have hypothesized that identities are not only formed on this macro, group-identification level but on a micro, interactional level as well. From the identity theory perspective, when an interaction occurs between two people, each person is fulfilling a social role or an identity, differentially reinforcing the salience of different identities in individuals' hierarchy of identities. Modern identity theory can provide a

framework to explain how changes in sense of self, through changes in identity, maintain PTSD symptoms. The central idea of these theories is that multiple identities that compose the self are made of the social roles we enact in our daily lives across multiple social domains and groups. Enactment of a specific identity includes the perception of ourselves in relation to others and our consideration of others' expectations of us given our identified role in that group (Stryker 1980). Examples of identities include daughter, wife, student, athlete, and so on. These different identities are enacted based on structural position and role relationship of the situation and they make up a person's sense of self. These micro identities are important to consider especially when an individual person, and not a whole group of people, is impacted by trauma as is the case with most interpersonal traumatic events. Unlike social identity theory, these modern theories of micro identities have not been extended to PTSD.

There are three core concepts from these modern identity theories that are integrated into this study, these concepts are Identity Hierarchy, Identity Commitment, and Identity Maintenance. The concept of Identity Hierarchy from this perspective recognizes that the number of identities a person identifies with and holds are organized in a hierarchy with identities that are more important to sense of self positioned at the top of the hierarchy (Stryker, 1980). The more important or salient an identity is to us and the more we are committed to it, the more central it is to our sense of self.

Identity Commitment is a product of the social contingencies related to the enactment of the identity and may include the level of satisfaction and fulfillment a person feels when enacting an identity, the social feedback received through that enactment, the quantity of social reinforcement, and the level of social support accrued

from enacting this identity. The higher the level of Identity Commitment the more likely we are to seek out social contexts related to those identities and spend more time behaviorally engaged in enacting those identities which develops a stronger sense of self.

In addition to the examination of the structure and reinforcement of different aspects of one's Identity Hierarchy and Commitment, another relevant aspect of identity theory is Identity Maintenance. Identity Maintenance is related to the strategies involved in establishing and maintaining identities within these hierarchies. McCall and Simmons (1960) suggest that individuals may seek out various external reinforcers and engage in certain strategies to not only maintain their most current salient identity but other identities in line with important ideals. From this perspective, social support gained from enacting a certain identity which results in higher commitment is an important reinforcer promoting identity adoption and maintenance (McCall & Simmons, 1960).

McCall and Simmons (1960) have proposed that the successful enactment of an identity to which we are highly committed leads to increased wellbeing and higher self-esteem due to a sense of achievement and support that is received from the enactment which then leads to an engagement in strategies to maintain that identity. However, it is important to consider what might occur if the experience of trauma threatens our ability to enact our most salient identity. This failure of engagement and lower commitment could result in higher levels of distress and may require a person to make significant changes to their overall identity hierarchy structure. An event that impacts our ability to enact a less important identity would not have an impact on the overall hierarchy (Thoits, 1991). One might hypothesize that in an ideal situation, external factors such as a traumatic event, that impact the level of commitment to a certain identity will increase

our probability of focusing on another identity from our hierarchy. Further, if the enactment of a newly emphasized identity evokes regular social reinforcement, the higher the likelihood that the person will adapt to the external events by realigning their identity hierarchy and associated commitments which will decrease overall distress caused by the trauma. However, if identity disruption occurs, disruption meaning that the person's enactment of the previously salient identity or the newly emphasized identity is no longer valid, then the person may be unable to adjust to the aftermath of the traumatic event. This disruption leads to significant drops in levels of adjustment and well-being and increases in levels of distress (e.g., Burke, 1991). Identity Maintenance of the disrupted identity then plays an important role, that is the effort placed by the individual to increase or maintain *perceived role* support from others that they receive from enacting disrupted identities. As seen from a cognitive-behavioral frame, many of the strategies a person may engage in to maintain their identity could be classified as maladaptive cognitive and behavioral strategies that are routinely addressed in a typical CBT treatment protocol. These include dismissing negative support, positively interpreting responses that are challenging to the enactment, withdrawing from people or situations that do not provide the needed support, and blaming others for not providing support (McCall & Simmons, 1960).

Current Study

This study sought to examine how the integration of concepts from identity theory in the examination of responses to traumatic events provides insight into possible mechanisms involved in the development and maintenance of distress or adaptation. Previous research has shown that experiences of psychological trauma can change

aspects of sense of self and autobiographical memories due to the centrality of the event to self, overarching beliefs about the self and the world, and self-efficacy and agency. However, there seems to be a gap in the literature on how these changes occur and the mechanism behind their influence on PTSD.

This limited research on the effect of traumatic events and the experience of PTSD symptoms on an individual's sense of self has unfortunately led to neglecting an important potential treatment target in PTSD interventions. Most PTSD interventions intentionally target trauma memories as one means to ameliorate PTSD diagnostic criteria. However, as mentioned previously, research has shown that the impact of a traumatic event goes beyond that of the specific DSM 5 criteria of PTSD. The study of how trauma influences one's sense of self and identity can provide a depth of knowledge that can be used to build upon existing interventions to further increase effectiveness and efficiency rates and decrease dropout rates. However, to be able to integrate those changes the first steps needed in this field are to discover the model and the mechanisms behind changes in sense of self that occur as a result of traumatic events and how this may maintain PTSD symptoms.

The purpose of this study was to examine a model of how identity hierarchy, commitment, maintenance, and change are influenced by exposure to a traumatic event. This model proposed that a traumatic event impacts a person's ability to enact important identities by changing how identities are perceived not only by the individual but also by others and would alter social factors associated with that identity which would then undermine commitment to that identity. One outcome after experiencing a trauma that impacts the salient identity, would be to reorganize our identity hierarchy and emphasize

an already existing identity and elevate it to become more salient by increasing social commitment to that identity. Additionally, an individual could add a new identity to their hierarchy and establish a new commitment to it. However, we proposed that there may be certain factors that may drive the person to make alternative decisions.

We proposed that the number of identities or social roles that an individual has available to them and their desire to maintain their "old" sense of self could impact an individual's ability to adopt a new identity. This desire to maintain the old sense of self would encourage an individual to potentially engage in identity maintenance strategies to retain stability and regain support and commitment to their identity. However, these strategies may fail in increasing support and commitment and so the individual may be holding onto an impacted identity even though they are not receiving external resources to support that identity. This would then lead to an increase in PTSD symptoms and lower levels of wellbeing as this reduces access to crucial social resources that can buffer the impact of the trauma.

Our general hypothesis was that experience of a traumatic event that is associated with a shift in identity hierarchy and the level of commitment to important identities in the hierarchy will be significantly associated with PTSD Severity and wellbeing at a one-month and four-month follow-up. The relationship between identity commitment and maintenance at follow-up will mediate the relationship between identity hierarchy and PTSD Severity. Specifically, we hypothesized that:

1. Identity Hierarchy, as measured by T1 Number of Identities, will be associated with Identity Maintenance at follow-up and this relationship would be moderated by the level of initial Identity Commitment. Specifically, participants with low T1

Number of Identities will more likely engage in maintenance strategies when commitment is high in order to maintain commitment.

2. Identity Hierarchy, as measured by T1 Number of Identities, will be associated with Identity Change at follow-up and this relationship would be moderated by the level of initial Identity Commitment. Specifically, participants with low T1 Number of Identities will more likely engage in Identity Change when commitment is low in order to increase commitment.
3. Identity Maintenance at follow-up would then mediate the relationship between T1 Number of Identities and PTSD Severity and the relationship between Identity Maintenance and PTSD Severity would also be moderated by Identity Commitment at follow-up. That is, participants who are more likely to engage in Identity Maintenance will have higher PTSD Severity if the maintenance strategies fail to maintain high commitment levels. Maintenance will lead to better mental health outcomes, including lower PTSD Severity if commitment levels remain or become high.
4. Identity Change at follow-up would then mediate the relationship between T1 Number of Identities and PTSD Severity and the relationship between Identity Change and PTSD Severity would also be moderated by Identity Commitment at follow-up. That is, participants who are more likely to engage in Identity Change will have higher PTSD Severity if the maintenance strategies or change failed to maintain high commitment levels. Change will lead to better mental health outcomes, including lower PTSD Severity if commitment levels remain or become high.

5. This moderated mediated framework between Number of Identities, Identity Maintenance, Identity Change, Identity Commitment, and PTSD Severity will be explored for other mental health outcomes including Depression, Anxiety, and Stress Severity, and Psychological Wellbeing.

Method

Participants

A total of 300 participants from MTurk were recruited to complete a three-part survey study that included one-month and four-month follow-ups for a total compensation of $7. Inclusion criteria included; (1) being18 years of age or older, (2) being proficient in English, and (3) having experienced a potentially traumatic event that meets criterion A according to the DSM 5 criteria for PTSD. Participants who did not meet Criterion A or did not complete part 2 of the study were excluded, resulting in 141 participants included in the final analysis. All procedures were approved by the Institutional Review Board.

Procedures

Participants interested in the study were provided with a link to the study. Participants who provided informed consent completed a battery of self-report questionnaires including questions that assessed symptoms related to mental health and wellbeing, various identity indices, as well as social aspects associated with each identity (Time 1, T1; see Appendix B). Participants were contacted after one (Time 2, T2) and four months (Time 3, T3) to complete a second battery of questionnaires that were similar to the first.

Variables and Measures

Demographic information collected included gender, age, marital status, employment, and socioeconomic status. Information about different traumatic events experienced by the participants was measured using the *Life Events Checklist for DSM 5*. Participants were asked to think about the worst event while answering the rest of the survey.

Outcome Measure

PTSD Severity. Severity of PTSD was measured using the *PTSD Checklist for DSM-5* (PCL-5; Weathers et al., 2013*).* The PCL-5 is a 20-item self-report measure that assesses PTSD symptoms. Items are rated on a 5-point Likert-type scale, ranging from 0 (not at all) to 4 (extremely). A total score is obtained by summing up the score for each of the items, with higher scores representing higher severity. Blevins and colleagues (2015) did validate this scale in college students and found good reliability and validity ($\alpha = .94$). In the present study, the scale demonstrated strong reliability ($\alpha = .96$).

Mental health symptoms. Mental health symptoms other than PTSD were measured using the *Depression, Anxiety, and Stress Scale-21* (DASS-21; Lovibond & Lovibond, 1995). The scale is a 21-item self-report measure of symptoms related to depression, anxiety, and stress. The scale uses a 4-point anchoring system, ranging from 0 (Did not apply at all) to 3 (Applied to me very much). Three subscales will be calculated for each of Depression, Anxiety, and Stress Severity. The scale has also shown good reliability with college students ($\alpha = .94$; Ahmet & Bayram; 2007). In the present study, the sub-scales all demonstrated strong reliability ($\alpha > .90$).

Psychological Wellbeing. Psychosocial functioning was assessed using the *brief*

version of the Inventory of Psychosocial Functioning (B-IPF; Marx et al., 2019) a self-report measure with good psychometric properties originally developed of posttraumatic stress disorder (PTSD)-related psychosocial functional impairment but in fact measures the domains of functioning outlined by the DSM-5 that may be affected by pathology (Bovin et al., 2018). The scale has been shown to have good psychometric properties (α = .84, Kleiman et al., 2020). In the present study, the scale demonstrated strong reliability (α = .91). Higher numbers on this scale represent lower wellbeing.

Predictor Measures

Number of Identities available. Number of Identities that make up the person's current sense of self was calculated by adding up the number of listed identities.

Moderating Factor

Identity Commitment. The level of commitment was assessed by the person's social evaluation of their identities. These questions were adapted from Stryker's (1980) definition of identity commitment. Participants were asked to rate their level of satisfaction and fulfillment when they enact the identity, the number of people they interact with based on that identity, their level of social interactions with these people, and the level of support the person perceived from these people. An identity commitment score of the top three identities was calculated by summing the participant's responses on each item and then an overall score of identity commitment was calculated by averaging the participant's responses across the three identities. A higher score indicates a stronger commitment to an identity. In the present study, the scale for each of the top three identities demonstrated good reliability ($\alpha > 0.80$).

Mediating Factors

Identity Maintenance & Change. **Identity Maintenance,** the mechanisms a person engages to maintain their sense of self and their role support from others, was assessed using 9 items adapted from McCall and Simon's Theory of Identity. These questions included various cognitive, behavioral, and social methods a person uses to maintain role support from others. Examples of the question include: "How likely are you to dismiss others who provide responses that are challenging to your enactment of that identity?" "If you receive negative feedback when enacting an identity, how much do you avoid the people or situations where you got the negative feedback?" Items were rated on a 7-point Likert-type scale, ranging from 1 (*not at all*) to 7 (*always/very likely*). A total score was obtained by averaging the items. A higher score indicates that a person is engaging in a high level of identity maintenance. In the present study, the scale demonstrated good reliability ($\alpha = .79$). Identity Change, which assessed whether the person thought they might choose a different identity instead of engaging in mechanisms to maintain their old identity, was added as a tenth item in this scale. This item was also based on a -point Likert-type scale, ranging from 1 (*not at all*) to 7 (*always/very likely*). A higher score on this item indicated that a person was more likely to engage in Identity Change.

Results

Preliminary Analysis

Preliminary analyses involving the exploration of influential cases and normality testing were conducted prior to the main analyses**.** Influential cases were analyzed, and outlier sweeps were conducted. Cases that had standardized residuals values above 3

and/or elevated Cook's Distance and leverage values were removed. The normality of the variables was investigated by examining skewness and kurtosis. The scores for all variables were within the normal range for both skewness and kurtosis.

Descriptive Statistics

A total of 141 participants were included in the study. Seventy-seven (54.6%) of the participants identified as female and 64 identified as male with the average age of the participants being 39.52 (*SD* = 11.17). A majority of 83% identified as White, 7.8% as African American, 5.7% as Asian American, 1.4% as American Indian or Alaska Native, and 0.7% as Native Hawaiian or Pacific Islander with 87.9% of the sample identifying as non-Hispanic or Latino.

The average level of PTSD Severity was 25.03 (*SD* = 20.10) at T1, 21.57 (*SD* = 18.18) at T2, and 19.56 (*SD* = 18.02) at T3, with about 25% of participants scoring above the 31-point cutoff which indicates the probable presence of PTSD. The average level of Depression Severity was 12.03 (*SD* = 13.10) at T1, 11.23 (*SD* = 12.63) at T2, and 9.48 (*SD* = 11.57) at T3. Average Anxiety Severity levels were 8.55 (*SD* = 9.84) at T1, 8.11 (*SD* = 10.44) at T2, and 7.14 (*SD* = 9.50) at T3. Average Stress Severity levels were 13.47 (*SD* = 11.22) at T1, 12.31 (*SD* = 11.27) at T2, and 11.17 (*SD* = 11.25) at T3. Participants reported high levels of Centrality of Event (*M* = 3.45, *SD* = 0.98) with 82.3% above the median of the scale. Additionally, 55.3% reported interpersonal trauma and 44.7% reported impersonal trauma as the worst event they had experienced. Overall stress related to COVID was low in the sample with an average of 2.07 (*SD* = 2.55). Participants also rated positive attitudes on measures of levels of satisfaction (*M* = 2.76, *SD* = 4.55), sense of self-control (*M* = 3.68, *SD* = 4.67), support of others (*M* = 3.96, *SD*

= 4.72), and levels of understanding of self (*M* = 2.33, *SD* = 5.22).

A correlation analysis (see Table A1) showed that PTSD Severity was strongly positively correlated with the Anxiety Severity (r(141)=.77, p<.011), Psychological wellbeing (r(141)=.64) p<.001), Stress Severity (r(141)=.74, p<.001, and Depression Severity (r(141)=.74, p<.001). The outcomes variables were moderately correlated with Identity Commitment and there was a weak to no correlations with Identity Maintenance and Change. Identity Change and Identity Maintenance were moderately correlated, r(141)=.45, p<.001. Identity commitment was not significantly correlated to Identity Maintenance or Identity Change.

Main Analyses

A moderated mediation was conducted using the process macro version 4.2 for R developed by Hayes (2022) using R Studio Statistical Software version 2022.12.0+353 (R Core Team, 2022). This approach was taken to analyze models with Identity Maintenance as the mediator or with Identity Change as the mediator. In both models, Identity Commitment at Time 1 was tested to see if it moderated the relationship between T1 Number of Identities and T2 Identity Maintenance/Change. T2 Identity Commitment was tested to see if it moderated the relationship between Identity Maintenance/Change and mental health outcomes. Time since trauma and gender of the participants were also entered into the analysis as covariates.

A number of participants were lost to follow-up at the one and four month follow up time points. An analysis comparing participants who completed the follow up surveys to the ones who were lost to follow up showed that there were no significant differences between the participants who were lost to follow up at T2 and the ones who completed

the survey at T2. However, the analysis indicated that there were significant differences between the participants who were lost to follow up at T3 and the ones who completed the survey at T3. The participants who did not complete the survey at the four month follow up had significantly higher mental health severity levels across all the outcome variables compared to the ones who did complete the survey at the four month follow up time point.

Due to the drop in participant number from T1 to T3 and the differences between the participants who were lost to follow up and the ones who completed T3 surveys, the results for the one month follow up (Time 2) are explained in detail while a brief summary for Time 3 is included as the data from T3 may limit the generalizability of the results as the participant who has higher mental health severity ratings did not complete the survey at that time.

Outcome Measure: PTSD Severity

Identity Maintenance as Mediator. The path model assessing the moderated mediation model consisted of two regression models (see Figure A1). Results showed that the first regression model assessing the effects of T1 Number of Identities and T1 Identity Commitment on T2 Identity Maintenance, while controlling for gender and time since trauma, was significant, $F(5,127)=2.45$, $p<.05$, with 9% of the variance in T2 Identity Maintenance explained. A significant positive association between T1 Number of Identities and T2 Identity Maintenance was found ($b=0.79$, $p<.01$), indicating that participants who reported higher T1 Number of Identities in their identity hierarchy were more likely to engage in identity maintenance strategies at follow up. The interaction effect between T1 Number of Identities and T1 Identity Commitment was found to be

insignificant ($F(1,127)<.01$, $p=.99$) indicating that level of T1 Identity Commitment did not affect the relationship between T1 Number of Identities and Identity Maintenance at follow up.

The results from the second regression model investigating the relationship of Identity Maintenance and T2 Identity Commitment to T2 PTSD Severity, while controlling for gender and time since trauma, was also significant, $F(6,126)=13.37$, $p<.001$, and explained 39% of the variance in PTSD Severity at follow up. A significant positive association between T2 Identity Maintenance and T2 PTSD Severity was found ($b=0.43$, $p<.01$), indicating that participants who were more likely to engage in identity maintenance strategies had higher PTSD Severity. A significant negative association between T2 Identity Commitment and T2 PTSD Severity was also found ($b=-5.97$, $p<.001$), where participants with lower identity commitment across the top three identities had higher PTSD Severity. The interaction between T2 Identity Maintenance and T2 Identity Commitment approached significance ($F(1,126)=3.75$, $p=.06$) indicating that T2 Identity Commitment marginally moderated the relationship between Identity Maintenance and PTSD Severity at follow up. An analysis of the interaction effect showed that the identity maintenance strategies impacted PTSD Severity only when identity commitment was low ($b=0.67$, $p<.001$) vs when identity commitment was high ($b=0.18$, $p=.35$). The analysis showed that the direct effect of T1 Number of Identities on T2 PTSD Severity was significant ($b=1.20$, $p<.01$ 95% CI [0.30, 2.11]). To analyze the indirect effects, a secondary analysis was conducted to assess whether the moderated mediation index supported the second moderator since one moderator was not significant while the other one was approaching significance. This analysis was conducted by

removing the first moderator of T1 Identity Commitment as it was non-significant while keeping the second moderator of T2 Identity Commitment. This moderated mediation model was not supported with an index of moderated mediation at -0.13, 95% CI= [-0.34, 0.00]).

The analysis using Time 3 PTSD showed the first regression of the overall moderated mediation model approached significance ($F(5,88) = 2.13$, $p=.07$), while the second regression model was significant ($F(6,87)=5.57$, $p<.001$). T2 Identity Maintenance ($b=0.65$, $p<.001$) still significantly associated with T3 PTSD Severity while T2 Identity Commitment ($b=-2.16$, $p=.06$) was approaching significance. The analysis indicated that the moderating effect of T2 Identity Commitment on T2 Identity Maintenance and T3 PTSD Severity was approaching significance ($F(1,87)=3.43$, $p=.07$). The analysis showed that the direct effect of T1 Number of Identities on T3 PTSD Severity was not significant (b=0.75, 95% CI [-0.38, 1.88]). The overall moderated mediation model was not supported with an index of moderated moderated mediation at -0.01, 95% CI [-0.14, 0.19].

Identity Change as Mediator. Again, the path model assessing the moderated mediation model consisted of two regression models (see Figure A2). The results from the first regression examining the effects of T1 Number of Identities and T1 Identity Commitment on T2 Identity Change, while controlling for gender and time since trauma, was not significant, $F(5,126)=2.97$, $p=.18$. However, the second regression examining the relationship T2 Identity Change and T2 Identity Commitment to PTSD Severity was significant, $F(6,125)=13.25$, $p<.001$, and explained 39% of the variance in PTSD Severity. Identity Change was positively significantly associated with PTSD Severity

(*b*=2.07, *p*<.001), with participants who were more likely to engage in identity change having higher PTSD Severity. There was a significant negative association between T2 Identity Commitment and PTSD Severity (*b*=-6.41, *p*<.001), where participants with lower identity commitment across the top three identities had higher PTSD Severity. The interaction effect between T2 Identity Change and T2 Identity Commitment was also found to be significant (*F*(1,125)=4.02, *p*=.05) indicating that Identity Change was only associated with higher levels of PTSD when identity commitment was low (*b*=3.70, *p*<.01) versus when commitment was high (*b*=0.45, *p*=.63). The analysis showed that the direct effect of T1 Number of Identities on T2 PTSD Severity was significant (b=1.43, p<.01, 95% CI [0.55, 2.32]). The overall moderated mediation model was not supported with an index of moderated moderated mediation at 0.03, 95% CI [-0.07, 0.16].

The analysis with T3 PTSD showed the first regression of the overall moderated mediation model was still not significant (*F*(5,90) = 1.09, *p*=.37) and the second regression model was significant (*F*(6,89)=3.17, *p*<.01). T2 Identity Change was not significantly associated with T3 PTSD Severity (*b*=1.34, *p*=.17). The analysis indicated that the moderating effect of T2 Identity Commitment on T2 Identity Change and T3 PTSD Severity was not significant (*F*(1,89)=0.26, *p*=.61). The analysis showed that the direct effect of T1 Number of Identities on T3 PTSD Severity was not significant (b=0.88, 95% CI [-0.33, 2.08]). The overall moderated mediation model was not supported with an index of moderated moderated mediation at 0.01, 95% CI [-0.09, 0.13].

Outcome Measure: Anxiety Severity

Identity Maintenance as Mediator. As with PTSD Severity, the path model consisted of two regression models (see Figure A3). The first regression in this path

model was significant, $F(5,128)=2.98$, $p<.01$, with 10% of the variance in T2 Identity Maintenance explained. A significant positive association between T1 Number of Identities and T2 Identity Maintenance was found ($b=.86$, $p<.01$) and the interaction effect between T1 Number of Identities and T1 Identity Commitment was non-significant ($F(1,128)=0.17$, $p=.68$).

Similar to the PTSD, the second regression model investigating the relationship between T2 Identity Maintenance, T2 Identity Commitment, and T2 Anxiety Severity while controlling for gender and time since trauma was also significant, $F(6, 127)=11.08$, $p<.001$, and explained 34% of the variance in Anxiety Severity at follow up. The association between T2 Identity Maintenance and Anxiety Severity (b=0.29, p<.001) and T2 Identity Commitment and Anxiety Severity (b=-2.72, p<.001) were found to be significant. Participants with lower commitment and ones who were more likely to engage in maintenance strategies were more likely to have higher Anxiety Severity. The interaction between T2 Identity Maintenance and T2 Identity Commitment was significant ($F(1,127)=9.55$, $p<.01$) indicating that T2 Identity Commitment moderated the relationship between T2 Identity Maintenance and Anxiety Severity. The analysis showed that identity maintenance strategies impacted Anxiety Severity only when identity commitment was low ($b=0.52$, $p<.001$) vs when identity commitment was high ($b=0.06$, $p=.57$). The analysis showed that the direct effect of T1 Number of Identities on T2 Anxiety Severity was not significant ($b=0.29$, $p=.27$ 95% CI [-0.23, 0.80]). To analyze the indirect effects, a secondary analysis was conducted to assess whether the moderated mediation index supported the second moderator since one moderator was not significant while the other one was significant. This analysis was conducted by removing

the first moderator of T1 Identity Commitment as it was non-significant while keeping the second moderator of T2 Identity Commitment. This moderated mediation model was supported with an index of moderated mediation at -0.11, 95% CI= [-0.23, -0.02]). The indirect effect was significant when Identity Commitment was low, effect=0.34, 95% CI [0.08, 0.71] and was non-significant when Identity Commitment was high, effect =-0.01 95% CI [-0.14,0.16].

The analysis with T3 Anxiety Severity showed the first regression of the overall moderated meditation model was approaching significance ($F(5,84) = 1.93$, $p=.10$) while the second regression was significant ($F(6,83)=5.05$, $p<.001$). T2 Identity Commitment ($b=-1.33$, $p<.01$) was still significantly associated with T3 Anxiety Severity, while T2 Identity Maintenance was approaching significance ($b=0.13$, $p=.08$). The analysis indicated that the moderating effect of T2 Identity Commitment on T2 Identity Maintenance and T3 Anxiety Severity was still significant ($F(1,83)=7.74$, $p<.01$) when Identity Commitment levels were low. Direct effects of T1 Number of Identities on T3 Anxiety Severity was significant ($b=0.54$, $p<0.05$, 95% CI [0.06, 1.01]). The overall moderated mediation model was not supported with an index of moderated moderated mediation at -0.01, 95% CI [-0.10, 0.10].

Identity Change as Mediator. The first regression model including T2 Identity Change as the mediator was not significant, $F(5,126)=1.14$, $p=.35$, while the second part exploring the relationship between T2 Identity Change, T2 Identity Commitment, and Anxiety Severity was significant $F(6,125)=12.28$, $p<.001$ and explained 37% of the variance in Anxiety Severity at follow up (see Figure A4). T2 Identity Change was significantly associated with Anxiety Severity ($b=1.05$, $p<.001$), indicating that

participants who reported higher likelihood to engage in identity change had higher levels of anxiety. A significant negative association between T2 Identity Commitment and Anxiety Severity was found (b=-3.02, p<.001). The analysis showed a significant interaction effect between T2 Identity Change and T2 Identity Commitment (F(1,125)=3.87 p=.05) and indicated that T2 Identity Change only impacted anxiety levels when T2 Identity Commitment was low (b=1.93, p<.01) compared to when it was high (b=0.17, p=.75). The analysis showed that the direct effect of T1 Number of Identities on T2 Anxiety Severity was significant (b=0.78, p<.01, 95% CI [0.29, 1.26]). The overall moderated mediation model was not supported with an index of moderated moderated mediation at 0.02, 95% CI [-0.02, 0.09].

The analysis for T3 Anxiety Severity showed the first regression of the overall moderated mediation model was still not significant (F(5,91) = 1.09, p=.37) and the second regression was significant (F(6,90)=8.84, p<.001). T2 Identity Change was significantly associated with T3 Anxiety Severity (b=0.90, p<.05). The analysis indicated that the moderating effect of T2 Identity Commitment on T2 Identity Change and T3 Anxiety Severity was still significant (F(1,90)=11.02, p<.001) when Identity Commitment levels were low. Direct effect of T1 Number of Identities on T3 Anxiety Severity was significant (b=0.58, p<.05, 95% CI [0.07, 1.09]). The overall moderated mediation model was not supported with an index of moderated moderated mediation at <.001, 95% CI [-0.10, 0.08].

Outcome Measure: Psychological Wellbeing

Identity Maintenance as Mediator. Similar to the previous models (see Figure A5), the first regression model was significant, F(5,127)=2.87, p<.05, with 10% of the

variance in T2 Identity Maintenance explained. A significant positive association between T1 Number of Identities and T2 Identity Maintenance was found (b=0.81, p<.01) and the interaction effect between T1 Number of Identities and T1 Identity Commitment was non-significant (F(1,127)=0.10, p=.76).

The second part of the model investigating the relationship between T2 Identity Maintenance, T2 Identity Commitment, and T2 Psychological Wellbeing while controlling for gender and time since trauma was also significant, F(6,126)=16.59, p<.001, and explained 44% of the variance in Psychological Wellbeing at follow up. The association between T2 Identity Maintenance and T2 Psychological Wellbeing (b=0.02, p<.01) and between T2 Identity Commitment and T2 Wellbeing (b=-0.57, p<.001) were found to be significant. Participants with lower commitment and ones who were more likely to engage in maintenance strategies were more likely to have lower Psychological Wellbeing. As with the model for PTSD and Anxiety Severity, the interaction effect between T2 Identity Maintenance and T2 Identity Commitment was significant (F(1,126)=10.12, p<.01) indicating that identity maintenance strategies were associated with lower levels of wellbeing only when commitment was low (b=0.05, p<.001) compared to when it was high (b<.001, p=.76). The analysis showed that the direct effect of T1 Number of Identities on T2 Psychological Wellbeing was not significant (b=0.04, p=.21, 95% CI [-0.02, 0.11]). To analyze the indirect effects, a secondary analysis was conducted to assess whether the moderated mediation index supported the second moderator since one moderator was not significant while the other one was significant. This analysis was conducted by removing the first moderator of T1 Identity Commitment as it was non-significant while keeping the second moderator of T2 Identity

Commitment. This moderated mediation model was supported with an index of moderated mediation at -0.02, 95% CI= [-0.03, -0.00]). The indirect effect was significant when Identity Commitment was low, effect=0.04, 95% CI [0.01, 0.09] and was non-significant when Identity Commitment was high, effect <.001 95% CI [-0.03,0.02].

The moderated meditation model analysis at T3 Psychological Wellbeing showed the first (F(5,45)=1.93 p=.11) and second (F(6,44)=1.32, p=.27) regression models were not significant. The analysis of T2 Identity Commitment as a moderator for T2 Identity Maintenance and T3 Psychological Wellbeing was not significant (F(1,44)=0.38, p=.54). Direct effects of T1 Number of Identities on T3 Psychological Wellbeing was non-significant (b=-0.39, p=.39, 95% CI [-1.30, 0.52]). The overall moderated mediation model was not supported with an index of moderated moderated mediation at 0.03, 95% CI [-0.13, 0.28].

Identity Change as a mediator. Similar to the previous analysis, the analysis for the first model including T2 Identity Change as the mediator was not significant, F(5,126)=1.28, p=.28, while the second part exploring the relationship between T2 Identity Change, T2 Identity Commitment, and T2 Psychological Wellbeing was significant, F(6,125)=14.98, p<.001 with 42% of the variance in Psychological Wellbeing explained (see Figure A6). T2 Identity Change significantly associated with Psychological Wellbeing, (b=0.15, p<.01). A significant negative association between Identity Commitment at T2 and Psychological Wellbeing was found (b=-0.56, p<.001). The interaction effect between T2 Identity Change and T2 Identity Commitment was found to be significant (F(1,125)=8.46, p<.01) indicating that Identity Change impacted lower Psychological Wellbeing only when Identity Commitment was low (b=0.32,

p<.001) compared to when it was high (*b*=-.02, *p*=.73). Direct effects of T1 Number of Identities on T2 Psychological Wellbeing was non-significant (*b*=0.06, *p*=.07, 95% CI [--0.01, 0.13]). The overall moderated mediation model was not supported with an index of moderated moderated mediation <.001, 95% CI [-0.01, 0.01].

The moderated meditation model analysis at T3 Psychological Wellbeing showed the first (*F*(5,45)=0.74, *p*=.60) and second (*F*(6,44)=1.73, *p*=.14) regressions models were not significant. The analysis of T2 Identity Commitment as a moderator for T2 Identity Change and T3 Psychological Wellbeing was not significant (*F*(1,44)=.13, *p*=.72). Direct effects of T1 Number of Identities on T3 Psychological Wellbeing was non-significant (*b*=-0.34, *p*=.40, 95% CI [-1.16, 0.48]). The overall moderated mediation model was not supported with an index of moderated moderated mediation at -0.01, 95% CI [-0.18, 0.12].

Outcome Measure: Stress Severity

Identity Maintenance as Mediator. As with the three previous models (See Figure A7), the first regression model investigating the relationship between T1 Number of Identities, T1 Identity Commitment, and T2 Identity Maintenance while controlling for gender and time since trauma was significant, *F*(5,130)=3.28, *p*<.01, with 11% of the variance in Identity Maintenance explained. A significant positive association between T1 Number of Identities and T2 Identity Maintenance was found (*b*=0.86, *p*<.01). The interaction effect between T1 Number of Identities and T1 Identity Commitment was found to be insignificant (*F*(1,130)=0.17, *p*=.68).

The second regression model investigating the relationship between T2 Identity Maintenance, T2 Identity Commitment, and T2 Stress Severity while controlling for

gender and time since trauma was also significant, $F(6,129)=6.32$, $p<.001$, and explained 23% of the variance in Stress Severity at follow up. However, unlike with previous models, there was no significant relationship between T2 Identity Maintenance and T2 Stress Severity ($b=0.16$, $p=.10$). A significant negative association between T2 Identity Commitment and T2 Stress Severity was still found ($b=-2.82$, $p<.001$), where participants with lower identity commitment across the top three identity had higher Stress Severity. The interaction between Identity Maintenance and T2 Identity Commitment was non-significant ($F(1,129=2.09$, $p=.15$) indicating that Identity Commitment at T2 did not moderate the relationship between Identity Maintenance and Stress Severity. The analysis showed that the direct effect of T1 Number of Identities on T2 Stress Severity was significant ($b=0.66$, $p<.05$, 95% CI [0.04, 1.28]). The overall moderated mediation model was not supported with an index of moderated moderated mediation at 0.01, 95% CI= [-0.03, 0.05]).

The analysis using T3 Stress Severity still showed the first ($F(5,90)=2.35$, $p<.05$) and second ($F(6,89)=2.16$, $p=0.5$) regressions for the overall moderated mediation model as significant. Similarly, to results for Time 2, T1 Number of Identities was significantly associated to T2 Identity Maintenance ($b=0.92$, $p<.01$). T2 Identity Commitment was significantly associated with T3 Stress Severity ($b=-1.75$, $p<.05$), while T2 Identity Maintenance was not significantly associated ($b=0.06$, $p=.61$). The analysis of T2 Identity Commitment as a moderator for T2 Identity Change and T3 Stress Severity was still not significant ($F(1,89)=1.16$, $p=.28$). The analysis showed that the direct effect of T1 Number of Identities on T3 Stress Severity was not significant ($b=0.52$, $p=0.18$, 95% CI [-0.24, 1.29]). The overall moderated mediation model was not supported with an index

of moderated moderated mediation <.001, 95% CI= [-0.06, 0.08]).

Identity Change as Mediator. The analysis for the first model including Identity Change as the mediator was not significant $F(5,127)=1.77$, $p=.12$ while the second model exploring the relationship between T2 Identity Change, T2 Identity Commitment, and T2 Stress Severity was significant, $F(6,126)=7.78$, $p<.001$, with 27% of the variance in Stress Severity explained (see Figure A8). Unlike the other models, T2 Identity Change was not significantly associated with T2 Stress Severity ($b=0.46$, $p=.35$). A significant negative association between T2 Identity Commitment and Stress Severity was found ($b=-2.85$, $p<.001$). The interaction effect between T2 Identity Change and T2 Identity Commitment was found to be nonsignificant ($F(1,126)=0.25$, $p=.62$) indicating that T2 Identity Commitment did not moderate the relationship between Identity Change and Stress Severity. The analysis showed that the direct effect of T1 Number of Identities on T2 Stress Severity was significant ($b=0.99$, $p<.001$, 95% CI [0.39, 1.58]). The overall moderated mediation model was not supported with an index of moderated moderated mediation at -0.01, 95% CI= [-0.04, 0.03]).

The analysis using T3 Stress Severity showed the first regression of the overall moderated mediation model as not significant ($F(5,91) = 0.97$, $p=.44$) and the second regression model as significant ($F(6,90)=2.52$, $p<.05$). T2 Identity Change was not significantly associated with T3 Stress Severity ($b=0.62$, $p=.32$). The analysis indicated that the moderating effect of T2 Identity Commitment on T2 Identity Change and T3 Stress Severity was not significant ($F(1,90)=0.01$, $p=.92$). The analysis showed that the direct effect of T1 Number of Identities on T3 Stress Severity was not significant ($b=0.55$, $p=0.16$, 95% CI [-0.22, 1.32]). The overall moderated mediation model was not

supported with an index of moderated moderated mediation <.001, 95% CI= [-0.05, 0.07]).

Outcome Measure: Depression

Identity Maintenance as Mediator. Since the first regression model has not changed across the last four outcomes, the analysis showed very similar results (see Figure A9). The relationship between T1 Number of Identities, T1 Identity Commitment, and T2 Identity Maintenance while controlling for gender and time since trauma was significant, $F(5,129)=2.81$, $p<.05$, with 10% of the variance in Identity Maintenance explained. A significant positive association between T1 Number of Identities and T2 Identity Maintenance was found ($b=0.80$, $p<.01$). The interaction effect between T1 Number of Identities and T1 Identity Commitment was found to be insignificant ($F(1,129)=0.27$, $p=.60$).

The second regression model investigating the relationship between Identity Maintenance, T2 Identity Commitment, and T2 Depression Severity while controlling for gender and time since trauma was also significant, $F(6,128)=19.25$, $p<.001$, with 47% of the variance in Depression Severity explained. Similar to the results for Stress Severity, the association between T2 Identity Maintenance and T2 Depression Severity was found to be non-significant ($b=0.09$, $p=.35$). However, a significant negative association between T2 Identity Commitment and T2 Depression Severity was found ($b=-5.25$, $p<.001$), where participants with lower identity commitment across the top three identity had higher Depression Severity. The interaction effect between T2 Identity Change and T2 Identity Commitment was found to be nonsignificant ($F(1,128)=0.35$ $p=.56$) indicating that T2 Identity Commitment did not moderate the relationship between

Identity Change and Depression Severity. Direct effects of T1 Number of Identities on Depression Severity was non-significant (*b*=0.28, *p*=.34, 95% CI [-0.31, 0.88]). The overall moderated mediation model was not supported with an index of moderated moderated mediation <.001, 95% CI [-0.02, 0.03].

The analysis at T3 Depression Severity for the overall moderated mediation model showed the first (*F*(5,89)=2.49, *p*<.05) and second (*F*(6,88)=5.11, *p*<.001) regression models as significant. Similarly, to results for Time 2, T1 Number of Identities was significantly associated to T2 Identity Maintenance (*b*=0.93, *p*<.01). T2 Identity Commitment was significantly associated with T3 Depression Severity (*b*=-2.80, *p*<.001), while T2 Identity Maintenance was approaching significance (*b*=0.21, *p*=.06). The analysis of T2 Identity Commitment as a moderator for T2 Identity Change and T3 Depression Severity was still not significant (*F*(1,88)=1.82, *p*=.18). Direct effect of T1 Number of Identities on T3 Depression Severity was non-significant (*b*=-0.26, *p*=.42, 95% CI [-0.90, 0.38]). The overall moderated mediation model was not supported with an index of moderated moderated mediation <.001, 95% CI [-0.07, 0.07].

Identity Change as Mediator. Similarly with Stress Severity, the analysis for the first regression part of the model including T2 Identity Change as the mediator was not significant, *F*(5,128)=1.63, *p*=.16 while the second model exploring the relationship between T2 Identity Change, T2 Identity Commitment, and T2 Depression Severity was significant, *F*(6,127)=18.61, p<.001, with 47% of the variance in Depression Severity explained (see Figure A10). T2 Identity Change was not significantly associated with T2 Depression Severity (*b*=0.43, *p*=.36). A significant negative association between T2 Identity Commitment and Depression Severity was found (*b*=-5.20, *p*<.001). The

interaction effect between T2 Identity Change and T2 Identity Commitment was found to be nonsignificant ($F(1,127)=0.28$, $p=.60$) indicating that T2 Identity Commitment did not moderate the relationship between Identity Change and Depression Severity. Direct effect of T1 Number of Identities on Depression Severity was non-significant ($b=0.41$, $p=.16$, 95% CI [-0.17, 0.98]). The overall moderated mediation model was not supported with an index of moderated moderated mediation <.001 (95% CI= -0.04, 0.03).

The analysis at T3 Depression Severity for the overall moderated mediation model showed the first regression model was still not significant ($F(5,91) = 0.78$, $p=.57$) and the second regression model was significant ($F(6,90)=6.05$, $p<.001$). T2 Identity Change was not significantly associated with T3 Depression Severity ($b=0.49$, $p=.38$). The analysis indicated that the moderating effect of T2 Identity Commitment on T2 Identity Change and T3 Depression Severity was not significant ($F(1,90)=0.09$, $p=.76$). Direct effect of T1 Number of Identities on T3 Depression Severity was non-significant ($b=-0.23$, $p=.50$, 95% CI [-0.91, 0.45]). The overall moderated mediation model was not supported with an index of moderated moderated mediation at <.001 (95% CI= -0.05, 0.05).

Discussion

Research into trauma and PTSD has long developed beyond just strictly examining PTSD symptomology and has now included various other factors such as the impact a traumatic experience can have on an individual's sense of self along with changes that may occur to perceptions of themselves, others, and their environment. The literature has also investigated protective factors that may prevent and alleviate the severity of several mental health outcomes. This research has established that such

relationships exist; however, they do not provide in-depth knowledge on the specific mechanics of how factors such as sense of self and social support influence PTSD development and severity. This study integrated concepts from clinical and social psychology to develop a model to explore the intricacies related to identity, support, and trauma.

The various identity indices that were measured were found to have unique relationships with PTSD Severity and other mental health outcomes. These findings are somewhat consistent with previous research that has shown that social support and changes to sense of self are associated with PTSD Severity, specifically that lower social support and changes to sense of self that occur after a trauma through the centrality of the event were associated with higher levels of PTSD Severity (Ozer et al., 2003). This study affirmed that identity can be explored through various lenses, including the number of identities, the strategies done to maintain identity, the level of commitment to the identities, and the likelihood to engage in identity change. Each of these indices had a unique relationship with PTSD Severity that were largely in line with the proposed model based on modern identity theories.

The Number of Identities an individual reported at T1 was found to be associated with T2 Identity Maintenance strategies and T2 PTSD Severity in an unexpected manner. It was initially proposed that individuals would engage in maintenance strategies instead of identity change due to having limited identities available in their hierarchy which in turn would lead to higher PTSD Severity. However, the results showed that a higher T1 Number of Identities was associated with higher PTSD Severity *and* engagement in maintenance strategies at follow-up. Additionally, T1 Number of Identities did not

impact the likelihood of Identity Change at follow-up. This suggests that there may be another factor at play that is impacting whether individuals attempt to maintain their established identity structure or change their identity structure. It can be argued that a person may engage in maintenance instead of change when the number of identities is high and when there is a high level of commitment attached to those identities. However, this hypothesis was also not supported as T1 Identity Commitment had no association with either T1 Number of Identities or the likelihood of T2 maintenance or change.

T2 Maintenance strategies, on the other hand, were found to be associated with higher T2 PTSD Severity levels as hypothesized. These results seem to be in line with previous findings as the maintenance strategies are very similar to established maladaptive coping techniques discussed in Beck's Cognitive Theory, where an individual may engage in coping techniques including avoidance, selective filtering, and diffusion of blame to avoid perceived negative consequences or in context of this study, they are engaging in them to try to retain their sense of self. An interesting finding, while this was a marginally significant moderation, was that this relationship between maintenance strategies, change, and severity was significant only when average T2 Identity Commitment was low. Average T2 commitment also had a direct effect on T2 PTSD Severity, where lower commitment was associated with higher PTSD Severity. This suggests that commitment to existing identities plays a crucial role not only in how identities are perceived and maintained but also directly in mental health outcomes. Levels of identity commitment may provide one explanation as to why traumatic events are perceived differently and could have both negative and positive impacts on mental health outcomes.

This creates a unique perspective in classifying whether maintenance strategies are maladaptive or adaptive. Seen from a modern identity theory lens these strategies are not categorized as negative, as the theory proposes them as typical strategies one would engage in to maintain their sense of self as one strives to continuously have a stable identity (McCall & Simmons, 1960). It could be argued, with the findings from this study, that these strategies become harmful when an individual maintains a stable identity that is associated with low commitment, that is low perception of satisfaction, fulfillment, and support related to that identity. However, if these strategies maintain an identity with high commitment, then they seem to have no association with any mental health outcome.

These findings around Identity Commitment expand on previous research that explores social factors in the field of trauma and PTSD by introducing a concept that may be similar to social support but investigates it from a different perspective, one that is related to role support and identity enactment. Perceived social support has been shown to be strongly associated with PTSD Severity (Ozer et al., 2003), with higher levels of perceived positive and lower negative support being related to lower PTSD Severity (Belsher et al., 2012; Gros et al., 2016). Other social support factors, including structural and received support, have also been found to be related to PTSD Severity (Lee & Youm, 2011; Platt et al., 2016). Identity Commitment, as studied in this model, did include aspects from both functional and structural support however it explored it from an identity perspective, and it was interrelated with other factors like levels of satisfaction and fulfillment that arises with the enactment of a specific identity. These results indicate that support could be explored not only as a general overall concept but also linked to

specific identities that are considered most salient.

These findings were replicated for Anxiety Severity and Psychological Wellbeing. T2 Identity maintenance and T2 change were associated with higher T2 anxiety levels and lower Psychological Well-being with the relationships being moderated by low T2 Identity Commitment. This suggests that trauma's impact on an individual's identity structure and function does not only have an effect on PTSD symptomatology but can have ripple effects on other aspects of psychological functioning. Interestingly, these findings did not apply to Depression or Stress Severity as the only identity factor found to be connected to Depression and Stress Severity was T2 Identity Commitment. A further breakdown of symptomology across these mental health outcomes could provide an explanation by creating more detailed links between identity factors and specific symptoms. A potential reason for the difference between depression and stress and other outcomes could be related to the theories behind the diagnoses and how these variables were measured. The cognitive and behavioral theories of depression mention how depression is related to negative thoughts about self, world, and future where these thoughts became generalized and form stable perspectives. Additionally, stress, as measured by the DASS was related to responses to non-specific chronic arousal while PTSD was related to responses to a specific traumatic event. These generalized negative viewpoints along with the experience of apathy towards social roles or expectations may result in the minimization the role Identity Maintenance and Change play in depression and stress compared to PTSD and anxiety as people may not value these roles and expectations when experiencing depression or stress. Identity commitment was still significantly associated with depression and stress, and this may be due to it assessing

reactions and reinforcement to the identity enactment and not the intricacies of the strategies or behaviors people engage in to maintain identity.

Limitations

There are several limitations associated with this study. First, the sample was one of convenience recruited from Amazon's MTurk. Because participants were self-selected into the study, the sample may have only included people who felt comfortable answering questions about their traumatic event or had not experienced high levels of distress. Additionally, there was a significant difference at our third time point between the participants who were lost to follow up and those who completed the study, where participants who had higher severity were lost to follow. These differences would impact the generalizability of our results at that time point. Second, self-report measures were used to collect data from the participants, with measures being collected retrospectively. This may have influenced the results found between identity and mental health outcomes as participants may have answered the survey based on their current perception of how the trauma had impacted their identity and not how they truly reacted at the time of the traumatic event. Moreover, the time since the traumatic event varied among participants and ranged over a great period of time which may have impacted the ability to detect an effect as the participant may have already undergone Identity maintenance or change. Another third possible limitation related to the study is survey fatigue since participants answered various questions about the trauma, their identity, and various mental health outcomes at three different time points. This may have caused participants to answer the follow-up surveys based on their initial responses or the fatigue may have caused participants' attention and engagement in the survey to decrease over time. Additionally,

several people were excluded as they did not meet the study criteria or were lost to follow-up between two of the three time points.

Implications and Conclusions

The exploration of this model opens several avenues in the study and treatment of PTSD for both researchers and clinicians, as well as bridges a gap between the fields of social and clinical psychology. The results provide insight into the relationship between different identity indices and trauma by not only investigating the general relationship between these factors but delving into specific mechanisms. This model helps inform us of how traumatic events impact an individual's identity and the specific adaptive or maladaptive strategies this individual may engage in because of this impact. These results also help fill the gap in PTSD literature in the social aspects of trauma. Past literature has shown that social factors have significant roles in how PTSD is developed and maintained. However, these social aspects are rarely integrated into current PTSD therapeutic interventions. The effectiveness and efficiency of these interventions could be elevated by assessing whether an individual's identity hierarchy and commitment to the identities in their hierarchy have changed since the trauma and whether the identity maintenance strategies they are engaging in are contributing to their distress. The observation of changes to any of these identity indices may prove to be a beneficial point of intervention as the clinician may then work with the individual to help them adapt to the experience of the trauma and find ways to increase access to important social resources in their environment. This model is not only beneficial to clinicians but could provide an important avenue for research as well. There are several research questions that may arise from this study, as it incorporates several factors and relationships that

could be further dissected. Future research could potentially explore whether the values attached to a certain identity (smart, good, friendly) play a role in how strongly an individual would maintain their identity. Additionally, different variations of this model could be run to test the generalizability of the results across specific types of traumatic events and identities.

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Appendix A

Table A1

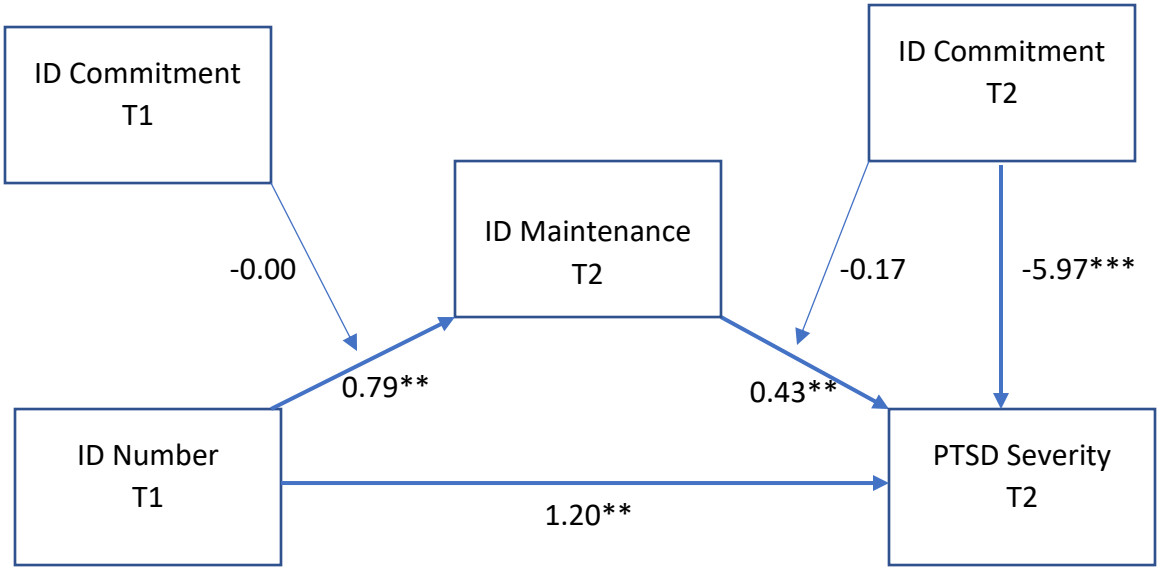
Correlation Matrix at One Month Follow-up

	Variables	1	2	3	4	5	6	7	8
1.	PTSD Severity	1.00							
2.	Anxiety Severity	.77**	1.00						
3.	Depression Severity	.74**	.75**	1.00					
4.	Stress Severity	.74**	.75**	.79**	1.00				
5.	Psychological Wellbeing	.64**	.64**	.74**	.58**	1.00			
6.	Identity Commitment	-.44**	-.43**	-.65**	-.41**	-.56**	1.00		
7.	Identity Maintenance	.20*	.21*	.02	.17*	.15	.10	1.00	
8.	Identity Change	.18*	.15	.06	.09	.15	-.01	.45**	1.00

Note. Significant Codes: **p< .01 *p< .05

Figure A1

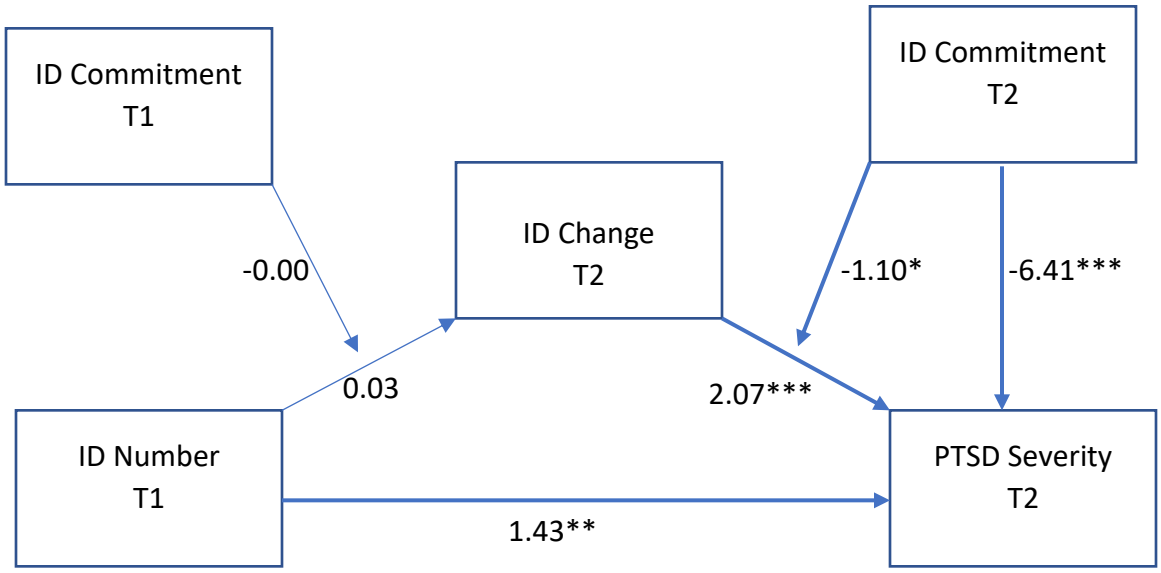
Moderated Mediation Model for Identity Maintenance and PTSD Severity



Note. Significant Codes: *p<.05, **p<.01, ***p<.001

Figure A2

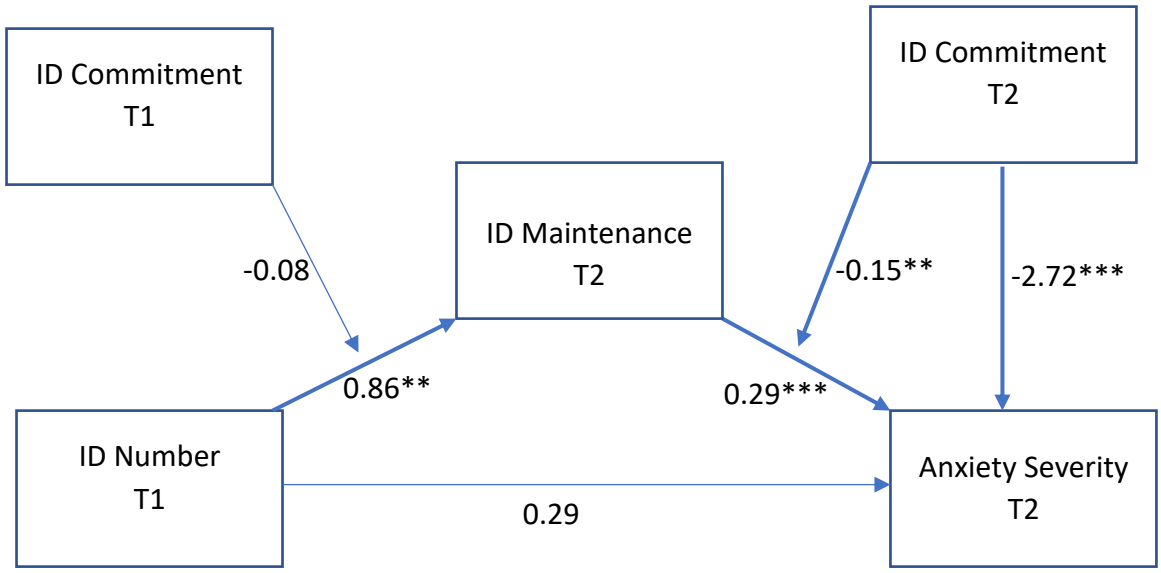
Moderated Mediation Model for Identity Change and PTSD Severity



Note. Significant Codes: *p<.05, **p<.01, ***p<.001

Figure A3

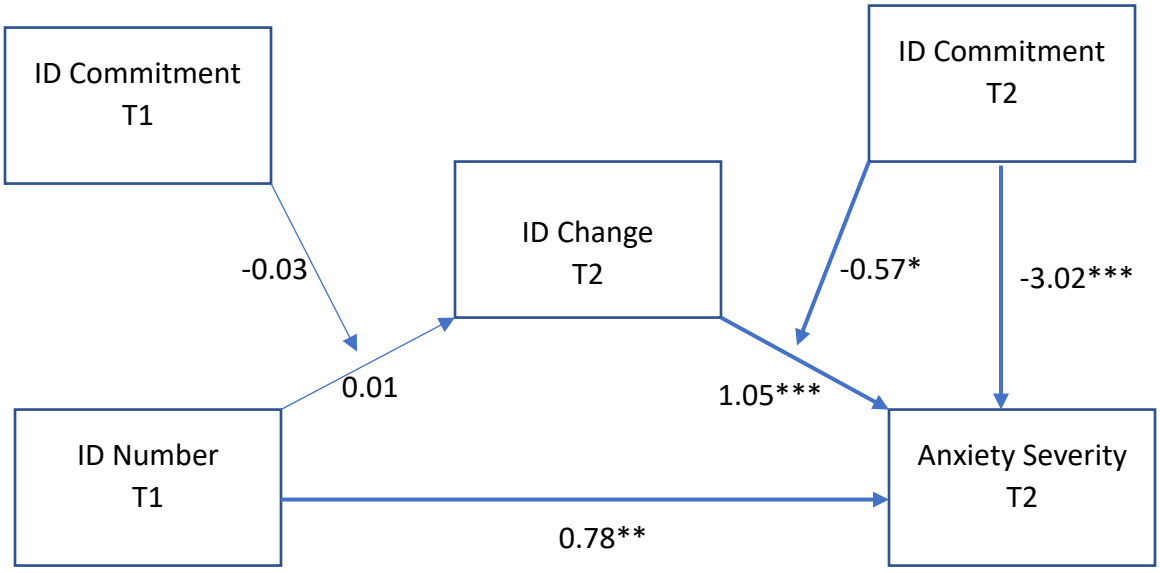
Moderated Mediation Model for Identity Maintenance and Anxiety Severity



Note. Significant Codes: *p<.05, **p<.01, ***p<.001

Figure A4

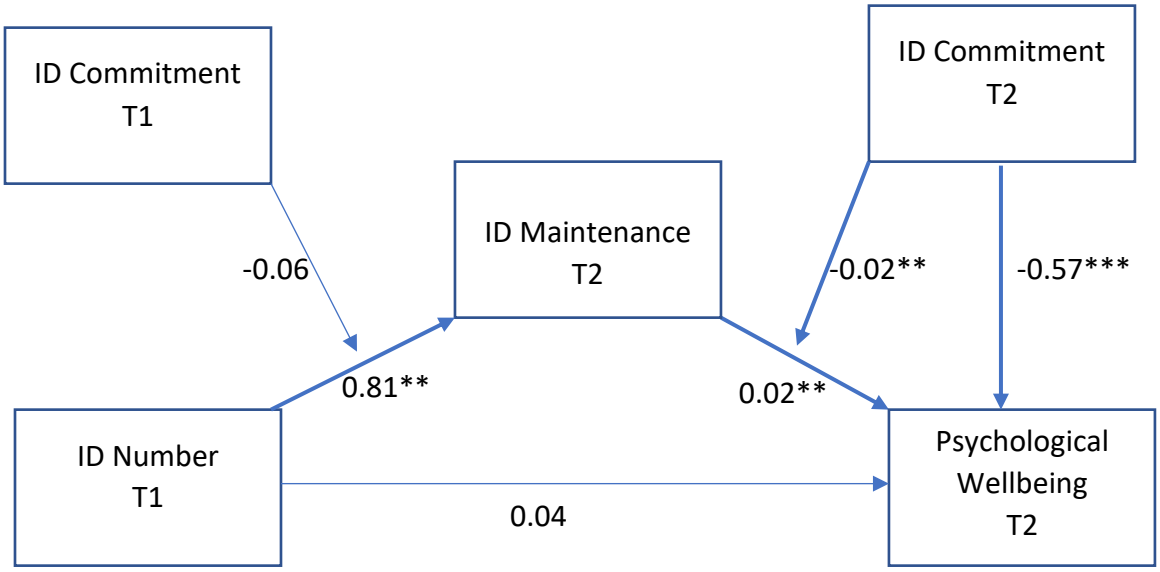
Moderated Mediation Model for Identity Change and Anxiety Severity



Note. Significant Codes: *p<.05, **p<.01, ***p<.001

Figure A5

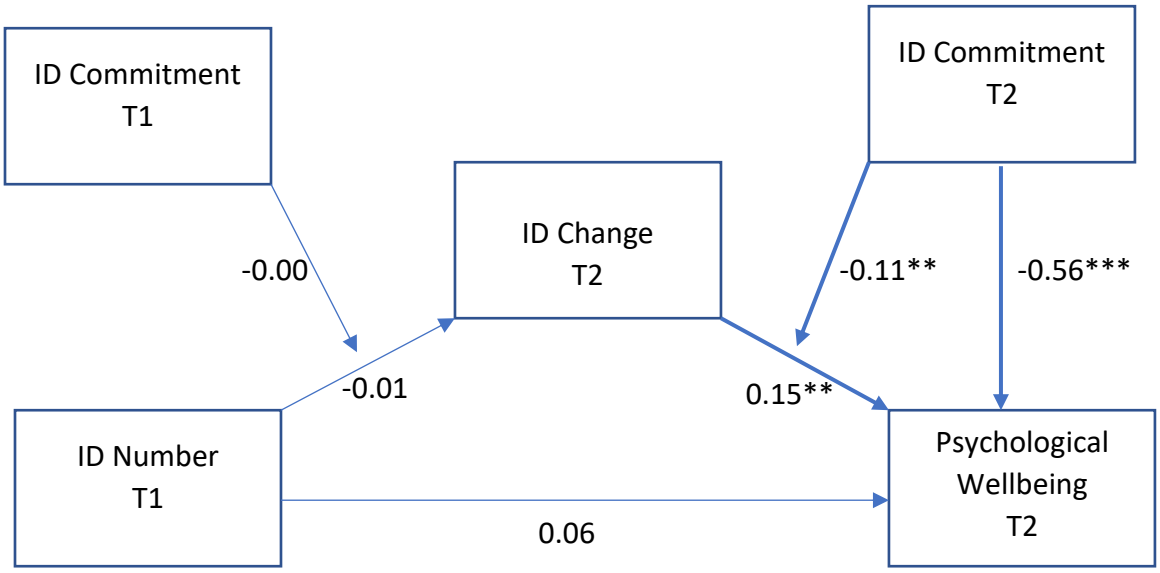
Moderated Mediation Model for Identity Maintenance and Psychological Wellbeing



Note. Significant Codes: *p<.05, **p<.01, ***p<.001

Figure A6

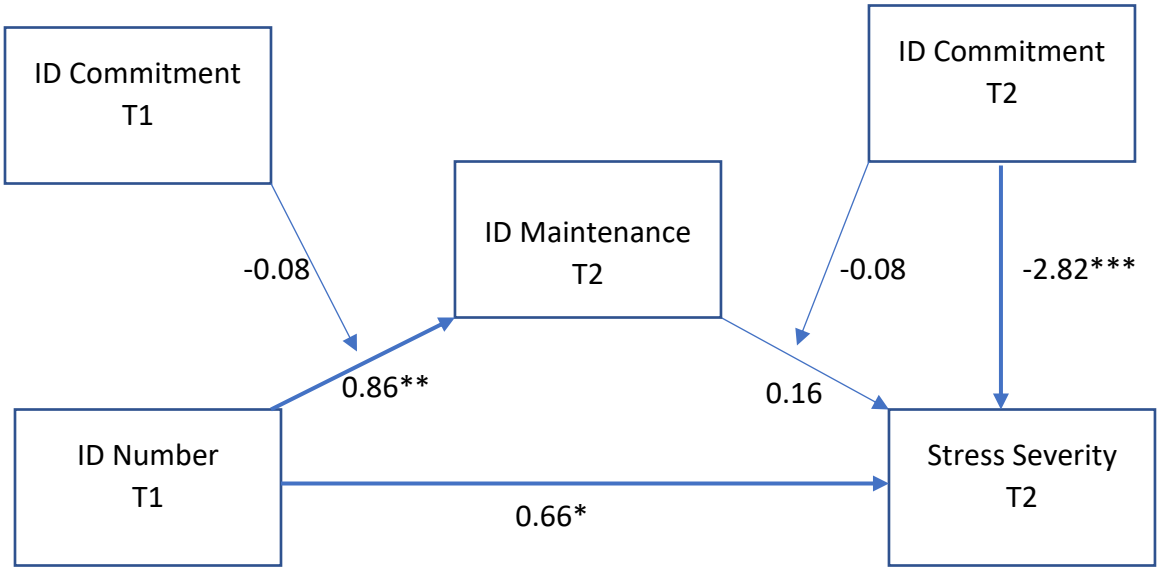
Moderated Mediation Model for Identity Maintenance and Psychological Wellbeing



Note. Significant Codes: *p<.05, **p<.01, ***p<.001

Figure A7

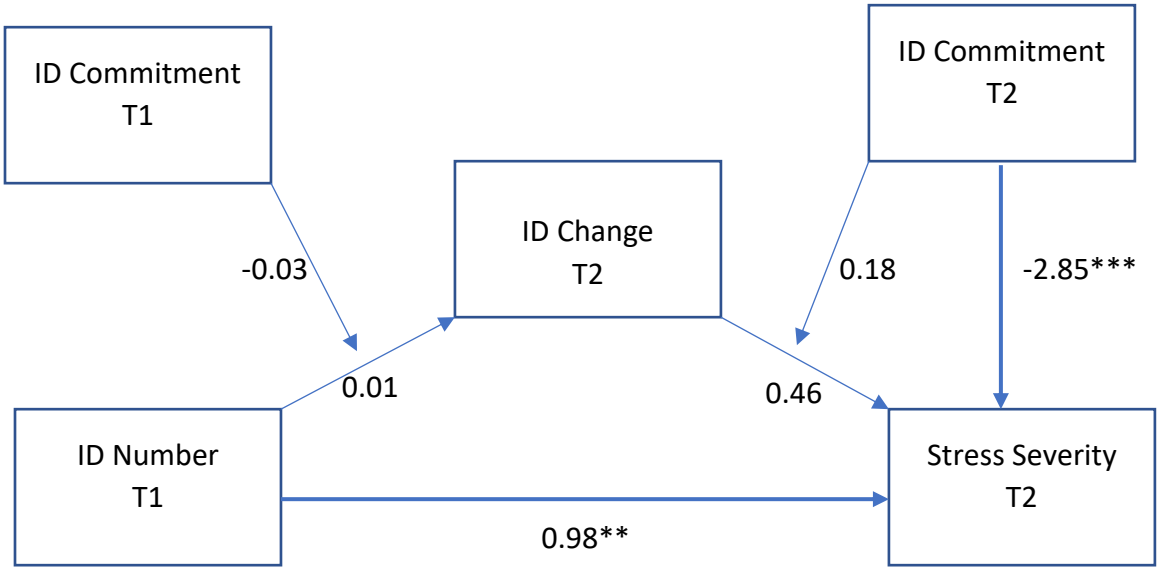
Moderated Mediation Model for Identity Maintenance and Stress Severity



Note. Significant Codes: *p<.05, **p<.01, ***p<.001

Figure A8

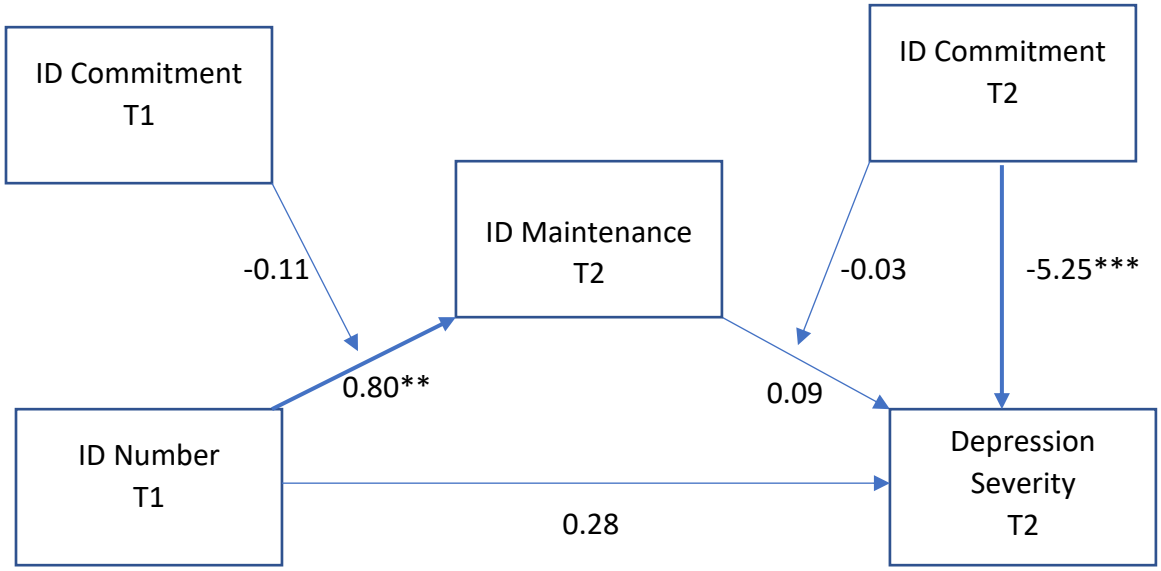
Moderated Mediation Model for Identity Change and Stress Severity



Note. Significant Codes: *p<.05, **p<.01, ***p<.001

Figure A9

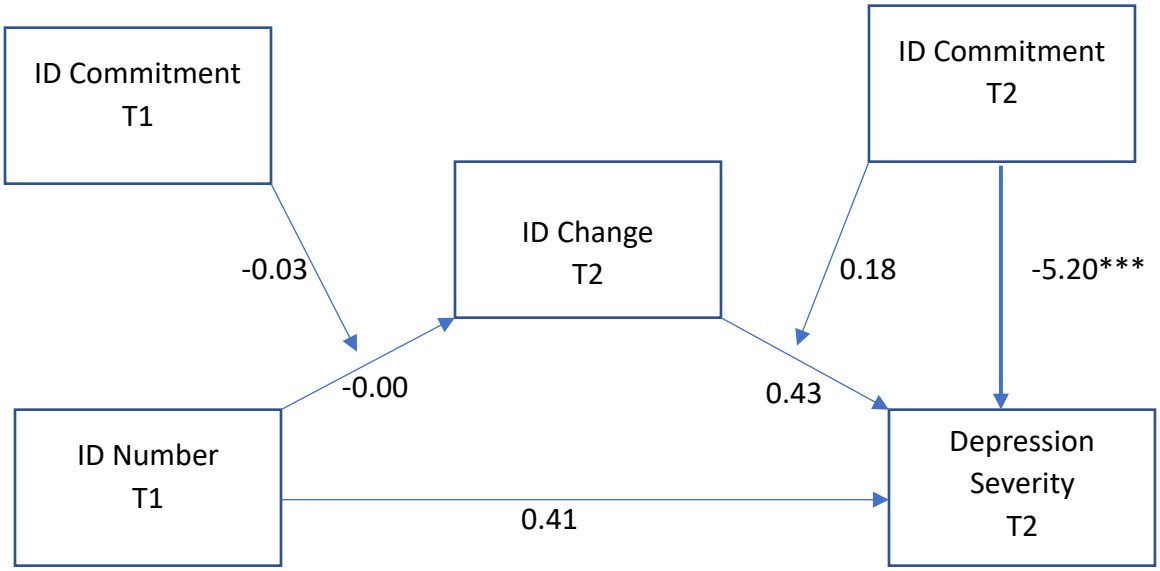
Moderated Mediation Model for Identity Maintenance and Depression Severity



Note. Significant Codes: *p<.05, **p<.01, ***p<.001

Figure A10

Moderated Mediation Model for Identity Change and Depression Severity



Note. Significant Codes: *p<.05, **p<.01, ***p<.001

Appendix B

Demographics

Gender:

Male

Female

Other

Age:

Household income:

Major:

Current Education level

Freshman

Sophomore

Junior

Senior

Race:

American Indian or Alaska Native

Asian

Black or African American

Native Hawaiian or Other Pacific Islander

White

Ethnicity:

Hispanic or Latino

Not Hispanic or Latino

Life Events Checklist-5

Listed below are a number of difficult or stressful things that sometimes happen to people. For each event check one or more of the boxes to the right to indicate that (a) *it happened to you* personally; (b) you *witnessed it happen* to someone else; (c) *you learned about* it happening to a close family member or close friend; (d) *you were exposed to* it as part of your job (for example; paramedic, police, military, or other first responder); (e) *you're not sure it fits*; or (f) *it doesn't apply to you*.

Also, for each category (Happened to you, Witnessed it, Learned about it, Part of my job) indicate the number of times you experienced the event.

Be sure to consider your entire life (growing up as well as adulthood) as you go through the list of events

Event	Happened to me	Witnessed it	Learned about it	Part of my job	Not Sure	Doesn't apply
1. Natural disaster (for example, flood, hurricane, tornado, earthquake						
2. Fire or explosion						
3. Transportation accident (for example, car accident, boat accident, train wreck, plane crash)						
4. Serious accident at work, home, or during recreational activity						
5. Exposure to toxic substance (for example, dangerous chemicals, radiation)						
6. Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)						
7. Assault with a weapon (for example, being						

shot, stabbed, threatened with a knife, gun, bomb)						
8. Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)						
9. Other unwanted or uncomfortable sexual experience						
10. Combat or exposure to a war-zone (in the military or as a civilian)						
11. Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)						
12. Life-threatening illness or injury						
13. Severe human suffering						
14. Sudden violent death (for example, homicide, suicide)						
15. Sudden, unexpected death of someone close to you						
16. Serious injury, harm, or death you caused to someone else						
17. Any other very stressful event or experience						

A. If you checked anything for #17, briefly identify the event you were thinking of:

B. If you have experienced more than one of the events, think about the event you consider the worst event, which for this questionnaire means the event that currently bothers you the most. If you have experienced only one of the events, use that one as the worst event. Please answer the following questions about the worst event (*check all options that apply):*

1. Briefly describe the worst event (*for example, what happened, who was involved, etc*).

2. How long ago did it happen? _____. *(please estimate if you are not sure)*

3. How did you experience it?

a. *it happened to me directly*

b. I witnessed it

c. I learned about it happening to a close family member or close friend

d. I was repeatedly exposed to details about it as part of my job (for example, paramedic, police, military, or other first responder

e. Other, please describe:

4. Was someone's life in danger?

a. *Yes, my life*

b. Yes, someone else's life

c. No

5. Was someone seriously injured or killed?

a. *Yes, I was seriously injured*

b. Yes, someone else was seriously injured or killed

c. No

6. Did it involve sexual violence? Yes No

7. If the event involved the death of a close family member or close friend, was it due to some kind of accident or violence, or was it due to natural causes?

a. Accident or violence

b. Natural causes

c. Not applicable (The event did not involve the death of a close family member or close friend)

8. How many times altogether have you experienced a similar event as stressful or nearly as stressful as the worst event?

a. Just once

b. More than once (please specify or estimate the total # of times you have had this experience)

9. On a scale of 1 to 10, 1 being not central at all and 10 being very central:

	Not Central								Very Central	
	1	2	3	4	5	6	7	8	9	10
How central is this worst event to who you are today?										
How central is this worst event to how you think about the world around you?										

Centrality of Events Scale

Please think back upon the most stressful or traumatic event in your life and answer the following questions in an honest and sincere way, by circling a number from 1 to 5.

1. This event has become a reference point for the way I understand new experiences.

totally disagree 1 2 3 4 5 totally agree

2. I automatically see connections and similarities between this event and experiences in my present life.

totally disagree 1 2 3 4 5 totally agree

* 3. I feel that this event has become part of my identity.

totally disagree 1 2 3 4 5 totally agree

4. This event can be seen as a symbol or mark of important themes in my life.

totally disagree 1 2 3 4 5 totally agree

5. This event is making my life different from the life of most other people.

totally disagree 1 2 3 4 5 totally agree

* 6. This event has become a reference point for the way I understand myself and the world.

totally disagree 1 2 3 4 5 totally agree

7. I believe that people who haven't experienced this type of event think differently than I do.

totally disagree 1 2 3 4 5 totally agree

8. This event tells a lot about who I am.

totally disagree 1 2 3 4 5 totally agree

9. I often see connections and similarities between this event and my current relationships with other people.

totally disagree 1 2 3 4 5 totally agree

*10. I feel that this event has become a central part of my life story.

totally disagree 1 2 3 4 5 totally agree

11. I believe that people who haven't experienced this type of event, have a different way of looking upon themselves than I have.

totally disagree 1 2 3 4 5 totally agree

*12. This event has colored the way I think and feel about other experiences.

totally disagree 1 2 3 4 5 totally agree

13. This event has become a reference point for the way I look upon my future.

totally disagree 1 2 3 4 5 totally agree

14. If I were to weave a carpet of my life, this event would be in the middle with threads going out to many other experiences.

totally disagree 1 2 3 4 5 totally agree

15. My life story can be divided into two main chapters: one is before and one is after this event happened.

totally disagree 1 2 3 4 5 totally agree

*16. This event permanently changed my life.

totally disagree 1 2 3 4 5 totally agree

*17. I often think about the effects this event will have on my future.

totally disagree 1 2 3 4 5 totally agree

*18. This event was a turning point in my life.

totally disagree 1 2 3 4 5 totally agree

19. If this event had not happened to me, I would be a different person today.

totally disagree 1 2 3 4 5 totally agree

20. When I reflect upon my future, I often think back to this event.

totally disagree 1 2 3 4 5 totally agree

PCL-5

Below is a list of problems that people sometimes have in response to a very stressful experience. Please think about the event(s) you mentioned previously and read each problem carefully and then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

	In the past month, how much were you bothered by:	**Not at all**	**A little bit**	**Moderately**	**Quite a bit**	**Extremely**
1.	Repeated, disturbing memories, and unwanted memories of the stressful experience?	0	1	2	3	4
2.	Repeated, disturbing dreams of the stressful experience?	0	1	2	3	4
3.	Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?	0	1	2	3	4
4.	Feeling very upset when something reminded you of the stressful experience?	0	1	2	3	4
5.	Having strong physical reactions when something when something reminded you of a stressful experience (e.g., heart pounding, trouble breathing, or sweating)?	0	1	2	3	4
6.	Avoiding memories, thoughts, or feelings related to the stressful experience?	0	1	2	3	4
7.	Avoiding external reminders of the stressful experiences (for example, people, places, conversations, activities, objects, or situations)?	0	1	2	3	4
8.	Trouble remembering important parts of the stressful experience?	0	1	2	3	4
9.	Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world id completely dangerous)?	0	1	2	3	4

10.	Blaming yourself or someone else for the stressful experience or what happened after it?	0	1	2	3	4
11.	Having strong negative feelings such as fear, horror, anger, guilt, or shame?	0	1	2	3	4
12.	Loss of interest in activities that you used to enjoy?					
13.	Feeling distant or cut off from other people?	0	1	2	3	4
14.	Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?	0	1	2	3	4
15.	Irritable behavior, angry outbursts, or acting aggressively?	0	1	2	3	4
16.	Taking too many risks or doing things that could cause you harm?	0	1	2	3	4
17.	Being “superalert” or watchful or on guard?	0	1	2	3	4
18.	Feeling jumpy or easily startled?	0	1	2	3	4
19.	Having difficulty concentrating?	0	1	2	3	4
20.	Trouble falling or staying asleep?	0	1	2	3	4

Identity Questions

1. For this question we are going to ask you about who you are as a person.

We know that people's sense of self is driven by the many different social roles that they do regularly. In other words, your overall sense of self is made up a a bunch of different "**identities**" that you do regularly as a part of your daily life.

Thus your identity consists of the social roles, jobs, obligations, activities, hobbies, or responsibilities that are a part of your normal life. When considered together, these make up the whole of who you are.

Examples of these "identities" are: mother, artist, teacher, gardener, firefighter, homeowner, volunteer at the local humane society, antique collector, former U.S. Marine, caretaker, amateur chef, hunter, sister, etc. Please note, we are NOT asking about your qualities/traits/personality such as being outgoing, kind, lazy, independent, ambitious, quiet, impatient, etc.

There are up to 10 spaces below for you to list the "identities" that make up the person you are **TODAY** after your experience of the most distressing trauma you listed above. Please use as many or as few of the spaces.

Also rate on a scale from 1-10 **how much do you believe you are able to fulfil the expectations and roles associated with this identity since the traumatic event occurred**

1	2	3	4	5	6	7	8	9	10
Don't believe at all				Somewhat believe					Completely believe

	List the identities that make up who you are as a person	Believe you are able to fulfil the expectations and roles associated with this identity (1-10)	Rank in order to importance to self
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

2. In the column on the left you will find the list of roles that you just provided.

a. Please rate how rate how **important** each "identity" is to your sense of self today in the present.

b. Please rate how much each of these "identities" are **impacted** by the trauma today.

c. Please rate how much **satisfaction** this identity provides to you now (since the trauma)

d. Please rate how much **fulfillment** this identity provides to you now (since the trauma)

Please use the following scale for your responses:

1 2 3 4 5 6 7 8 9 10
Not at all Completely
or barely to the utmost degree

Identities	**How <u>important</u> today? (1-10)**	**How <u>impacted</u> today (1-10)**	**How much <u>satisfaction</u> today (1-10)**	**How much <u>fulfillment</u> today (1-10)**
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

3. In looking at the list of "identities" that you just provide **and** thinking about how you or your circumstances have changed since you experienced the trauma.
Please rate each of your "identities" has become <u>more</u> important, <u>less</u> important, or a <u>new</u> part of who you are today since the traumatic event.

Identities	**More Important**	**Less Important**	**New**
1			
2			
3			
4			
5			

6			
7			
8			
9			
10			

4**.** In the column on the left you will find the list of roles that you just provided.

a. Please enter how many people you interact with on a regular basis while embodying this role

For the rest of the question, using the following scale

1 2 3 4 5 6 7 8 9 10
None at all Always

b. How much **interaction** are you having with others associated with this identity

c. How much are you **avoiding people** associated with this identity

d. How much are you **avoiding activities** associated with this identity

e. How much **positive support** do you believe you are receiving from others when you are interacting with others who are linked to this identity or when you are preforming activities associated with this identity

f. How much **negative support** do you believe you are receiving from others when you are interacting with others who are linked to this identity or when you are preforming activities associated with this identity

Identities	**Number of People**	**Interaction (1-10)**	**Avoidance of people (1-10)**	**Avoidance of activities (1-10)**	**Positive Support (1-10)**	**Negative Support (1-10)**
1						
2						
3						
4						
5						
6						

7						
8						
9						
10						

5. For this last question about who you are as a person, please list any "identities" that are not a part of who you are as a person anymore because of the trauma or the immediate consequences of the trauma.

Please use as many or as few of the spaces provided as you need.

Identities that are not a part of who you are as a person anymore because of the trauma

6. You may have noted changes in the degree certain identities were important to you before your trauma compared to after your trauma. The following questions assess how much effort you have placed to maintain your sense of self or to maintain identities that were important to you before the trauma

Some of the questions use the word "enactment of/enacting an identity". This refers to when you embody, perform, or express this identity and engage in the roles and expectations related to the identity.

1. Some people may support you while you engage in any of the identities who make up who you are, while others may not be supportive. How much does remembering support from the ones who offer support help you when interacting with people who are not supportive?

1 2 3 4 5 6 7
Doesn't help at all Somewhat helpful Very helpful

2. How likely are you to pay attention to responses from people who support and confirm the different parts of your identity?

1 2 3 4 5 6 7

Not Likely at all Somewhat Likely Very Likely

3. How likely are you to dismiss others who provide responses that are challenging to your enactment of that identity?

1 2 3 4 5 6 7
Not Likely at all Somewhat Likely Very Likely

4. How likely are you to defend how you fulfill an identity by reasoning away or positively interpreting negative feedback from others about how you have enacted that identity?

1 2 3 4 5 6 7
Not Likely at all Somewhat Likely Very Likely

5. If you receive negative feedback when enacting an identity, how much do you avoid the people or situations where you got the negative feedback?

1 2 3 4 5 6 7
Not at all Somewhat Always

6. If you receive negative feedback when enacting an identity, how much do you then seek situations where positive feedback for this identity would be guaranteed?

1 2 3 4 5 6 7
Not at all Somewhat Always

7. During the times that you did receive negative feedback or didn't get positive reinforcement when enacting an identity, how likely are you to switch to a new identity where you will receive positive feedback/reinforcement from others?

1 2 3 4 5 6 7
Not Likely at all Somewhat Likely Very Likely

8. How likely are you to blame others when you don't get positive reinforcement when enacting an identity that you thought you would receive or would like to receive?

1 2 3 4 5 6 7
Not Likely at all Somewhat Likely Very Likely

9. When your enactment of an identity does not go as well as you wanted it to, how likely are you to think that the problem was with that specific performance and not because you are no longer able to enact the identity?

1 2 3 4 5 6 7
Not Likely at all Somewhat Likely Very Likely

10. How likely are you to reject others when they withhold support for an identity you are trying to enact?

1 2 3 4 5 6 7
Not Likely at all Somewhat Likely Very Likely

DASS

Please read each statement and indicate how much the statement applied to you over the past month.
There are no right or wrong answers. Do not spend too much time on any statement.
The rating scale is as follow: (0) Did not apply to me at all (1) Applied to me to some degree, or some of the time (2) Applied to me to a considerable degree or a good part of time (3) Applied to me very much, or most of the time

1. I found it hard to wind down

0 1 2 3

2. I was aware of dryness of my mouth

0 1 2 3

3. I couldn't seem to experience any positive feeling at all

0 1 2 3

4. I experienced breathing difficulty (eg. Excessively rapid breathing, breathlessness in the absence of physical exertion)

0 1 2 3

5. I found it difficult to work up the initiative to do things

0 1 2 3

6. I tend to over-react to situations

0 1 2 3

7. I experienced trembling (eg. in the hands)

0 1 2 3

8. I felt that I was using a lot of nervous energy

0 1 2 3

9. I was worried about situations in which I might panic and make a fool of myself

0 1 2 3

10. I felt that I had nothing to look forward to

0 1 2 3

11. I found myself getting agitated

0 1 2 3

12. I found it difficult to relax

0 1 2 3

13. I felt down-hearted and blue

0 1 2 3

14. I was intolerant of anything that kept me from getting on with what I was doing

0 1 2 3

15. I felt I was close to panic

0 1 2 3

16. I was unable to become enthusiastic about anything

0 1 2 3

17. I felt I wasn't worth much as a person

0 1 2 3

18. I felt that I was rather touchy

0 1 2 3

19. I was aware of the action of my heart in the absence of physical exertion (eg. Sense of heart rate increase, heart missing a beat)

0 1 2 3

20. I felt scared without any good reason

0 1 2 3

21. I felt that life was meaningless

0 1 2 3

Inventory of Psychosocial Functioning- Brief Version

Overall, in the past 30 days	**Not at all**	**Somewhat**					**Very much**	**N/A**
1. I had trouble in my romantic relationship with my spouse or partner	0	1	2	3	4	5	6	7
2. I had trouble in my relationship with my children	0	1	2	3	4	5	6	7
3. I had trouble with my family relationships	0	1	2	3	4	5	6	7
4. I had trouble with my friendships and socializing	0	1	2	3	4	5	6	7
5. I had trouble at work	0	1	2	3	4	5	6	7
6. I had trouble with my training and education	0	1	2	3	4	5	6	7
7. I had trouble with day-to-day activities, such as doing household chores, running errands, and managing my medical care	0	1	2	3	4	5	6	7

1. Please rate your level of satisfaction right now on the following scales:

Good - Bad
Strong - Weak
Active - Passive

2. Please rate your sense of self-control on the following scales:

Good - Bad
Strong - Weak
Active - Passive

3. Please rate your level of support of others on the following scales:

Good - Bad
Strong - Weak
Active - Passive

4. Please rate the level of understanding you believe others have of who you are

Good - Bad
Strong - Weak
Active - Passive

Questions related to COVI-19

1. On a scale from 0 to 10, how stressed are you **today**?

0 1 2 3 4 5 6 7 8 9 10

Not stressed at all Somewhat stressed Very stressed

2. On a scale from 0 to 10, how much of this stress was linked to COVID-19?

0 1 2 3 4 5 6 7 8 9 10

None Somewhat linked All due to COVID-19

3. On a scale from 0 to 10, how stressful have the **past few months** been?

0 1 2 3 4 5 6 7 8 9 10

Not stressed at all Somewhat stressed Very stressed

4. On a scale from 0 to 10, how much of this stress was linked to COVID-19?

0 1 2 3 4 5 6 7 8 9 10

None Somewhat linked All due to COVID-19