Trauma Centrality and Interoceptive Awareness as Predictors of PTSD Symptomology While Controlling for Characteristics of Trauma in Lebanon

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A Thesis submitted to the Faculty of Social and Behavioral Sciences in partial fulfillment of the requirements for the Master of Art in Psychology – Emphasis: Clinical Psychology at Haigazian University.

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DEDICATION

This dissertation is dedicated to all survivors of trauma, specifically for the Lebanese population who have endured unbearable events.

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"The roots of resilience are to be found in the experience of knowing we exist in the mind and heart of an empathic attuned self-possessed other"

Diana Fosha

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Abstract

Traumatic events produce profound changes in cognition, physiological arousal, memory, and emotions and divide these integrated functions from one another. In the current study, the cognitive and somatic disturbances were investigated through the lenses of trauma centrality and interoceptive awareness. This study proposed that trauma centrality and interoceptive awareness predicted PTSD symptomology while controlling for the type and number of traumas. This study was novel in studying the direct relationship between interoceptive awareness and PTSD, especially with trauma focused therapy shifting towards including more somatic ingredients.

Using convenient sampling, this study recruited 554 participants residing in Lebanon for the past 3 years to complete an online survey. The study used four instruments: Post-traumatic Stress Disorder Checklist (PCL-5), Centrality of Events Scale (CES), The Trauma History Screen (THS), and Multidimensional Assessment of Interoceptive Awareness Version 2 (MAIA-2). The study hypothesized that 1) Trauma Centrality is a positive predictor of PTSD severity while controlling for type and number of traumas and 2) Interoceptive Awareness is a negative predictor of PTSD severity while controlling for type and number of traumas. The statistical analysis showed support for both hypotheses. Hence, when controlling for the number and type of traumas, trauma centrality was shown to be positive significant predictor of PTSD symptomology while interoceptive awareness was shown to be negative significant predictor of PTSD symptomology. These findings provided an opportunity to shift clinicians' focus from traumatic event narration to investigating the effect of the traumatic experiences in one's cognition and somatic sensation. Targeting trauma centrality and interoceptive awareness in the treatment plan seemed to be vital for healing.

Keywords: interoceptive awareness, trauma centrality, posttraumatic stress disorder, somatic experiencing, trauma focused therapy.

Trauma Centrality and Interoception Awareness as Predictors of PTSD Symptomology While Controlling for Characteristics of Trauma in Lebanon

Almost everyone will experience a traumatic event in their lives, yet not everyone will develop post-traumatic stress disorder (PTSD). Unlike most Diagnostic and Statistical Manual of Mental Disorder Edition 5 (DSM-5) disorders, the occurrence of an external event is required for a PTSD diagnosis (American Psychiatric Association [APA], 2000). The exposure to a potentially traumatic event such as sexual assault, car accident, combat and so serves as the gatekeeper for the diagnosis and is presumed to be the root cause of the symptoms. Accordingly, research has focused primarily on studies that showed association between trauma characteristics (number of traumas and type of trauma) and the incidence and symptomology of PTSD (Janoff-Bulman, 1989; Jakob et al., 2017, & Graham et al., 2016). Studies have shown that a higher number of lifetime traumas was more likely to lead to severe PTSD symptoms (Jakob et al, 2017, Bernard et al, 2015). For instance, Janoff-Bulman (1989) claimed that interpersonal traumas (traumas induced by others) are more severe compared to accidental traumas (traumas caused by nature). Specifically, sexual abuse has been shown to be more destructive than any other trauma-type (Lancaster, Melka, & Rodriguez, 2009). The psychological flexibility becomes shattered more drastically with interpersonal traumas leading to several trauma responses such as chronic emptiness, excessive people pleasing behaviors and craving control. Thus, several studies have concluded that high number of life traumas and interpersonal traumas are significantly positively correlated with PTSD symptomology (Janoff-Bulman, 1989; Jakob et al., 2017; Graham et al., 2016; Lancaster et al., 2009).

Despite the prominence on event exposure, the initial psychological response following a traumatic event is not essentially pathological. Rather, the symptoms of PTSD are defined not

only by their "existence but also by their persistence over time" (APA, 2000). Accordingly, since 2006, the literature shifted from studying the impact of the characteristics of trauma (number of trauma and type of trauma) on PTSD, to studying the influence of how trauma is integrated into one's own identity, i.e., trauma centrality on PTSD incidence and symptomology. Berntsen and Rubin (2006 & 2007) defined trauma centrality as the extent to which the traumatic event is central to one's identity, life narrative, and everyday life. They also added that people who perceive trauma as a central component of their own narrative tend to experience high levels of distorted self-perceptions at the cognitive level. Bernsten and Rubin (2007) found that trauma centrality is positively associated with PTSD symptomology. Robinaugh and McNally (2011) also showed that trauma centrality predicted PTSD symptoms while controlling for demographic variables and psychological constructs such as depression and anxiety. Bernard (2015) found that trauma centrality predicted PTSD even after controlling for number of traumas. These findings suggest that trauma centrality is an independent predictor for PTSD symptomology.

Recently, trauma focused psychotherapy has shifted from focusing on cognitive reconstruction, trauma narration, and behavioral interventions into including more emphasis on the somatic experience of trauma (Fogel, 2013; Langmuir et al., 2012; Mehling et al., 2012; Ogden et al., 2006). Body-oriented therapeutic models emphasize the significance of therapeutic change through a bottom-up pathway; suggesting that a change in how individuals register and interpret bodily sensations and movements leads to change in how these individuals process their emotions, thoughts about themselves and behavior. Various research has shown that interventions focused on increasing body-awareness and integrating body sensation with perception and cognition resulted in major improvement in psychological well-being (Langmuir et al., 2012; Malmgren-Olsson et al., 2001; Price et al., 2012). In 2018, Mehling defined

interoceptive awareness as the “as the process by which the nervous system senses, interprets, and integrates signals originating from within the body, providing a moment-by-moment mapping of the body's internal landscape across conscious level. Following traumatic events, many survivors struggle with interoceptive awareness, specifically emotional awareness, and regulation. Neuroimaging studies have shown that individuals with PTSD have altered interoceptive processing (Lanius et al., 2015; Nicholson et al., 2016). Another study by Shaan et al. (2019) found that childhood trauma was negatively associated with interoceptive awareness later in young adulthood. Another study on veterans found that mindful awareness of the bodily sensations leads to reduced mental rumination which, in turn, resulted in reduced hyperarousal and, consequently, lower PTSD symptoms (Colgan et al., 2017). These studies are limited as they lack accurate measurements of interoceptive awareness, and their sample sizes are small. As such, additional studies are needed to address the gap in the literature regarding the relationship between interoceptive awareness, trauma centrality and PTSD symptomology.

Recent literature also documents how trauma alters the interoceptive processing of individuals (Lanius et al., 2015; Nicholson et al., 2016; Shaan et al., 2019). Moreover, intervention research depicts how increasing interoceptive awareness led to a decrease in PTSD symptoms (Nukrich et al., 2019). Such intervention studies are limited in number, use inaccurate measurement of interoceptive awareness, and recruit small samples. This study will be a conceptual replica of the study done by Bernad et al. (2015) which showed that trauma centrality predicted PTSD symptomology while controlling for the number of traumas. However, this study will add two new variables: Interoceptive awareness as a second predictor and type of trauma as a controlling variable. Also, the target population will be different in which the study’s sample

will include individuals from the general Lebanese population instead of only university students.

Throughout multiple generations, Lebanese individuals have endured continuous exposure to traumatic events. El Hajj (2020) describes the experience of Lebanese citizens as an "ongoing collective trauma", which holds distinctive features from the trauma described in the Diagnostic and Statistical Manual of Mental Disorder Edition 5 (DSM-5). Trauma, as described by the DSM-5 is a sudden, disruptive, and unexpected event modulating the daily living of people, an event such as a natural disaster. However, for the past three years in specific, Lebanese citizens have endured a severe economic crisis, the Covid Pandemic, the Beirut blast, ongoing protests, and severe political chaos. At the same time, Lebanese citizens are still subjected to their own personal traumatic events such as a death of a loved one, or a diagnosis of terminal illness or sexual abuse in addition to living with the above-mentioned stressors pertinent to Lebanon. As such, it is crucial to study predictors of PTSD in a population that is living in a stressful environment while battling with daily traumatic events and stressors.

Rationale

Based on El Hajj's literature review (2021), Lebanese people have an increasing risk for developing PTSD as they have been exposed to collective, ongoing, and recurrent traumatic events. Moreover, studies on PTSD in Lebanon are limited to few studies with small samples pertaining to specific groups (not the general population). While previous literature has widely documented the relations between trauma characteristics (number and type of trauma) and the incidence and symptomology of PTSD (Janoff-Bulman, 1989; Jakob et al., 2017; Graham et al., 2016), studies recently has been moving from studying the effects of trauma characteristics on PTSD towards investigating how trauma is assimilated in one's identity (trauma centrality) and

its effects on PTSD (Brensten & Rubin, 2006, 2007; Bernard et al., 2015; Robinaugh & McNally, 2011). Bernard et al. (2015) also documented that trauma centrality has a wider influence on PTSD than the mere characteristics of the traumatic event. Recent literature also documented how trauma alters the interoceptive processing of individuals (Laniuset al., 2015; Nicholson et al., 2016, and Shaan et al., 2019). Moreover, intervention research depicted how increasing interoceptive awareness led to a decrease in PTSD symptoms (Nukrich et al., 2019). However, such intervention studies are limited in number, use inaccurate measurement of interoceptive awareness, and recruit small samples. There is no study that showed any direct relationship between interoceptive awareness and PTSD. As such, the current study has two main objectives:

1. To conceptually replicate and build on the study done by Bernard et al., (2015) showing trauma centrality as a predictor for PTSD while controlling for number of traumas, by adding type of trauma as a second controlling variable. The purpose of replication is further discovery, exploration while assuming the validity of the study.
2. To fill the gap in the literature by studying the direct relationship between interoceptive awareness and PTSD symptomology.

Significance

This study aimed to uncover the influence of trauma centrality and interoceptive awareness on PTSD while controlling for trauma characteristics (number and type of trauma). The weight of this study is that it filled the gaps in the literature, as mentioned in the rationale section. Bernard et al. (2015)'s study revealed that trauma centrality predicted PTSD, while controlling for number of traumas. However, it did not establish a relation between trauma centrality and PTSD while controlling for the type of trauma, which is also an important

characteristic of trauma as depicted in the literature and may therefore influence the reported findings. Moreover, Mehling et al. (2012) found that interventions such as yoga or mindfulness that improve interoceptive awareness also decrease PTSD symptomology without studying the direct relation between interoceptive awareness and PTSD. Qualitative studies with small sample sizes by Neukrich et al. (2007) and Colgan et al. (2017) revealed that improved interoceptive awareness is associated with improvement in PTSD symptomology. This study is the first study to investigate effect of trauma centrality on PTSD while controlling for two characteristics of trauma (type and number of trauma). This study is also the first study to investigate the relation between interoceptive awareness and PTSD quantitatively in a large sample. In other words, this study sheds light on the importance of studying how the cognitive integration of trauma in the mind (trauma centrality) and somatic assimilation of trauma in the body (interoceptive awareness) influence the incidence and symptomology of PTSD.

On the other hand, most of the research in Lebanon on PTSD evaluates the prevalence and predictors of PTSD in specific groups, such as Lebanese residing in the south or adolescence, and not the general population. As such, this study would be the first to evaluate the predictors of PTSD symptomology from both cognitive and somatic perspectives in the Lebanese general population.

Currently, cognitive behavior therapy (CBT) is the first line evidence-based treatment for PTSD. However, traditional CBT rarely emphasizes on the effect of trauma on the body. Therefore, the findings of this study shed light on whether somatic perspectives are predictors of PTSD symptomology. This contributes to techniques tailored for the treatment of PTSD, such as somatic experiencing techniques and mindfulness. Finally, the examination of predictors of

PTSD in Lebanon also has sound implications on developing community-interventions catered for Lebanese people who are exposed to recurrent, ongoing, traumas.

Chapter 2

Literature Review

The purpose of this chapter is to gain an understanding of the existing research that is relevant to our study to formulate the needed hypotheses.

Lebanese Context

On the 4th of August 2020, 2750, tons of ammonium nitrate that were stored at the port of Beirut exploded. Hundreds of people were killed, thousands were injured and hundred thousand were displaced from their own homes (Cheaito & Al-Hajj, 2020). The explosion occurred at 6.07 pm, at the end of a working day, when friends and families usually reunite at home. This explosion shattered the most basic sense of trust and safety by violating people's safest spaces. Action-oriented behaviors have been observed as the aftermath of the port explosions. Hundreds of volunteers provided help in clearing debris, covering broken windows and doors, offering food, water, and shelter (An-Nahar, 2022). Post-Beirut explosion, Embrace, a national non-governmental organization, collected data through the national suicide prevention and emotional support lifeline from 903 individuals. Eighty-three percent of those individuals reported loss of pleasure in the things they used to love accompanied with a feeling of sadness almost every day. Seventy-eight percent reported being worried and anxious every day, and more than eighty-four percent felt hyper-aroused and sensitive to loud noises. Even more than one month after the Blast, fifty-five percent of people reported feeling very sad and forty-six percent reported being anxious almost every day (Embrace, 2020).

Moreover, in the past two years, Lebanon has been suffering from economic crisis and a health pandemic. Today, Lebanon is the third highest in-debt country in the world due to decades of corruption (Bsoqui, 2020). In February 2020, the first COVID-19 positive patient was

diagnosed. Few weeks later, the Lebanese government introduced quarantine measures by shutting down universities, schools, restaurants, cinemas, shops, and parks (Bsoqui, 2020). Many residents went through a life-threatening hardship due to the inability of daily works to earn money and the sharp devaluation of the Lebanese lira (Devi, 2020). A cross-sectional study sampling 502 participants using the snowball sampling method was carried out online by Salameh et al. (2020) and revealed that the combined presence of financial hardship and pandemic-related fears increased anxiety and stress more than the impact of each hardship independently (Salameh et al., 2020).

Aside from social justice that is needed to alleviate Lebanese pain, these on-going traumas and stressors mandate that researchers focus more on understanding the differences between one-time traumas and ongoing cumulative traumas. This also necessitates clinicians to work on developing collective therapy approaches, and hopefully it will urge the government and other NGOS to address collective ongoing traumas in addition to ongoing life stressors through their services.

Trauma and Posttraumatic Stress Disorder

Psychological trauma is a condition of powerlessness. The ordinary systems of care that give people a sense of control, meaning and connection become overwhelmed by the traumatic event, resulting in survivor's rendered helplessness. Traumatic events generally involve a personal encounter with violence, deaths and threats to life or body integrity. According to Judith Herman (2015, pp.34), "The ordinary human response to danger is a complex, integrated system of reactions encompassing both body and mind." The sympathetic nervous system gets aroused which causes the person to go into a state of alerted perception. This state mobilizes the threatened person in fight, flight or freeze state. Traumatic reactions occur when neither escape

nor resistance is possible, and the individual remains in an alerted state long after the actual danger is over. Traumatic events produce profound changes in cognition, physiological arousal, memory, and emotions, and divide these integrated functions from one another. For instance, a traumatized person may recall every detail of a traumatic event without emotion or may become vigilant without knowing why. This fragmentation leads to a state of disconnection from one's own thoughts, emotions, and body sensations (Herman, 2015).

Cognitive and somatic disturbances to the sense of self are thought to reflect the effect of traumatic events. Cognitively, negative core beliefs about oneself such as "I feel like an object", "I will never be able to feel normal again", "I don't know myself", or even "I am damaged beyond repair", are commonly experienced (Cox et al., 2014, pp 302). Somatically, traumatic experiences through physical representations such as general fatigue, lower back pain, muscle ache, palpitation and increased perspiration are common manifestations of traumatic experiences (Graham et al., 2019). In addition, trauma survivors often report somatically based alterations in relation to self-experience such as feeling disembodiment reported like "I feel dead inside", "I feel as if I am outside my body", "I feel like my body does not belong to me" or "I feel like there is no boundary around my body" (Frewen & Lanius, 2015, pp 27). In the current study, cognitive and somatic disturbances were further explored through the lens of trauma centrality and interoceptive awareness.

Posttraumatic Stress disorder (PTSD) is a syndrome that results from exposure to a traumatic event. Hyper-arousal and hypo-arousal are the two-response patterns in which trauma symptomology tends to be expressed (Levine, 2010; Schore, 2001). Individuals are likely to experience both patterns of response; however, one pattern might be more emphasized. With hyper-arousal, over activation of the sympathetic nervous system occurs, leading to an increase

in stress hormones, hypervigilance, high muscle tone, increased heart rate and increased respiration (Schore, 2001). Individuals with PTSD may over interpret these physical sensations as cues of danger and lack of safety (Levine, 2010). With hypo-arousal, the parasympathetic nervous system is over activated, leading to feeling numb, lack of concentration, passivity and feeling disconnected from oneself (Porges, 2001; Ogden et al., 2006). These disturbances cause significant distress and functional impairment in occupational and social aspects of life. It is important to note that 90 % of all Americans have experienced at least one traumatic event in their lifetime. However, the lifetime prevalence rate of PTSD is 6.8% lifetime (National Institute of Mental Health; NIMH, 2017). Not every person who has experienced a traumatic event will have PTSD, and several studies have shown that it is not the trauma that predicts PTSD, but rather it is how an individual interprets the traumatic event (Bell et al., 2019).

The stress response theory (Horowitz, 1976, 1986) is considered one of the earliest and most influential theories of PTSD. According to Horowitz, after having a profound realization that the trauma had happened, individuals try to integrate that realization with what they already know. The experience of being unable to integrate the trauma experience and feeling psychologically overwhelmed results in the symptoms of PTSD (1986). Individuals alternate between psychological defense mechanisms of intrusions and denial to cope with this psychological conundrum. Denial aids in preventing the individual from becoming overwhelmed while intrusions aid in gradually completing the integration process. Intrusions are marked by heightened emotions and re-experiencing, whereas denial is marked by avoidance and numbing to minimize the strong reactions triggered by the intrusion phase. Individuals are assumed to alternate between these two states to process trauma information, with increased integration resulting in a decrease in the intensity of states until resolution occurs. Failure to

process or integrate trauma information adequately results in the persistence of PTSD symptoms. Moreover, according to basic diathesis stress models, a stressful experience will convey many forms of psychopathology if there is an underlying vulnerability (Hertenstein et al, 2011). The question then arises, since the Lebanese context can be considered as an underlying vulnerability, what are the specific predictors for PTSD symptoms in Lebanon.

Type and Number of Traumas

Traumatic events or experiences that provoke trauma reactions can occur at any point in a person's life. Examples of trauma or a traumatic event include natural disasters, motor vehicle accidents or combat, but trauma can take many other forms. Interpersonal trauma is a subgroup of traumatic events that refers to experiences that include another person, typically a perpetrator. For instance, interpersonal trauma includes molestation, witnessing or experiencing a physical assault, rape or attempted sexual assault (Cougle et al., 2009).

Lancaster et al. (2009) examined the differential effects of interpersonal trauma, non-interpersonal trauma, and stressful life events on PTSD symptomology. The sample of the study included 688 college students enrolled in psychology courses at Midwestern University. The results of the study revealed that participants who experienced an interpersonal traumatic event had significantly higher levels of PTSD symptomology compared to those who experienced non-interpersonal traumatic events and compared to those who experienced stressful life events (Lancaster et al., 2009). Lancaster et al. (2009) explained the results by stating that interpersonal traumatic events, such as the loss of a significant romantic relationship, led to higher levels of psychological distress compared to non-interpersonal traumatic event (car accident) or more common life stressors. Jakob et al. (2017) also investigated the effects of trauma type and

number on PTSD severity in a sample of 2463 veterans at Midwestern Medical Center between 2006 and 2013. As part of a standard clinical intake process, veterans were assessed for PTSD symptomology through clinical interviews. The results of the study revealed that participants who had higher number of lifetime traumas were more likely to report severe PTSD symptomology. Moreover, the results revealed that veterans who experienced sexual trauma had higher levels of incidence of PTSD compared to those who experienced combat trauma and those who experienced other types of traumas (Jakob et al., 2017). In fact, sexual trauma was highly related to having more severe symptoms of PTSD when compared to all other types of traumas. Jakob et al. (2017) explained these findings by stating that sexual trauma had more pronounced clinical impact because veterans are usually equipped with internal and external resources to face and overcome combat traumas. However, veterans, based on their experienced masculine gender norms, are not equipped to deal with sexual trauma as it is unexpected in combat settings, and is, therefore, associated with high levels of fear of retaliation, shame, and secrecy. Graham et al. (2016) found that the number of experienced traumatic events and the type of trauma are associated with high incidence and symptomology of PTSD when controlling for age and sex in a sample of 78 veterans. They found that veterans exposed to civilian types of traumas had low levels of PTSD incidence and experienced less PTSD symptoms. Veterans exposed to combat trauma were, however, more likely to experience the following symptoms of PTSD: detachment, hostility from others and anhedonia. Finally, veterans who were exposed to sexual trauma were more likely to experience different set of symptoms of PTSD, such as sleep disturbances, concentration problems, in addition to detachment and hostility from others (Graham et al., 2016). Therefore, the number and type of trauma have shown to significantly predict the incidence and symptomology of PTSD.

Trauma Centrality

Trauma centrality, or event centrality, was first introduced by Brensten and Rubin in 2007. It is defined as the "extent to which a person believes an event or experiences to be a key component of their identity" (Berntsen & Rubin, 2007, pp. 419). There are three components that outline trauma centrality. First, the traumatic event becomes a lens in which an individual views everyday experiences and a reference for attributions about their world. Second, the memory of the traumatic experience is easily accessible and often re-experienced due to external and internal cues. Third, the individual will see the traumatic experience as a personal turning point and becomes a key component for one's identity (Berntsen & Rubin, 2007).

Brensten and Rubin (2007) conducted a study on 247 Danish psychology students. They administered the trauma centrality scale named Centrality of Event (CES), Post-traumatic stress disorder checklist (PCL) scale and Dissociate Experience scale (DES) to all participants. Of these 247 students, 129 were also given a scale to measure state and trait anxiety, and the remaining were given a scale measuring depression the Beck Depression Inventory (BDI). Results showed that trauma centrality was the only measure related to PTSD symptoms (Brensten & Rubin, 2007). Trauma centrality also showed a positive correlation with measures of state/trait anxiety and depression but showed a reliable association with PTSD symptoms independent of its correlation with the above measures (Brensten & Rubin, 2007). In other words, the results of the study revealed that participants who had higher levels of trauma centrality reported higher levels of PTSD symptomology while controlling for measures of depression, anxiety, and dissociation. Brensten and Rubin (2007) claimed that the findings of the study implied that reconstructing one's life story based on the trauma while making this narrative

superior to all other narratives makes the traumatic memory extremely central to one's understanding of personal past, current self and the expected future which is highly maladaptive.

In addition, Robinaugh and McNally (2011) also found that in a sample of 102 women with history of sexual abuse, trauma centrality predicted PTSD symptoms even after controlling for demographic variables, such as age, and intelligence and other psychological constructs, such as dissociation, depression, and self-esteem. Robinaugh and McNally (2011) explained the findings of their study by stating that people who experienced traumatic events and consider this event as a turning point in their life narrative, an integral part of their identity and a point of reference for building expectations about the future tend to experience greater levels of psychological distress such as PTSD symptomology.

Bernard et al. (2015) studied the association between trauma centrality and PTSD while controlling for number of traumatic events in a sample of two hundred fourteen university undergraduate students in America. The results of the study revealed that trauma exposure was significantly related to PTSD symptoms. The results also revealed that trauma centrality was associated with PTSD symptomology, even after controlling for the number of traumatic events. This indicated that the way traumatic events are incorporated into one's identity, has a larger influence on PTSD than the mere characteristics of the traumatic event. When traumatic events are integrated into one's cognitions and identity, there is high risk of frequent activation of these memories, which leads to negative self-appraisal, thus creating higher vulnerability to PTSD (Bernard et al., 2015). It is noteworthy, that Bernard et al. (2015)'s study found a significant relation between trauma centrality and PTSD while controlling for number of traumas but did not control for type of trauma which is also an important characteristic of trauma as depicted in the literature.

Interoceptive Awareness

The operationalization of interoceptive awareness has been disputed with various conflicted views (Tsakaris, et al 2016). Craig et al (2015) defined interoceptive awareness as the conscious sensation, perception and attunement to bodily signals, physiological condition, and emotional wellbeing. Previous studies on anxiety disorders described interoception as a cognitive attitude characterized by the amplification of the physiological symptoms and thereby commonly been viewed as maladaptive (Paulous & Stein, 2006). More recently, a more complex, multidimensional view of interoceptive awareness has emerged that distinguished the modes of attention such as thinking about the physical symptoms (appraising, interpretation, or rumination with fearful hypervigilance) to a state of presence in the body often labeled as mindfulness(Mehling, 2012). With so many different perspectives, this field has seen an interesting exchange and convergence of concepts and ideas in recent years. Therefore, several terms have been introduced to differentiate the above discrepancy in defining interoception. Interoceptive sensitivity, also known as interoceptive accuracy is defined as the attention on internal body sensation, which can be maladaptive in case of anxiety and panic disorder. Interoceptive awareness also recently known as interoceptive sensibility is defined “as the process by which the nervous system senses, interprets, and integrates signals originating from within the body, providing a moment-by-moment mapping of the body's internal landscape across conscious level (Forkman et al, 2016 &Mehling et, 2018). Interoceptive awareness can be measured through the Multidimensional Interoceptive Awareness Questionnaire which is built of eight subscales addressing all component of interoceptive awareness as Noticing; Not-Distracting; Not-Worrying; Attention Regulation; Emotional Awareness; Self-Regulation; Body Listening; and trusting. However, few studies have defined interoceptive awareness as the “metacognitive

awareness" of "interoceptive accuracy" however those studied have been criticized as reductionist and as missing the uniqueness of one's inner experience. (Garfinkel 2012 & Chesney et al, 2016). Therefore, this study will use the operational definition of Mehling et al (2018). As humans, we are an extremely resilient species. We have recovered from unending wars, countless natural and man-made disasters, and the betrayal and violence in our own lives. However, traumatic events leave traces with dark secrets being passed down from generation to generation invisibly, known as transgenerational traumas. They also leave imprints on our emotions, mind, our capacity for happiness and intimacy, as well as our immune and biology systems. Neuroscience research has revealed that trauma causes actual physiological changes, such as alteration in stress hormone activity, recalibration of the brain's alarm system, and changes in the systems that process relevant information from irrelevant information. Trauma, we now know, compromises the brain region that conveys the embodied sensation of being alive. These alterations explain why traumatized people become hypervigilant to threats at the expense of engaging in their daily lives spontaneously. They also aid in understanding why traumatized people frequently struggle with difficulties and fail to learn from experience. We now know that their actions are not due to moral failings, a lack of willpower, or a bad character—they are the result of actual brain changes. Individuals with PTSD, has the tendency to disconnect the self from the body and others (van der Kolk, 2014). These social problems may be related to traumas effect on the ability to recognize and regulate one's emotions (Sedeno et al., 2014). Interoceptive awareness contributes to the construction of an integrated sense of self which includes feeling of agency, presence, and body ownership (Garfinkel et al., 2016). Therefore, theoretically, improving interoceptive awareness might help elevate some symptoms of PTSD especially the trauma-related dissociative symptoms.

Consistently, neuroimaging research shows that the right posterior insula underpins the subjective experience of self-awareness and body-ownership. In consequence, if dissociation and disintegrated sense of self in patients with PTSD are associated with impairment of interoceptive awareness, it is possible patient with PTSD also present with deficits mapping body instinctive information, leading to an inadequate representation of their own body state (Seth et al, 2011)

This advancement in our understanding of the fundamental processes that underpin trauma has also paved the way for treating or even reversing the damage. We can now utilize techniques and approaches that take advantage of the brain's innate neuroplasticity to support survivors live in the present moment and move forward. There are 2 ways to do this: 1) using a top-down approach, such as in Cognitive Behavioral Therapy (CBT), whereby patients are encouraged to talk about their experiences and reconnect with the present reality, and 2) using a bottom up approach, by helping the body to feel safe again such as in contemporary mind-body interventions that viscerally contradict the feeling of helplessness, collapse, or rage, resulting from trauma. Examples on such interventions are mind-body practices, such as trauma-sensitive yoga, meditation, biofeedback, somatic experiencing, eye movement desensitization reprocessing (EMDR), and accelerated experiential psychodynamic therapy (AEDP). These interventions increase the individuals' awareness and perception of their internal experiences and help integrate thoughts, body sensations, and feelings, to enhance interoceptive awareness through accessing the medial prefrontal cortex. In fact, neuroscience research findings have shown that the medial prefrontal cortex is accessed consciously through interoceptive awareness (Terasawa et al, 2013).

Mehling et al. (2018) studied the influence of a 12-week integrative exercise (IE)

intervention incorporating resistance and aerobic resistance exercise with mindfulness-based approach and yoga in a sample of 47 veterans diagnosed with PTSD. Participants in this study were randomized into two groups (intervention group versus waiting list). The results of the study revealed that participants who received the integrative exercise intervention had significant improvement in PTSD intensity and quality of life, compared to those in the control group. Moreover, the results of the study revealed that integrative exercise resulted in improvement in participants' mindfulness, interoceptive awareness, and positive states of mind. It is important to note that this study did not directly investigate the association between improvements in interoceptive awareness and decrease in PTSD symptomology. Another study extended current research by investigating the role of interoceptive awareness and improved mental health outcomes, using a self-report measures and qualitative interviews of interoceptive awareness at baseline, during, and post a Trauma Sensitive Yoga intervention. Using a case series design on 3 participants, the outcome of an eight-week trauma sensitive yoga intervention was assessed. The results showed that participants experienced significant improvement in interoceptive awareness and significant decrease of PTSD symptoms. The findings of the study suggested that interoceptive awareness can serve as the mechanism behind the decrease in PTSD symptomology. However, these findings should be further explored through large scale studies.

A qualitative study was also done by Colgan et al, 2017 to explore and compare the subjective experiences of 102 veterans with PTSD. The participants were randomly assigned to four arms: slow breathing, mindful breathing, body scan, and sitting quietly while semi-structured interviews were conducted following the intervention. Six core themes emerged in the analysis of the participant's responses across the four groups: increased acceptance, decreased physiological arousal and stress reactivity, enhanced present moment awareness, non-reactivated

and increased coping skills, and increased realization. Results showed that participants in the mindfulness intervention (using mindful breathing and body scan techniques) showed significant decrease in PTSD symptoms when compared to participants in the non-mindfulness group intervention such as (using slow breathing and sitting quietly techniques). The authors then concluded the importance of including practices such as body scans that increase interoceptive awareness in the psychotherapeutic plan to treat PTSD symptomology

In conclusion, some traumas such as the ones resulting from sexual violence, physical violence, and accidents, involve violating a protective body boundary. As such, examining how traumatic events are connected to survivor's current experience of their body and bodily sensation is a vital research topic for two main reasons: emotions are embodied (we feel emotions with our body), and the body becomes a traumatic reminder. Deciphering bodily sensations could result in regulatory dysfunction. Trauma survivors often struggle with emotional awareness and regulation resulting in the deterioration of mental health outcomes. Due to the critical links between emotional awareness, regulation, and body awareness, it is vital to determine how trauma impacts survivors' body awareness and how this impact is connected to variations in PTSD symptoms. One of the vital functions of interoception awareness is to alert the individual that something within the body is off or has been triggered, which in turn, will require physiological self-regulation. This connection reinforces the need for the interoceptive system to develop prior to physiological self- regulation behaviors being taught and utilized.

It is also important to note, that the literature review accurately measuring interoceptive awareness has been limited because previously interoceptive awareness and interoceptive accuracy have been used interchangeably. Based on Mehling et al. (2012) study interventions that improve interoceptive awareness also decrease PTSD symptomology. Moreover, based on

two studies, improvement in interoceptive awareness is qualitatively associated with improvement in PTSD symptomology (Neukrich et al. 2007 & Colgan et al. 2017). As such, it is important to consider how interoceptive awareness is linked to PTSD symptomology in large sample sizes.

Hypotheses and Research Question

Based on the above literature review, the following two hypotheses were investigated:

H1: Trauma centrality is a positive predictor of PTSD severity while controlling for type and number of traumas experienced among a Lebanese sample.

H2: Interoceptive awareness is a negative predictor of PTSD severity while controlling for type and number of traumas experienced among a Lebanese sample.

Moreover, this study aimed to explore the relation between trauma centrality and interoceptive awareness. To my knowledge, based on the literature review conducted for this study, the relation between both variables was not explored in previous studies and thus the research question is not supported through empirical evidence. However, trauma informed psychotherapy recently shifted from focusing on event narration to focusing on the effect of the trauma on one's perception, and thus addressing one's trauma centrality (Fisher, 2017, p. 32). The new modalities used, such as mindfulness, work through enhancing interoceptive awareness to reduce cognitive distortion and thereby reduce trauma centrality. Hence, this study explored the following research question:

R1: What is the relationship between trauma centrality and interoceptive awareness?

Chapter 3

Methodology

This chapter presents the following: research design, participants, instruments, translation of scales, procedure, pilot study, ethical concerns, and data analysis.

Research Design

This was a quantitative, correlational, non-experimental research study that based on an online survey (developed using Psytoolkit). In this study, participants were asked to fill out a demographic sheet and four questionnaires, which measured the number and type of traumatic events, interoceptive awareness, trauma centrality, and PTSD.

Participants

The recruitment of participants was based on a non-random convenient sampling from the Lebanese general population. To be included in the study, participants had to be a Lebanese adult (18 years of age and older) residing in Lebanon for the past 3 years. The duration of residency in Lebanon was set at 3 years since it was important to recruit Lebanese participants who have witnessed recent traumatic events such as the Lebanese revolution in 2019 and the ongoing economic crisis. The exclusion criteria of the study included being a residing refugee in Lebanon, since refugee populations in Lebanon face different traumatic events related to their displacement and status in Lebanon. The announcement of the online survey was posted on various social media platforms (Instagram, Facebook, Twitter, and LinkedIn). The target sample of the study was calculated using G-power 3.1 assuming linear multiple regression statistical test, small to medium effect size f2=0.03, a power of 0.95, and a 5% probability of error (Faul,

Erdfelder, Buchner, and Lang, 2009). As such, the sample size of this study had to be 518 participants.

Instruments

The aim of the study was to investigate the predictive value of trauma centrality and interoceptive awareness on PTSD symptomology while controlling for the number and type of traumatic events. The study included an informed consent form, demographic sheet, and four scales that measure the following variables (number and type of traumatic events, trauma centrality, interoceptive awareness, and PTSD). It is important to note that the scales were translated and back translated to Arabic.

Demographic Sheet

The demographic sheet included questions pertaining to gender, age, educational level, work status, marital status, nationality, and years of residency in Lebanon which will be used as descriptive data only.

The Trauma History Screen (THS)

THS is authored by Carlson, Smith, Palmieri, Dalenberg, Ruzek, Kimerling, Burling, & Spain, D.A. (2011). This scale is a 14-item questionnaire that assesses the number and type of experienced traumatic events "stressful life events". Participants specify whether they have experienced various types of stressful and traumatic events such as physical or sexual assault, natural disasters, and death of a significant other, using yes/no question. Total scores for the THS were determined by adding up the frequency counts. The THS has good to excellent reliabilities, with kappa coefficients of agreement ranging from 0.61 to 0.77 (Carlson et al., 2011). The THS has high convergent validity as shown by high correlations between THS and Traumatic Life Events Questionnaire (TLEQ) scores for young adults ($r = 0.73$), adults ($r = 0.76$), and veterans

(r = 0.77); (Carlson et al., 2011).

Centrality of Events Scale short version (CES)

CES is authored by Brensten and Rubin (2006). This scale is composed of 7 items that measures how likely a given stressful event is integrated in one's personal identity and forms a reference point for the interpretation of other life experiences. The items of the scale are rated using a 5-point Likert scale, where a score of 1 is totally disagree, and a score of 5 is totally agree. A sample item of this scale is: "I feel that this event has become part of my identity." The scoring of this scale is done by summing up the scores on individual items. The validity of the CES scale was established by having positive and significant correlations with HADS depressive symptoms (r = .28) and HADS anxiety (r = .29). The CES scale also has excellent internal consistency with α = .93 (Bernsten % Rubin, 2006). Additionally, the CES scale has good construct and face validity. A factor analysis was done showing that CES is correlated to anxiety and depression scales and is significantly correlated with PTSD symptoms independent of the other scales (Berntsen & Rubin, 2007).

The Multidimensional Assessment of Interoceptive Awareness Version 2 (MAIA-2)

MAIA-2 iss authored by Mehling, Price, Daubenmier, Acree, Bartmess, and Stewart (2018). This scale is composed of 37 items and measures eight key constructs of interoceptive awareness; (1) Noticing: awareness of neutral, comfortable, and uncomfortable body sensations, (2) Non-Distracting: the inclination to distract oneself or ignore pain and discomfort sensations, (3) Not-worrying: feeling worry or emotional distress in the presence of pain or discomfort sensations, (4) Attention Regulation: being able to control and sustain attention to bodily sensations, (5) Emotional Awareness: being aware of the connection between emotional states

and bodily sensations, (6) Self-Regulation: being able of regulating bodily distress by being attentive to bodily sensations, (7) Body Listening: being an active listener to the body for insight and (8) Trusting: experiencing the body as a trustworthy and safe environment. Participants are asked to rate the 37 items using a 5-likert scale where (1) is never and (5) is always. A sample item of the interoceptive awareness scale is: "When I am caught up in my thoughts, I can calm my mind by focusing on my body/breathing". The scoring of the interoceptive awareness scale was done by averaging the items on items pertaining to each subscale. Being high on MAIA-2 is considered as an adaptive indicator The internal consistency of the subscales ranged between α = .66 and α = .83 as follows: "noticing: α□= .64; not-distracting: α□= .74; not-worrying: α□= .67; attention regulation: α□= .83; emotional awareness: α□= .79; self-regulation: α□= .79; body listening: α□= .80; trusting: α□= .83" (Mehling et al., 2018).The Cronbach alpha for the total score revealed strong internal consistency α = .92. Validation research through factor analysis and test-test reliability showed good contrast validity and acceptable temporal reliability (Machorrinho, 2018)

Post-traumatic Stress Disorder Checklist (PCL-5)

PCL-5 is authored by Weathers, Huska and Keane (1991). This scale is a 20-item self-reported questionnaire that assesses the symptoms of PTSD. Participants rate each item using a 5-point Likert scale where a score of "1" is not at all, and a score of 5 is "extremely", while indicating how much the given symptom has bothered them in the last month. An example item of this scale is "In the past month, how much were you bothered by blaming yourself or someone else for the stressful experience or what happened after it"? The scoring of the PCL-5 can be obtained using a total symptom severity score which can be deduced by summing the individual scores of the 20 items (range from 0 to 80). The PCL-5 has an excellent reliability with Cronbach

alpha (α = .94) and test re-test reliability with Cronbach alpha (α = .92; Orsillo, 2001). Validation research (Blevins, Weathers, Davis, Witte, & Domino, 2015) on this measure with college students shows robust convergent and discriminate validity.

Translation of scales

To translate the scales THS, CES and MAIA-2 to Arabic and back translate them to English, a committee consisting of three psychology students with a history in scales translation was created. The first student translated the scales from English to Arabic, the second student translated the scales from Arabic to English, and the third student compared the back translation and the original translation. Then the committee had a final meeting where they discussed all needed changes. Dr. Hanine Hout, my thesis advisor, and I reviewed the Arabic translation scales and the back translation scales with the original scales to determine any required changes. (Beaton et al, 2000).

Procedure

The study protocol was submitted to Haigazian Institutional Review Board for ethical approval and was approved on June 20th, 2022, of code HB.06.22. On September 6th, 2022, the researcher of the study posted the flyer of the study on the social media platforms (Facebook, Instagram, Twitter, and LinkedIn). The flyer included the following script: "If you are Lebanese, aged between 18 and 64, and residing in Lebanon for the past 3 years, you can be part of a research study on the predictors of PTSD in the Lebanese context". The flyer included the link to the Psytoolkit. Interested participants who pressed on the link of the study, were directed to the informed consent. The informed consent included information regarding the purpose of the study, methodology of recruitment, study procedure, risks, benefits, voluntary participation, privacy, confidentiality, and termination of participation. Participants who voluntarily agreed on

the informed consent were directed to complete the demographic sheet and the four scales trauma history screen (THS) Centrality of Events Scale (CES), The Multidimensional Assessment of Interoceptive Awareness (MAIA-2), and Post-Traumatic Stress Disorder Checklist (PCL-5), while using a counterbalancing technique. The end date of data collection was on October 9th, 2022. It is important to note that the scales were counterbalanced, using the Psytoolkit, to limit the carry-over and order effects.

Pilot study

The questionnaire was piloted with 30 participants reached through social media. The average time needed to complete the questionnaire was around 12 minutes. The participants reported no difficulty in answering the questions and well comprehension of all items.

Ethical Concerns

Prior to data collection, the researcher sought the approval of the SBS Ethics Committee at Haigazian University. Moreover, participants who were interested in the study were asked to read the informed consent. The informed consent included explicit information about the purpose of the study, methodology of recruitment, study procedure, risks, benefits, voluntary participation, privacy, confidentiality, and termination of participation. Participation in this study was voluntary, and participants were allowed to withdraw from the study at any time during the completion of the online survey. Furthermore, this study did not collect any identifying information from participants and the responses of participants were kept anonymous. The data of the study were stored on a password-protected file on the researcher's desktop and will be discarded after the period of five years. Finally, as part of the Psytoolkit participants were informed about Embrace's mental health services and contact details at the end of the study. It is

important to note that the Psytoolkit program did not allow participants to skip the questions related to the scales, which was presented as an ethical concern.

Data Analysis

The data collected from the Psytoolkit were entered into SPSS version 27. Before executing main data analysis, preliminary analysis was conducted to check for missing value analysis, reliability of scales and subscales, univariate and multivariate outliers, outliers in the solution, and influential cases. Following that, sample, and scale descriptive were provided using range, mean, and standard deviation for scale variables. Main analysis was conducted through Hierarchical linear regression using two blocks. The aim of this regression was to uncover the variance explained by trauma centrality and interoceptive awareness on PTSD while controlling for number and type of trauma.

Chapter 4

Results

The purpose of this quantitative study was to determine possible predictors of PTSD symptomology among a sample of Lebanese who have been residing in Lebanon for the past three years. A total of 554 participants participated and completed this study.

Missing Value Analysis

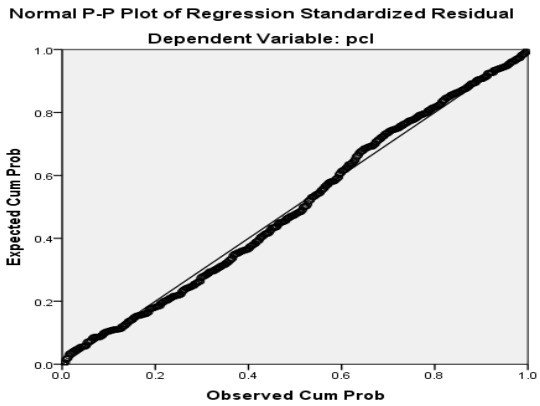
There were only two missing values in the gender item whim represent only 0.36% of the sample size. There were no missing values in any of the scales because the algorithm of the survey program used do not to accept any missing item in the scale. There were only two missing values on the gender that would represent only 0.36 % of the sample size.

Normality

The normality of the sample was investigated using the K-S normality test. Results were significant D (532) =.050, p = .003 suggesting that the data were not normally distributed. Since the sample size is large, we can assume that the sample of means is still normal. Hence, normality is not a pressing concern (Graph1).

Graph 1

Normal P-P Plot of Regression Standardized Residua



Sample Descriptive

The final sample size was 554 participants (22.9 % male, 76.5% females, 0.35% Queer, 0.17% transwoman, and 0.17% as other) who have been residing in Lebanon for the past three years continuously. The age of the participants ranged between 18 and 64, with most participants are between 18 and 28 years old (78.7%). In line with this, 243 participants reported to hold bachelor's degrees (43.9%), followed by 182 participants holding master's degrees (32.9%), 117 participants had high school degrees (21.1%), and 12 participants held PhD degrees (2.2%). For the purpose of the study, the 14 trauma categories were divided into two groups: non-Interpersonal trauma (NIT) and Interpersonal trauma (IT). The non-interpersonal trauma (NIT) group included exposure to natural disaster, life-threatening accident, witnessing serious accidents or death, loss of possessions, and having or witnessing other stressful accidents. The interpersonal trauma (IT) group included exposure to exposure to sexual abuse or harassment an adult or child, physical assault, threatened assault with a

weapon, abandonment by spouse, parent, or partner, death of family of a friend. Lastly, participants reported the following employment status (Graph2).

Graph 2

Employment status

Scale Descriptive

Table 1 below shows the PCL, CES and MAIA-2 descriptive scales. The sum of the items of each scale were computed. For PCL, the overall mean was M= 33.18 with an SD=19.1 which is lower than the midpoint. Scores on the CES scale had a mean of M= 24.4 with an SD= 6.06 indicating that the sample had above average scores. For MAIA, the overall mean was M=96 with an SD= 23.2 indicating that the sample exhibits average interoceptive awareness scores. As for the number of traumas, the mean M= 15 lifetime traumas with SD 22.

The descriptive Table below shows the rest of the results (Table 1).

Table 1

Scale Descriptive

	N	Minimum	Maximum	Mean	SD
PCL scale	554	0	80	33.18	19.1
CES scale	554	7	35	24.4	6.06
MAIA-2 Scale	554	26	175	96.87	23.2
THS (number of traumas)	554	0	181	15.5	22.6

Reliability Analysis

Internal reliability of the PTSD checklist -5 (PCL-5), Trauma centrality scale (CES) and Interoceptive Awareness scale (MAIA2) were investigated using Cronbach's Alpha. Results indicated that all scales were reliable. The PCL-5 had excellent reliability $\alpha = .943$, as well as the Interoceptive Awareness scale (IA) $\alpha = .890$. The Trauma Centrality Scale had very good

reliability α= .875. (Table 2). It is important to note that the below data included the Arabic and the English version of the scales simultaneously which presented a reliability concern. This was due to a technical error of the program used. Though it is important to note that only 7 % of the participants filled the Arabic version and the other 93 % of the participants filled the English version.

Table 2.

Internal Reliability of Scales: Cronbach's Alpha

	Cronbach's Alpha Current Study	Cronbach's Alpha Previous studies	N
PCL-5	.943	.92	554
MAIA2	.880	.92	554
CES	.844	.93	554

Correlations between Predictors (Trauma centrality, Interoceptive awareness) and the outcome Variable (posttraumatic stress disorder)

To study the correlation, Spearman's Rho correlation test was used. Spearman's Rho correlation test revealed that there was significant, positive, and medium to large correlation between trauma centrality and posttraumatic stress disorder $r_s = 0.406$, $p < 0.001$. Spearman's Rho correlation also revealed negative significance between interoceptive awareness and PTD behavior; $r_s = -0.182$, $p < 0.001$. However, as an answer to the research question, there was no relationship between trauma centrality and interoceptive awareness. There was a significant positive relationship between trauma centrality and number of traumas; $r_s = 0.275$, $p < 0.001$ (Table 3).

Table 3

Spearman's Rho Zero Order Correlation Analysis

	PCL-5
Trauma Centrality (CES)	.406
Interoceptive awareness (MAIA-2)	-.182
THS (number of traumas)	.382

Assumptions

Independence of Errors and No multicollinearity assumptions

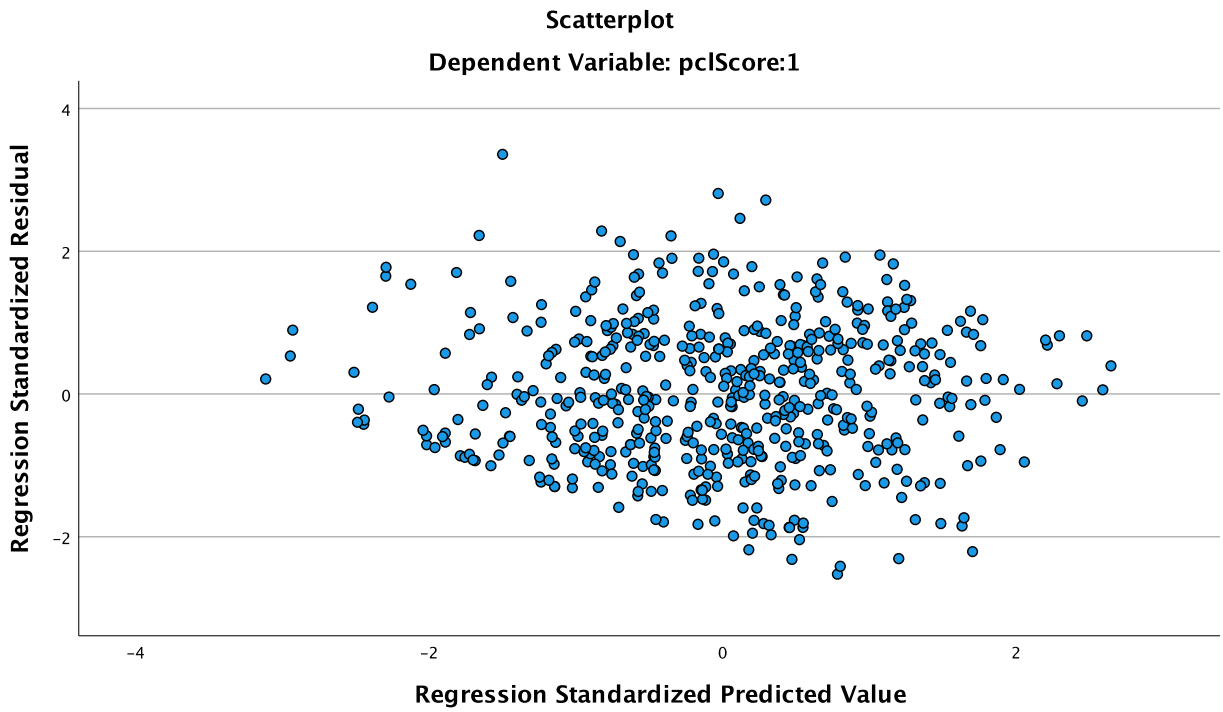
The independence of errors was examined using the Durbin-Watson statistic to see if errors of the independent variables were independent of each other. In this study, the Durbin-Watson value was 2.0 (1<x<3) indicating that the assumption of independence of errors is met.

Homoscedasticity

The assumption of homoscedasticity was examined through generating a scatterplot of the standardized predicted value of the PCl (ZPRED) and the standardized residuals (ZRESID). Inspection of the scatterplot of residuals indicated QQ plots showed that residual points are distributed randomly and evenly throughout the plot, indicating that residues are normally distributed. Therefore, the assumption of homoscedasticity was met (Graph 3).

Graph 3

Scatterplot



Multicollinearity

To check for the assumption of no multicollinearity, VIF scores were inspected in the last model of the coefficients table. In this study, the average VIF value was 1.22 which is close to 1, which indicates that the assumption of no multicollinearity was met.

Outlier and Influence Analysis

The initial sample size of the study was N- 554 participants. Generally, it is anticipated that 95 % of cases will have standardized residuals within +/-2. Therefore, in this present study, it is expected that 5 % (n=28) of participants to have standardized residuals above +/- 2. "Casewise diagnostics" table was done to spot participants with standardized residual above +/-

2. The results shows that 20 outlying cases which is less than the expected 28 cases and thereby, the outliers are within the expected range.

To determine whether the above cases was influential, influence statistics were examined through leverage, cook's distance, DFBetas, and Mahalanobis distance.

To determine the leverage, the average leverage was calculated as (k+1)/n, in which K is the number of predictors and n is the number of participants. All leverage values should be close to the average value if no cases exert undue influence over the model. The average leverage was (5+1)/554= 0.01. Only two cases were slightly above 0.01. Case # 302 with leverage value of 0.02 and case #468 with leverage value of 0.04 and thereby those two cases are slightly potential influential outlier. However, none of the cases has Cook's distance greater than 1 and the DFBetas were also below +l/-1.

Mahlanobis distance was evaluated for the 20 outliers. To determine their significance, the probability calculation of Chi square showed 2 significant multivariate outliers (with Mahalanobis distance > 18.467 at $p < .001$ and number of predictors = 5). Case #468= 22.9, Case #520= 30.61, exceeded the limit.

The outliers will be retained in the data analysis Since the outliers were within the accepted limit and they were not influential and the influent statistic showed slight deviation, to make sure our parameters are accurate, bootstrapping will be applied.

Hierarchical Regression Analysis

Hierarchical Regression analysis was conducted using the enter Method with bootstrapping and confidence interval level 95.0 %. The PCL-5 scale was selected as the dependent variable. Block 1 included number of traumas, interpersonal trauma, and non-interpersonal trauma. Block 2 included trauma centrality and interoceptive awareness (Table 4). Block 1, the variables number of lifetime trauma, interpersonal traumas, and non-personal traumas, predicted 13.1 % of the variance in PTSD (F (3,554) = 27.731, p=.000, R^2 = 0.131, R^2 Adjusted=0.127). In Block 2 where trauma centrality and interoceptive awareness were added, the model predicted an additional and significant 14.8 % (F (2, 554)= 56.397, p=.000, R^2 change=.148) of the variation in PTSD symptomology for a total variation 52.9 % predicted by the model ((F(5,554) = 42.549, p = .000, R^2 = .411, R^2 Adjusted = .4) (Table 4).

Table 4

R, R Square, Adjusted R Square

Model	Variable	R	R^2	R^2Change
1	Number of traumas, Interpersonal Traumas, Non-interpersonal traumas	.362**	.131	.131
2	Trauma centrality, Interoceptive awareness,	.529**	.280	.148

** $p < .001$

Assessment of the coefficients table, the analysis shows that trauma centrality (b =.361, t (554) = 9.55, p <0.00), interoceptive awareness (b =-.181, t (554) = -4.91, p <0.001) and interpersonal traumas (b =.261, t(554) = 5.46, p <0.001) are significant predictors of PTSD. As such, as trauma centrality increases by 1 Standardized unit PTSD symptom increase by .361 standardized units. Therefore, Hypothesis 1 defined as trauma centrality is positive predictor of PTSD symptomology while controlling for type and number of traumas, was supported.

Similarly results indicated that those who scored high on interoceptive awareness scale scored low on PCL. With every 1 standardized unit increase interoceptive awareness, PTSD symptoms decreased by 0.183 units. Therefore, H2 defined as interoceptive awareness is a negative predictor of PTSD symptomology while controlling for type and number of traumas, was supported (Table 5).

When comparing total number of traumas, number of interpersonal trauma and number of non-interpersonal traumas, the number of interpersonal traumas was the strongest predictor of PTSD with $p<.001$ followed by the interpersonal trauma with $p<0.05$ and no significance on number of non-interpersonal trauma. Such that, with every 1 standardized unit increase in number of interpersonal traumas, PTSD symptoms increased by 0.261 standardized unit. Also, with every 1 standardized unit increase in total number of traumas, PTSD symptoms increase by 0.094 standardized unit.

In conclusion, the data analysis showed that both trauma centrality and interoceptive awareness were significant predictors of PTSD symptomology while controlling for number of traumas and number of interpersonal and non-interpersonal traumas, and therefore both hypotheses were supported.

Table 5

Coefficient with Bootstrap

Model	B	95% CI for B		*SE* B	β
		LL	*UL*		
1					
Constant	21.84**	18.14	25.08	1.74	
# Of traumas	.079*	.002	.164	.03	.094*
Interpersonal T	3.14**	1.98	4.30	.57	.261**
Non-Personal T	.072	-.102	2.09	.568	.079
2					
Constant	11.22**	2.44	20.13	4.46	
# Of traumas	.07*	.006	.138	.033	.085*
Interpersonal T	1.96**	.928	3.08	.545	.164**
Non-Personal T	.92	-.056	1.91	.517	.075
MAIA-2	-.148	-.209	-.089	.030	-.181**
CES	1.142	.878	1.389	.126	.361**

Note. Model = "Enter" method in SPSS Statistics; B = unstandardized regression coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; *SE* B = standard error of the coefficient; β = standardized coefficient; R^2 = coefficient of determination; ΔR^2 = adjusted ΔR^2. *p < .05. ** p < .001.

It is important to note that, since most participants had both interpersonal and non-personal traumas, therefore the above analysis was controlling for the number interpersonal traumas and the number of personal traumas.

Exploratory analysis

To be able to control for type of traumas, an exploratory hierarchical regression analysis was done. The dependent variable was PCL-5 and the method used was enter. Block 1 included

14 types of traumas and number of lifetime traumas. Block two included trauma centrality and interoceptive awareness. In Block 1, the variables number of lifetime trauma and the 14 type of traumas, predicted 43 % of the variance in PTSD (F (15,554)= 8.440, p=<.001, R^2 = .4361, R^2 Adjusted= .168). In Block 2 where trauma centrality and interoceptive awareness were added, the model predicted an additional and significant 12.6 % (F(2, 554)= 49.411, p=.<001, R^2 change=.126) of the variation in PTSD symptomology for a total variation 56.3 % predicted by the model ((F(17,554) = 14.600, p = .<001) (Table 6).

Table 6

R, R Square, Adjusted R Square

Model	Variable	R	R^2	R^2Change
1	Number of traumas, 14 types of traumas	.436**	.131	.190
2	Trauma centrality, Interoceptive awareness	.563**	.280	.126

** p < .001

Assessment of the coefficients table, the analysis of model 1 which included the control variables (14 types of traumas and numbers of traumas), showed that the total number of traumas was not significant predictor of PTSD. The analysis also showed the following type of traumas to be significant predictor of PTSD

- T 2: Been in a really bad accident at work or home? (p<.05)
- T 4: Been hit and kicked as a child (p<.05)
- T 12: sudden event that made you feel very scared, helpless, and horrified. (P<.001)
- T: 14: being abandoned by spouse, partner parent or family. (P<.001)

However, the analysis of model 2 which included the control variables, interoceptive awareness and trauma centrality, showed that trauma centrality (b =.337, t(554) = 8.55, p <0.001) interoceptive awareness (b =-.182, t(554) = -5.01, p <0.001), number of lifetime trauma (b =.073, , t(554) = 1.7 , p =.046), type 2 trauma (b =.073, t(554) = 3.20, p =0.01) Type 12 trauma (b =.104, t(554) = 2.7, p <0.001) and type 14 trauma (b =.123, t(554) = 2.9, p <0.001) are significant predictors of PTSD. Interestingly, type 4 trauma (been hit and kicked as a child) was not a significant predictor of PTSD after the addition of trauma centrality and interoceptive awareness. On the other hand, the number of traumas became a significant predictor of PTSD after the addition of trauma centrality and interoceptive awareness (Table 7).

These results indicate that as trauma centrality increases by 1 unit PTSD symptom increase by .337 units. Therefore, Hypothesis 1 defined as trauma centrality is positive predictor of PTSD symptomology while controlling for type and number of traumas, was supported. These findings indicated that those who scored high on interoceptive awareness scale scored low on PCL. With every increase interoceptive awareness by 1 unit, PTSD symptoms decreases by 0.182. Therefore, H2 defined as interoceptive awareness is a negative predictor of PTSD symptomology while controlling for type and number of traumas, was supported.

In conclusion, the data analysis showed that both trauma centrality and interoceptive awareness were significant predictors of PTSD symptomology while controlling for number of traumas and 14 types of traumas.

Table 7

Coefficients with bootstrap for Exploratory analysis

Model	B	95% CI for B		*SE* B	β
		LL	*UL*		
1					
Constant	17.99**	13.96	22.23	2.19	
# Of traumas	.061	-.013	.136	.038	.073
Trauma 1	2.473	-.656	5.619	1.600	.063
Trauma 2	4.391	.924	7.548	1.716	.115*
Trauma 3	-1.501	-4.495	1.549	1.520	-.038
Trauma 4	3.639	.134	7.004	1.750	.091*
Trauma 5	.558	-4.015	4.870	2.274	.012
Trauma 6	1.761	-2.310	5.803	2.099	.038
Trauma 7	3.525	-.722	7.601	2.107	.075
Trauma 8	-.010	-4.051	4.046	2.103	.000
Trauma 9	-.298	-4.900	4.174	2.342	-.005
Trauma 10	1.564	-1.946	5.139	1.780	.035
Trauma 11	-1.574	-4.478	1.554	1.542	-.041
Trauma 12	7.540	3.533	11.293	1.953	.154**
Trauma 13	-1.415	-4.503	1.754	1.608	-.036
Trauma 14	7.820	4.491	11.189	1.736	.199**
2					
Constant	11.019	1.583	20.358	4.764	
# Of traumas	.062	-.002	.123	.032	.073*
Trauma 1	1.984	-.935	5.030	1.482	.051
Trauma 2	4.846	1.804	7.922	1.626	.127*
Trauma 3	-1.521	-4.328	1.174	1.443	-.038
Trauma 4	3.037	-.315	6.020	1.612	.076
Trauma 5	.504	-3.765	4.722	2.141	.011
Trauma 6	.539	-3.216	4.536	1.954	.012

Trauma 7	2.289	-1.439	5.889	1.908	.048
Trauma 8	-.186	-3.897	3.601	1.908	-.003
Trauma 9	2.140	-1.980	6.358	2.173	.035
Trauma 10	.233	-3.016	3.410	1.668	.005
Trauma 11	-1.909	-4.677	1.032	1.424	-.050
Trauma 12	5.092*	1.193	8.878	1.855	.104*
Trauma 13	-1.125	-4.136	1.709	1.479	-.029
Trauma 14	4.815*	1.447	8.186	1.688	.123*
MAIA-2	-.150 **	-.216	-.085	.033	-.182**
CES	1.067**	.804	1.332	.135	.337**

*p < .05. ** p < .001.

Chapter 5

Discussion

This aim of this research study was to investigate the influence of trauma centrality and interoceptive awareness on PTSD while controlling for the number and type of traumas characteristics. The purpose of this study was viewed as important because trauma focused therapy has shifted to include more somatic ingredients, yet there is no published literature on the direct relationship between interoceptive awareness and PTSD. Effective interventions are needed more than ever, due to the ongoing crisis and traumatic events for the past three years in Lebanon. Therefore, this study recruited 554 participants using convenient sampling who have been residing in Lebanon for the past 3 years and required them to complete an online survey. The main findings of this study were in congruent with both hypotheses; in other words, trauma centrality and interoceptive awareness were significant predictors to PTSD symptomology when controlling for number and type of trauma.

The results of this study revealed that trauma centrality was the highest positive significant predictor of PTSD symptomology, indicating that participants who had high level of trauma centrality tend to have more symptoms of PTSD. These findings have been consistent with the study done by Brensten and Rubin (2007) which showed that higher levels of trauma centrality were correlated with higher levels of PTSD symptomology in 247 Danish psychology students. Even though in the current study, 49% of the participants were college students, more than 50 % of the participants were non-college students, of age above 21 years old. Therefore, the current study serves as a further population generalization to include non-college students while controlling for type and number of traumas. Moreover, according to previous literature,

trauma centrality predicted PTSD symptomology in women with history of sexual abuse (Robinaugh & McNally, 2011). The current study's result showed that trauma centrality predicted PTSD symptomology even when controlling for 14 types of traumas (including sexual abuse). This is the first known study that showed that no matter what type of trauma an individual might experience, high trauma centrality predicts PTSD symptomology.

In addition, one of the main aims of this research was to conceptually replicate the study done by Bernard et al. (2015) that showed that people with high trauma centrality had high level of PTSD symptomology while controlling for number of traumas. When additionally controlling for the type of trauma, results from our current study were still consistent with Bernard el al findings (2015). Thus, trauma centrality was a significant predictor of PTSD symptomology while controlling for number and type of traumas. These findings suggested that the effect of the trauma is more significant than the mere exposure to any type of trauma. Therefore, the consequences of the trauma can be further explored from the perspective of identity and understand the ways in which the traumatic events are integrated as part of the identity (Berntsen & Rubin, 2006; Conway, 2005; Neimeyer, Herrero, & Botella, 2006). For instance, what distinguishes individuals who incorporate the traumatic experience in their own personal identity than those who do not? Exploring possible answers for this question might ultimately help us understand why individuals have different reactions when faced with the same traumatic event.

On the other hand, interoceptive awareness was found to be a negative significant predictor of PTSD, indicating that participants who had high level of interoceptive awareness tend to have lower symptoms of PSTD even while controlling for type and number of traumas. To our knowledge, this was the first study to show the direct relationship between interoceptive awareness and PTSD. These findings are congruent with previous studies demonstrating that a

mindfulness-based approach and trauma sensitive yoga interventions improve interoceptive awareness and lead to a decrease in PTSD symptomology in veterans (Mehiling 2018, Colagan 2017). This current study was a further generalization of the population with a large sample size that included individuals with diverse traumatic events

It is also important to note that number and type of traumas were shown to be a significant predictor to PTSD symptomology in the first hierarchical regression. Specifically, interpersonal trauma was a higher predictor of PTSD symptomology than non-interpersonal trauma. These findings were also consistent with previous findings which suggested that interpersonal trauma, specifically sexual abuse, was a higher predictor of PTSD symptomology than non-interpersonal trauma (Jakob et al., 2017). However, the exploratory analysis showed that there are 4 types of traumas that predicted PTSD symptoms. Two of them were interpersonal traumas T 14: been abandoned by spouse, partner parent or family" " T 4:been severely hit and kicked as a child) and the other two types of trauma were non-interpersonal traumas T 12: sudden event that made you feel very scared, helpless, and horrified"," T 14: been in a really bad accident at work or at home"). Yet, when adding trauma centrality and interoceptive awareness to the analysis, being severely hit and kicked as a child was not a significant predictor of PTSD symptomology anymore. Theoretically, identity formation is disrupted by childhood trauma because basic survival takes precedence over the natural development of the self. In fact, the identity for adults with unresolved childhood trauma is often focused around being a survivor and establishing safety. At the expense of more flexible self, individuals with childhood trauma may identify with a "traumatic self" and becomes disconnected from themselves. Hence, by definition, unresolved childhood trauma is characterized by high trauma centrality and low interoceptive awareness. Thus, it is conceivable that when trauma centrality and interoceptive

awareness were added to the exploratory analysis, the childhood trauma became a non-significant predictor of PTSD.

According to Judith Herman, the most distinctive feature of post-traumatic stress disorder is the dialectic of opposing psychological states which creates an oscillating rhythm. The first state is the intrusive response which is categorized as intrusive thoughts, hypervigilance, flashbacks, and nightmares while the second state is the constrictive response which is categorized as dissociation, numbness, depersonalization and derealization. Since, neither intrusive nor constrictive response allow for integration of the traumatic event, the alteration between two extreme states can be understood as an attempt to find a sensible balance between the two and that is exactly what a traumatized person might lack (Herman, 2015). When a traumatic event becomes central to one's identity, the memory of the traumatic experience is easily accessible and often re-experienced. Therefore, having trauma centrality might aggravate the intrusive responses and increase the suffering to a diagnostic level. On the other hand, lack of interoceptive awareness, might aggravate the constrictive response and the feeling of numbness, and dissociation, which also leads to an increase in the suffering to a diagnostic level. Since there is no relationship between intrusive response and constrictive response, thus it is comprehensible that in this study, there was no relationship between trauma centrality and interoceptive awareness. Nevertheless, trauma centrality and interoceptive awareness are independently important predictors for PTSD symptomology.

Furthermore, according to Judith Herman, the dialectic responses usually undergo a gradual evolution in the course of time. Initially, intrusive response predominates in the first few months following the traumatic event and with time intrusive symptoms starts to diminish and more constrictive response predominates (Herman, 2015). In Lebanon, one might argue that due

to the state of ongoing stressful events, intrusive responses might remain predominate over constrictive response even after years. Thus, it is understandable to have trauma centrality more significantly correlating with PTSD symptomology than interoceptive awareness in the Lebanese context.

Clinical Implications

Given the modest findings of this study, the described results provide an opportunity to shift clinicians' focus from traumatic event narration to investigating the effect of the traumatic experiences in one's cognition and somatic sensation. Targeting trauma centrality and interoceptive awareness in the treatment plan seems to be vital for healing. An interesting model that can be used is accelerated experiential dynamic psychotherapy (AEDP), in which the therapist allows the patient to notice the effect of traumatic experiences through their relational work. For instance, the therapist could say something like "how is it for you to share your experience with me? How my support feels for you right now? These questions help the patient shift from over identifying with their traumatic experience and give space for the therapeutic relationship. In addition, these questions help the client become aware of their body sensations, thoughts, and feelings in the present moment, consequently improving their interoceptive awareness. Other third wave therapies, such as acceptance and commitment therapies (ACT), also focus on improving interoceptive awareness through mindfulness and noticing one's present experience. Thus, hopefully, this study will influence psychotherapists to work on either utilizing therapies that target trauma centrality and interoceptive awareness, or even create a new model that incorporates those predictors for a trauma-focused psychotherapy.

Since Lebanon has survived intergenerational traumas, efforts that aim to raise awareness through mental health campaigns on how trauma informed psychotherapy can help one's healing

process are needed. These campaigns might aid Lebanese individuals to seek interventions while addressing the stigma surrounding mental illness, by normalizing the action of seeking psychotherapy for psychological distress.

Limitations

Due to convenient sampling, individuals with no access to social media were not included in the study and, thus, findings cannot be generalized to the entire Lebanese population. Another limitation is that the scale for screening the number of traumas is low in sensitivity. For instance, one participant wrote "100" when asked how many times she was hit or injured badly as a child, limiting the sensitivity of the scale. Another limitation of the study is that it used a non-experimental design. A non-experimental design only allows research to infer correlations between variables and not causal relationships. In addition, the Arabic version of the CES, MAIA-2, and THS scales were not tested for validity in a bigger sample size.

Future Directions

A recommendation for future research would be to use a random selection instead of convenience sampling, to explore how trauma centrality and interoceptive awareness are correlated with PTSD on a larger scale, in different age groups, and in different populations. Another recommendation is to utilize an experimental design using somatic experiencing, AEDP model or other models that incorporate trauma centrality and interoceptive awareness and evaluate its effect on PTSD symptomology. Future research may also investigate other specific moderators or mediators such as attachment style, age, or gender, between the trauma centrality or Interoceptive awareness and PTSD symptomology.

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Appendix A: Participant Information Letter

Dear Ms./Mr.

I am Hanadi Beydoun a student at Haigazian University from the Department of Social and Behavioral Sciences. I am currently carrying out a research study titled Trauma Centrality and Interoception Awareness as Predictors of PTSD Symptomology While Controlling for Characteristics of Trauma in Lebanon advised by Dr Hanine Hout.

You are being asked to take part in this study since you are an adult Lebanese who have been residing in Lebanon for the past three years (2019-2022).

Kindly read the below information to decide whether you would like to participate in this research study.

Purpose of the Research Project

This research study aims to investigate the effect of trauma centrality and interoceptive awareness on PTSD symptomology while controlling for the type and number of traumas. The proposed study will shed light on the importance of studying how the cognitive integration of trauma in the mind (trauma centrality) and somatic assimilation of trauma in the body (interoceptive awareness) influence the incidence and symptomology of PTSD. This will lead to the addition of other techniques tailored for the treatment of PTSD. Also, this study will contribute towards the partial fulfillment of my academic study requirements at Haigazian University.

What will I be asked to do?

If you choose to participate in this research study, you will be asked to fill in a questionnaire/ Your participation will involve completing a survey that entails statements that you will have to rate based on agreement, a demographic form that will be used as descriptive data and answer yes or no questions for approximately 20 minutes.

Participation in this project is voluntary

You are free to withdraw anytime without having to give any reason for your withdrawal

What are my rights?

Participation in this study is completely voluntary, anonymous, and confidential. Your name or any other identifying information will not be asked

Data you provide along with data from all participants in the present research will be stored in aggregate in a password protected folder of the principal investigator Hanadi Beydoun. The data will be analyzed and reported in aggregate. Only the principal investigators of this study will have access to the compiled data which will be stored for a period of 10 years post data. During this time, you have the right to inspect the data.

You have the right to withdraw your consent or discontinue participation at any time for any reason. Your decision to refuse participation or withdraw will not involve any penalty or loss of benefits to which you are entitled. Discontinuing participation in no way affects your relationship with Haigazian University.

This research study has been reviewed and has received clearance from the SBS Ethics Committee at Haigazian University. If you have any further concerns about your rights as a research participant, please, do not hesitate to contact the Ethics Committee at SBS.Ethics@haigazian.edu.lb

What are the risks and benefits of participation?

Participation in this study does not involve any physical risk or emotional risk to you beyond the risks of daily life. You might experience some emotional distress due to questions related too traumatic events that you have been exposed. If in distress, you could contact the national lifeline 1564 for emotional support

You will receive no direct benefits from participating in this research; however, your participation does help researchers better understand. However, your participation will have a direct contribution to the scientific understanding of the predictors of PTSD symptomology in the Lebanese population

Contact information

If you have any questions or concerns about the research, you may contact:

Hanadi Beydoun, MA student in clinical Psychology

Haigazian University

hbeydoun@students.haigazian.edu.lb

Hanine Hout, Ed. D Chair/SBS

Faculty of Social @ Behavioral Sciences

Hanine.hout@haigazian.edu.lb

Appendix B: Participant Consent

Trauma Centrality and Interoceptive Awareness as Predictors of PTSD Symptomology While Controlling for Type and Number of Traumas in Lebanon

Please read the following statements and place a check mark in the boxes adjacent to them.

- ☐ I have volunteered to participate in this research project conducted for purposes of study. My participation is voluntary and does not involve payment of any kind.
- ☐ I agree to participate in this research project conducted for purposes of study. My decision is voluntary and does not involve payment of any kind
- ☐ I know that I can choose to withdraw from participation any time without any penalties or consequences whatsoever. I also hold the right to decline to respond to any question(s) that I may feel uncomfortable with.
- ☐ My participation involves an answering a questionnaire entails statements that you will have to rate based on agreement, a demographic form that will be used as descriptive data and answer yes or no questions for approximately 20 minutes.
- ☐ I have been assured that the researcher will maintain my identity confidential.
- ☐ I have been assured that the information from this survey will be used for the purpose of academic study and publication only.

☐ I have received the assurance that this research study has been duly reviewed and approved by the Haigazian University ethics committee.

☐ I agree that the data gathered be kept in a secure location under the care of the study investigators for a period of 10 years.

☐ I have been assured that I can access my data (if identified) at any time.

☐ I have read, listened, and fully understand the explanation given to me. All my questions have been satisfactorily answered.

☐ I, therefore, choose to voluntarily participate in this research study.

☐ I have received a copy of this consent form co-signed by the researcher.

Participant consent	Investigator
Date: _____	Date:
Name: _____	Name:
Signature: _____	Signature:

Appendix C: Ethics Approval Letter

HAIGAZIAN UNIVERSITY

Faculty of Social and Behavioral Sciences

Ethics Committee

June 30, 2022

Dear Ms. Beydoun,

The SBS Research Ethics Committee reviewed the following protocol:

Type of Review:	Initial, Expedited
Study title	Trauma centrality and interoceptive awareness predictors of PTSD symptomology while controlling for type and number of traumas
Study ID	HB.06.22
Principal investigator(s): *Name, title, institution, contact information (email and phone number)*	Hanadi Beydoun, MA student, Haigazian University. HBEYDOUN01@students.haigazian.edu.lb

Advisor	Dr. Hanine Hout Assistant professor, Faculty of Social and Behavioral Sciences Haigazian University Hanine.hout@haigazian.edu.lb
Documents reviewed	- Proposal submission form - Participant information letter - Participant consent form

The SBS Research Ethics Committee approved the above study from June 30, 2022, to June 30, 2023, inclusive. The documents listed were reviewed and approved for use in this protocol. Please note that any change in the study methods, design and / or instruments should be cleared by the committee before its application. Once the study is complete a closure report should be sent to the committee.

Regards,

SBS Research Ethics Committee

Appendix D: Social Media Post

Dear Ms./Mr.

I am Hanadi beydoun a student at Haigazian University from the Department of Social and Behavioral Sciences. I am currently carrying out a research study titled “Trauma Centrality and Interoception Awareness as Predictors of PTSD Symptomology While Controlling for Characteristics of Trauma in Lebanon**”** advised by Dr. Hanine Hout.

You are being asked to take part in this study if you are a Lebanese adult (18+) and have been living in Lebanon for more than 3 years.

If you would like to contribute to the exploration of predictors of posttraumatic stress disorder kindly read the below the participant informed letter to decide whether you would like to participate in this research study.

This study will contribute to the partial fulfilment of my academic study requirements at Haigazian University.

Appendix E: PTSD Checklist PCL-5

Instructions: Below is a list of problems that people sometimes have in response to a very stressful experience. Please 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, 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 reminded you of the stressful experience (for example, heart pounding, trouble breathing, 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 experience (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 is 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?	0	1	2	3	4
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

Appendix F: The Multidimensional Assessment of Interoceptive Awareness (MAIA-2)

Below you will find a list of statements. Please indicate how often each statement applies to you generally in daily life.

.	Circle one number on each line					
	Never					Always
1. When I am tense I notice where the tension is located in my body.	0	1	2	3	4	5
2. I notice when I am uncomfortable in my body.	0	1	2	3	4	5
3. I notice where in my body I am comfortable.	0	1	2	3	4	5
4. I notice changes in my breathing, such as whether it slows down or speeds up.	0	1	2	3	4	5
5. I ignore physical tension or discomfort until they become more severe.	0	1	2	3	4	5
6. I distract myself from sensations of discomfort.	0	1	2	3	4	5
7. When I feel pain or discomfort, I try to power through it.	0	1	2	3	4	5
8. I try to ignore pain	0	1	2	3	4	5
9. I push feelings of discomfort away by focusing on something	0	1	2	3	4	5
10. When I feel unpleasant body sensations, I occupy myself with something else so I don't have to feel them.	0	1	2	3	4	5
11. When I feel physical pain, I become upset.	0	1	2	3	4	5
12. I start to worry that something is wrong if I feel any discomfort.	0	1	2	3	4	5
13. I can notice an unpleasant body sensation without worrying about it.	0	1	2	3	4	5
14. I can stay calm and not worry when I have feelings of discomfort or pain.	0	1	2	3	4	5
15. When I am in discomfort or pain I can't get it out of my mind	0	1	2	3	4	5
16. I can pay attention to my breath without being distracted by things happening around me.	0	1	2	3	4	5
17. I can maintain awareness of my inner bodily sensations even when there is a lot going on around me.	0	1	2	3	4	5
18. When I am in conversation with someone, I can pay attention to my posture.	0	1	2	3	4	5

.

	Never					Always
19. I can return awareness to my body if I am distracted.	0	1	2	3	4	5
20. I can refocus my attention from thinking to sensing my body.	0	1	2	3	4	5
21. I can maintain awareness of my whole body even when a part of me is in pain or discomfort.	0	1	2	3	4	5
22. I am able to consciously focus on my body as a whole.	0	1	2	3	4	5
23. I notice how my body changes when I am angry.	0	1	2	3	4	5
24. When something is wrong in my life I can feel it in my body.	0	1	2	3	4	5
25. I notice that my body feels different after a peaceful experience.	0	1	2	3	4	5
26. I notice that my breathing becomes free and easy when I feel comfortable.	0	1	2	3	4	5
27. I notice how my body changes when I feel happy / joyful.	0	1	2	3	4	5
28. When I feel overwhelmed I can find a calm place inside.	0	1	2	3	4	5
29. When I bring awareness to my body I feel a sense of calm.	0	1	2	3	4	5
30. I can use my breath to reduce tension.	0	1	2	3	4	5
31. When I am caught up in thoughts, I can calm my mind by focusing on my body/breathing.	0	1	2	3	4	5
32. I listen for information from my body about my emotional state.	0	1	2	3	4	5
33. When I am upset, I take time to explore how my body feels.	0	1	2	3	4	5
34. I listen to my body to inform me about what to do.	0	1	2	3	4	5
35. I am at home in my body.	0	1	2	3	4	5
36. I feel my body is a safe place.	0	1	2	3	4	5
37. I trust my body sensations.	0	1	2	3	4	5

Appendix G: Trauma centrality Scale (CES)

Trauma centrality can be measured using the seven item CES Scale

1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

1. This event has become a reference point for the way I understand myself and the world
2. I feel that this event has become part of my identity
3. This event permanently changed my life.
4. I often think about the effects this event will have on my future.
5. This event was a turning point in my life.
6. This event has colored the way I think and feel about other experiences.
7. I feel that this event has become a central part of my life story.

Appendix H: Trauma History Screening (THS)

The Trauma History Screen (THS) is a brief, 14-item self-report measure those inquiries about 13 event types and "other" events

1- Approximately how many times, if ever, have you been in a really bad car, boat, train, or airplane accident? (If none, type 0)

2- Approximately how many times, if ever, have you been in a really bad accident at work or home?

3- Approximately how many times, if ever, have you been in a hurricane, flood, earthquake, tornado, or fire?

4- Approximately how many times, if ever, have you been hit or kicked hard enough to injure - as a child?

5-: Approximately how many times, if ever, have you had you been Hit or kicked hard enough to injure - as an adult?

6-Approximately how many times, if ever, have you had you been forced or made to have sexual contact - as a child?

7-: Approximately how many times, if ever, have you had you been Forced or made to have sexual contact - as an adult?

8-Approximately how many times, if ever, have you had you been Attacked with a gun, knife, or weapon?

9-: Approximately how many times, if ever, during military service - saw something horrible or being badly scared?

10-Approximately how many times, if ever, have you had you experienced Sudden death of close family or friend?

11: Approximately how many times, if ever, have you experienced Seeing someone die suddenly or get badly hurt or killed?

12- Approximately how many times, if ever, have you experienced Some other sudden event that made you feel very scared, helpless, or horrified?

13- Approximately how many times, if ever, have you experienced Sudden move or loss of home and possessions?

14-: Approximately how many times, if ever, have you Suddenly been abandoned by spouse, partner, parent, or family?

Appendix I: Arabic Translate of PCL 5

قائمة اضطراب ما بعد الصدمة						
فيما يلي قائمة بمشاكل، يعاني منها الناس بعد تعرضهم للأحداث المزعجة. ابقي الحادثة الاسوأ في ذاكرتك، الرجاء اقرأ كل مشكلة بأمعان، ثم أرسم دائرة حول الارقام على اليسار، ليدُّل على مدى انزعاجها بالمشكلة في الشهر السابق						
#	في الشهر السابق، الى اي مدى انزعجت ب:	اطلاقا	قليلا	متوسط	الى حد كبير	كثيرا جدا
١	ذكريات متكررة، ومؤلمة ومزعجة حول التجربة الأليمة؟	٠	١	٢	٣	٤
٢	احلام متكررة ومزعجة حول التجربة الأليمة؟	٠	١	٢	٣	٤
٣	الشعور الفجائي أو التصرف حول التجربة الأليمة بأن ما حدث سوف يحدث مرة أخرى (كأنك تتعايش) التجربة؟	٠	١	٢	٣	٤
٤	الشعور بالانزعاج، عندما يذكرك شيء بالحادثة الأليمة؟	٠	١	٢	٣	٤
٥	لديك رد فعل جسدي قوي عندما يذكرك شيء ما بالتجربة الأليمة (مثال: خفقان القلب، ضيق في التنفس، التعرق)؟	٠	١	٢	٣	٤
٦	تجنب الذكريات، الافكار، أو الاحاسيس المرتبطة بالتجربة الأليمة.	٠	١	٢	٣	٤
٧	تجنب الاشياء التي تذكرك بالتجربة الأليمة، مثال: (الناس، الاماكن، النقاش، النشاطات، الظروف)؟	٠	١	٢	٣	٤
٨	صعوبة في تذكر أجزاء مهمة من التجربة الأليمة؟	٠	١	٢	٣	٤
٩	وجود شعور سلبي شديد حول النفسكِ أو الاخرين أو العالم (مثال: وجود افكار أنا سيء، لدي مشكلة، لا أحد جدير بالثقة، العالم خطير جداً)؟	٠	١	٢	٣	٤
١٠	إلقاء اللوم على نفسك أو الاخرين للتجربة الأليمة أو ما حدث بعدها؟	٠	١	٢	٣	٤
١١	وجود مشاعر سلبية قوية مثل الخوف، الفزع، الغضب، الذنب، أو الخجل؟	٠	١	٢	٣	٤
١٢	فقدان الرغبة في التمتع بالنشاطات السابقة التي كنت تتمتع بها؟	٠	١	٢	٣	٤
١٣	الشعور بالعزلة والبعد عن الاخرين.	٠	١	٢	٣	٤
١٤	صعوبة الاحساس بمشاعر الايجابية (مثال: عدم الشعور بالسعادة، أو عدم الشعور بالحب نحو الناس القريبين منك)؟	٠	١	٢	٣	٤
١٥	سلوك مضطرب، غضب صارخ، تصرفات عدوانية؟	٠	١	٢	٣	٤
١٦	المخاطرة كثيراً أو القيام بأشياء قد يؤذيك؟	٠	١	٢	٣	٤
١٧	التوجس والتيقظ؟	٠	١	٢	٣	٤
١٨	الشعور بالإجفال وسرعة التهيج؟	٠	١	٢	٣	٤
١٩	الصعوبة في التركيز؟	٠	١	٢	٣	٤
٢٠	الارق أو صعوبة الاستمرار في النوم؟	٠	١	٢	٣	٤

Appendix J: Arabic translated and back translated of MAIA-2

- أبداً {score=0}
- نادرًا {score=1}
- من حين اخر {score=2}
- باعتدال {score=3}
- غالباً {score=4}
- دائماً {score=5}

عندما أكون متوتراً ألاحظ مكان هذا التوتر في جسدي

ألاحظ عندما أكون غير مرتاحاً في جسدي

ألاحظ أين في جسدي أنا لست مرتاحاً

ألاحظ التغيرات في تنفسي، مثلاً إذا أصبح أبطأ أو أصبح أسرع

أتجاهل التوتر أو الإنزعاج الجسدي حتى يصبح الأمر أكثر خطورة

ألهي نفسي عن أحاسيس الإنزعاج

عندما أشعر بالألم أو بالإنزعاج، أجرب أن أجالد على نفسي

أحاول تجاهل الألم

أدفع مشاعر الانزعاج بعيداً عني من خلال التركيز على شيء معين

عندما أشعر بأحاسيس جسدية غير سارة، اشغل نفسي بشيء آخر كي لا أشعر بها

عندما أشعر بألم جسدي، أصبح مستاء

أبدأ بالقلق حول حدوث خطب ما إن شعرت بعدم الارتياح

يمكنني ملاحظة إحساس جسدي غير سار من دون القلق بشأنه

يمكنني البقاء هادئاً غير قلقاً عندما أشعر بعدم الراحة أو الألم

حين أكون عدم مرتاح أو متألم لا يمكنني إخراج الأمر من ذهني

يمكنني الانتباه لتنفسي من دون تشتت انتباهي للأشياء التي تحصل حولي

يمكنني البقاء على دراية بإحساس جسدي الداخلي حتى عندما تحدث العديد من الأمور حولي

عندما أتحدث مع شخص ما، يمكنني الانتباه لوضعية جسدي

يمكنني إعادة درايتي بجسدي إذا كنت مشتتاً

يمكنني إعادة توجيه تركيزي من التفكير نحو الإحساس بجسدي

يمكنني البقاء على دراية بكل جسدي حتى عندما يكون جزء مني متألماً أو غير مرتاحاً

بإمكاني بشكل واعي التركيز على جسدي بالكامل

ألاحظ كيف يتغير جسدي عندما أكون غاضباً

عندما يحدث خطب ما في حياتي يمكنني الشعور بذلك في جسدي

ألاحظ أنني أحس بجسدي بطريقةٍ مختلفة بعد تجربة تشعرني بالسلام

ألاحظ أن تنفسي يصبح حراً وسهلاً عندما أشعر بالراحة

ألاحظ كيف يتغير جسدي عندما أشعر بالسعادة/الفرح

عندما اشعر بالإرتباك يمكنني أن أجد مكاناً هادئاً داخلي

عندما أجلب إدراكي إلى جسدي أشعر بحس من الهدوء

يمكنني إستخدام تنفسي لتخفيض التوتر

عندما أكون عالقاً في حبل أفكاري، يمكنني أن أهدئ ذهني عبر التركيز على تنفسي في جسدي

أصغي إلى المعلومات التي يعطيني اياها جسدي عن حالتي العاطفية

عندما أكون مستاءً آخذ وقت لأكتشف كيف يشعر جسدي

أصغي لجسدي كي يخبرني ما ينبغي القيام به

أنا في منزلي داخل جسدي

أشعر أن جسدي هو مكان آمن

أثق بأحاسيسي الجسدية

Appendix K: Arabic Translated & Back Translated Trauma centrality (CES)

غير موافق بشدة =1 غير موافق =2 محايد =3 موافق =4 موافق بشدة =5

هذا الحدث قد أصبح مرجع للطريقة التي أفهم بها نفسي والعالم

أشعر أن هذا الحدث قد أصبح جزءًا من هويتي

هذا الحدث غيّر حياتي بشكل دائم

غالباً أفكر بتأثيرات هذا الحدث على مستقبلي

هذا الحدث كان نقطة تحول في حياتي.

هذا الحدث قد لَوَّن الطريقة التي أفكر وأشعر بها تجاه تجارب أخرى

أشعر أن هذا الحدث قد أصبح جزءًا محورياً في قصة حياتي

Appendix L: Arabic Translated & Back Translated Trauma History Screening (THS)

تقريباً كم مرة، إذا أبداً، تعرضت لحادث سيارة، باخرة، قطار، أو طائرة سيئ جداً؟ (إذا لم يحصل، إكتب ٠

تقريباً كم مرة، إذا أبداً، تعرضت لحادث سيئ جداً في عملك أو منزلك؟ (إذا لم يحصل، إكتب ٠

تقريباً كم مرة، إذا أبداً، تعرضت لإعصار، فيضان، هزة أرضية، أو حريق؟ (إذا لم يحصل، إكتب ٠

تقريباً كم مرة، إذا أبداً، تعرضت لضرب أو ركل/رفس مؤذي - كطفل؟ (إذا لم يحصل، إكتب ٠

تقريباً كم مرة، إذا أبداً، تعرضت لضرب أو ركل/رفس مؤذي - كراشد؟ (إذا لم يحصل، إكتب ٠

تقريباً كم مرة، إذا أبداً، جبرت أو أرغمت على القيام بإحتكاك جنسي - كطفل؟ (إذا لم يحصل، إكتب ٠

تقريباً كم مرة، إذا أبداً، جبرت أو أرغمت على القيام بإحتكاك جنسي - كراشد؟ (إذا لم يحصل، إكتب ٠

تقريباً كم مرة، إذا أبداً، تعرضت لهجوم عليك بمسدس، سكين، أو سلاح؟ (إذا لم يحصل، إكتب ٠

تقريباً كم مرة، إذا أبداً، خلال الخدمة العسكرية/التجنيد - رأيت شيئاً مروعاً أو كنت خائف بشدة؟ (إذا لم يحصل، إكتب ٠

تقريباً كم مرة، إذا أبداً، مررت بحادثة وفاة مفاجأة لفرد عائلة أو صديق مقرب؟ (إذا لم يحصل، إكتب ٠

تقريباً كم مرة، إذا أبداً، رأيت شخصاً مات فجأة أو تأذى بشدة أو تعرض للقتل؟ (إذا لم يحصل، إكتب ٠

تقريباً كم مرة، إذا أبداً، تعرضت لحدث مفاجئ آخر جعلك تشعر بالخوف، اليأس، أو الذعر؟ (إذا لم يحصل، إكتب٠)

(تقريباً كم مرة، إذا أبداً، مررت بتغيير أو خسارة مفاجئة لبيتك وممتلكاتك؟ (إذا لم يحصل، إكتب ٠

تقريباً كم مرة، إذا أبداً، تعرضت لهجر من زوج، شريك، والد/والدة، أو عائلة؟ (إذا لم يحصل، إكتب ٠