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Examining the Validity of ICD-11 PTSD and Complex PTSD using international data

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Summary

Since the introduction of the most recent conceptualisation of post-traumatic stress disorder (PTSD) and complex PTSD (CPTSD) in the *International Classification of Diseases, 11th Revision* (ICD-11) in 2019, substantial work has been undertaken to validate the model. This work was conducted primarily in clinical populations using provisional measures. This doctoral thesis aimed to significantly advance our understanding of the validity of ICD-11 PTSD and CPTSD by using a finalised measure (the International Trauma Questionnaire; ITQ) and international nationally representative data The first objective involved evaluating the ICD-11 CPTSD model within a nationally representative Irish adult sample. Confirmatory Factor Analysis and Structural Equation Modelling confirmed the model's validity and internal reliability. Findings indicated that 11.2% of the Irish population met diagnostic criteria for ICD-11 PTSD (2.4%) or CPTSD (8.8%). Specific CPTSD symptom clusters were linked to increased risk factors, including trauma exposure, loneliness, and insomnia, with negative self-concept symptoms being strongly associated with suicide risk.

The second objective focused on estimating rates of ICD-11 PTSD among internally displaced people (IDPs) in Ukraine and exploring coping strategies. A higher percentage of IDPs met criteria for ICD-11 PTSD (13.1%) compared to CPTSD (7.8%), with avoidant coping prevalent among those meeting criteria for both disorders.

The third objective assessed ADHD symptoms across Canadian adults with ICD-11 PTSD and CPTSD symptoms, revealing significantly higher ADHD symptoms in these individuals. Those with CPTSD symptoms exhibited even higher levels compared to those with ICD-11 PTSD symptoms.

The fourth objective explored age and sex differences in PTSD and CPTSD prevalence across Ireland, the U.S., Israel, and the U.K. Diverse age-related prevalence patterns and varying age impacts on CPTSD were observed across samples. Women were two to two-and-a-half times more likely than men to meet ICD-11 PTSD criteria, with gender-based differences in CPTSD prevalence statistically significant in one of the examined samples.

In summary, this research significantly contributes to the literature in terms of the validation, prevalence, and clinical correlates associated ICD-11 PTSD and CPTSD. It underscores the importance of understanding these disorders on an international scale, enhancing our knowledge of their impact and manifestations and considering age and gender factors in the aetiology and management of trauma-related disorders in an international context.

Publications arising from this thesis

McGinty, G., Fox, R., & Hyland, P. (2023). Assessing prevalence, validity, and correlates of ICD-11 posttraumatic stress disorder and complex posttraumatic stress disorder in Ireland. *Psychological Trauma: Theory, Research, Practice, and Policy*. Advance online publication. https://doi.org/10.1037/tra0001472

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List of Abbreviations and Symbols

< Less than

= Equal to

AIC Akaike information criterion

APA American Psychiatric Association

Av Avoidance

BIC Bayes information criterion

CFA Confirmatory factor analysis

CFI Comparative Fit Index

CI Confidence interval

CPTSD Complex posttraumatic stress disorder

d Cohen's d

df Degrees of freedom

DSM Diagnostic and Statistical Manual of Mental Disorders

DSO Disturbances in Self-organisation

Hyp Hyperarousal

ICD-11 International Classification of Diseases, 11th edition

Int Intrusions

ITQ International Trauma Questionnaire

LCA Latent class analysis

LEC-5 Life Events Checklist for DSM-5

LMR-A Lo–Mendell–Rubin adjusted likelihood ratio test

LRT Likelihood ratio test

M Mean

Mdn Median

MLR Maximum likelihood estimator

n Sample size

OR Odds ratio

p P-value

PTSD Posttraumatic stress disorder

PTSS Posttraumatic stress symptoms

r Pearson's correlation coefficient

Re Re-experiencing in the present

RMSEA Root Mean Square Error of Approximation

SD Standard deviation

SE Standard error

SEM Structural equation modelling

SRESC Social Research Ethics Subcommittee

ssaBIC Sample size-adjusted Bayes Information Criterion

t Test statistic for t-test

Th Sense of current threat

TLI Tucker-Lewis Index

U.K. United Kingdom

U.S. United States

WHO World Health Organization

WLSMV Robust weighted least squares estimator

α Cronbach's alpha; Significance level (probability of Type I error)

B Unstandardised regression coefficient

β Standardised regression coefficient

Δ Change/difference in value

ρc Composite reliability

χ2 Chi-square

Chapter 1

Introduction

1.1. Global Trauma and Post Traumatic Stress Disorder

In an era marked by globalized trauma exposure and heightened awareness of the diverse responses to severe stressors, the diagnostic criteria for post-traumatic stress disorders (PTSD) have evolved significantly. In 2018, the World Health Organisation (WHO) introduced the *International Classification of Diseases, 11th Revision* (ICD-11; WHO, 2017), in a new era of psychiatric classification, it included the formal recognition of Complex Post-Traumatic Stress Disorder (CPTSD) as a distinct diagnostic entity alongside Post-Traumatic Stress Disorder (PTSD). This classification holds profound implications for our understanding of trauma-related psychopathology on a global scale. Notably, while the majority of PTSD research has emanated from the United States and other high-income countries (Fodor et al. 2014), a comprehensive examination, utilizing international data, to evaluate the psychometric validity of ICD-11 PTSD is critical. By examining the application of these diagnostic categories across diverse cultural, and demographic contexts, vital insights into the validity of these classifications, their clinical utility, and their potential to enhance the precision of trauma-related diagnosis and treatment will be revealed.

1.2. Overview and History of PTSD

Throughout human history, various accounts of posttraumatic stress symptoms have been described (Ben-Ezra, 2011). Although limited, there is evidence of occurrence of post traumatic stress disorder (PTSD) dating back as far as the ancient Greeks (Abdul-Hamid & Hughes, 2014; Ben-Ezra, 2011). Even though mention of psychological trauma and its effects are evident in ancient literature, it is important to note that our scientific understanding of psychological trauma developed largely alongside societal change and political movement (Herman, 1992; Jongedijk, 2023). Since the end of the 20th century, there were three major political movements which gained public attention and sparked scientific debate. These include the study of hysteria, combat neurosis or ‘shell shock’ and most recently domestic and sexual violence (Herman, 1992). Unlike many other psychological disorders, there has been considerable disagreement about PTSD. Debate and controversy often followed nosology, aetiology, and conceptualisation of trauma related disorders and syndromes. Since the official recognition of PTSD in the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-II: American Psychiatric Association [APA], 1980) the field of psychotraumatology has been described as in a ‘state of anarchy’ (Jongedijk, 2023). To this day, official diagnostic manuals present opposing conceptualisations of post-traumatic presentations. To understand this division, it is important to review the history of PTSD (Ben-Ezra, 2011).

1.2.1. Industrial revolution and hysteria

During the industrial revolution and the rapid increase in factories and railways, clinicians were faced with an increasing number of patients who presented with psychological symptoms after major accidents or calamities (Crocq & Crocq, 2022). In 1867, the first description of 'railroad spine syndrome' came from British surgeon Sir John Erichsen (Erichsen, 1867, p. 22-23). Symptoms included anxiety, frightening dreams, insomnia, hyperarousal and memory difficulties, all of which mirror modern PTSD diagnostic criteria (DiMauro et al. 2014; Jongedijk, 2023). Erichsen believed that these symptoms were simply caused by organic damage to the spinal cord (DiMauro et al. 2014). Yet, with the increase in cases as well as mounting societal pressure, debate began around the cause of the syndrome. In 1885, London surgeon Herbert Page argued against the organic theory of railway spine and instead suggested that the terror and horror experienced while witnessing the incidents led to 'nervous shock syndrome' (Kinzie & Goetz, 1996). His work was the beginning of a collective re-think regarding the cause and outcome of witnessing or experiencing a traumatic event (DiMauro et al. 2014).

At the same time in France, famous Parisan professor Jean-Martin Charcot was investigating the well-known disorder 'hysteria' at the renowned Pitié-Salpêtrière Hospital. For twenty centuries, hysteria had been described as an exclusively female disease comprised of incoherent and incomprehensible symptoms (Micale, 1989). Many physicians at the time believed it was a disease which originated in the uterus and that women were more at risk because they were lazy and irritable (Tasca, 2012). Charcot argued vehemently against this and believed that hysteria also occurred in his male patients. These men were suffering from what he called 'traumatic hysteria,' which comprised of irregularities of sensibility, and severe tremors or contortions (Micale, 1990). Remarkably, he believed that traumatic hysteria in men was due to witnessing or experiencing horrifying accidents at work yet failed to attribute traumatic events such as sexual or domestic abuse to symptoms of hysteria in his female patients (Jongedijk, 2023). Charcot's ideas would later influence Freud's infamous work on domestic and sexual abuse which will be covered later on in this chapter.

In brief, societal and industrial changes at this time put significant pressure on scientists and physicians to provide an explanation for psychological disorders which seemingly developed following traumatic events (Holdorff, 2011). As a result, within a complex political climate, heated academic debates broke out over symptoms, diagnoses, and causes of post-traumatic responses (Weisaeth, 2002). During this period, German neurologist Hermann Oppenheim purported the idea of another disorder called 'traumatic neurosis' (Holdorff, 2011). He, like Page, emphasized that the source of the disorder was the traumatic or horrifying event which happened leading up to the development of symptoms.

Oppenheim suggested that the level of terror experienced at the time of the traumatic event caused microscopic brain damage which led to symptoms such as paralysis or enduring changes in psychological functioning (Holdorff, 2011; Schmiedebach, 1999). In 1890, at the 10th International Medical Congress in Berlin, several notable neuroscientists strongly opposed Oppenheim's 'traumatic neurosis'. They recommended to eradicate the concept and argued that patients presenting with these disorders were 'malingering' in an attempt to manipulate an insurance pay out (Jongedijk, 2023). Finally, in 1891 an article published in the Lancet described the problems of 'traumatic neurosis'. The authors argued that it contained too many symptoms and causes to have any scientific credibility (Rollin, 1990, p. 939). Shortly after that, academic interest in the disorder declined.

1.2.2. World War I & II

Although there were many accounts of war-related syndromes before World War I (WWI) such as 'cardiorespiratory neurosis' from the French Wars (1815), 'Crimean fever' from the Crimean War (1865) and 'irritable heart syndrome' from the American Civil war (1865) there was no scientific recognition of combat related suffering until after WWI and WWII (van der Kolk, 2007). 'Shell shock' was formally introduced by British army psychologist Charles Myers in 1915. In his paper entitled '*A contribution to the study of shell shock*', Myers (1915) described his struggle to comprehend the physical symptoms exhibited by his three patients The three young men displayed symptoms of memory loss, severe anxiety, neurasthenia and sleep problems. He concluded that the closest relation of these cases was 'hysteria' and that no physical causes were evident. Although enormous amounts of soldiers were suffering from shell shock, authorities refused to link the disorder to psychological causes. Instead, soldiers were accused of being morally corrupt or malingering and in extreme cases, army physicians used electrical shock treatments which involved administering painful shocks to the throat (Herman, 1992). This caused many soldiers to hide their suffering and return to the field, ultimately becoming retraumatized (Weisaeth, 2002). Oppenheim defended these soldiers and reinstated the need to investigate 'combat neurosis'. However, his ideas were once again denied at a psychiatric war conference in Munich in September 1916 (Holdorff, 2011). Experts in the field at the time argued that without bodily cause, there was no reason that soldiers would be presenting with these symptoms other than cowardice and lack of character (Lerner, 2003). In the aftermath of WWI, many veterans began to show long-lasting psychological effects. This led American psychologist Kardiner to study and write about combat related neuroses in his seminal text '*The Traumatic Neuroses of War*' (Kardiner, 1941). A text which would later influence the development and description of PTSD in the DSM.

In the wake of WWII (1939-1945), authorities attempted to prevent the concept of war-related disorders from re-emerging by publicly declaring that only the morally weak would suffer from this 'social disorder' (Jones et al. 2007). Indeed, this proved to be untrue as similar to WWI, huge cohorts of soldiers developed symptoms identical to those observed in 'shell shock' (Engelbretch, 2018). It was understood for the first time that any man could succumb to the horrors of prolonged combat exposure (Herman, 1992). Very few studies were conducted on combat-related syndromes around this time, with work conducted by Archibald & Tuddenham (1965) being an expectation. Their longitudinal research, which they published 15 years after the war, detailed the long-term effects of warfare and would influence the later formulation of 'gross stress reaction' in the first edition of the DSM (APA, 1950). Even so, limited medical or public interest was given to veterans returning from war and soon after a similar amnesia would set in. The lasting psychological effects of war trauma were once again forgotten. It wasn't until after the Vietnam War that the scientific community began to conduct large-scale investigations of the long-term psychological consequences of combat exposure. This time, the reason to research the topic came '*not from the military or the medical establishment, but from the organized efforts of soldiers disaffected from war*' (Herman, 1992, p. 26). By the mid-1970s, dozens of informal rap groups began to speak out about their experiences coming home from the war (Kirkby, 2015). After an undeniable body of literature amassed, recognition of combat neurosis would be officially recognised in 1980 by the APA in the DSM-III under the new name 'post-traumatic stress disorder'.

1.2.3. Origins of CPTSD

Although limited scientific attention was given to combat-related syndromes until after the Vietnam War, researchers in the Netherlands and Germany began researching survivors of concentration camps directly after WWII (Jongedijk, 2023). Several authors, many of whom survived concentration camps themselves wrote extensively about their experiences, which stimulated further scientific enquiry (De Wind, 1972; Cohen, 1981). Jan Bastiaans (1957) described 'post concentration camp syndrome' in his doctoral thesis entitled '*The psychosomatic consequences of oppression and resistance'*. He detailed the complexity of the disorder in comparison to 'traumatic neuroses' and suggested that individuals suffering from the syndrome experience additional symptoms such as hostility, depression and disturbances in close relationships (Bastiaans, 1957). Although the majority of 'survivor syndrome' studies from this time involved case studies, there was significant overlap in the description of an additional set of complex symptoms which described disturbances in the self (Jongedijk, 2023). Over ten years later, the German American psychologist William Niederland studied survivor syndrome at length and stated, '*The*

concept of traumatic neuroses does not appear to cover the multitude and severity of clinical manifestations of the survivor syndrome' (Niederland, 1968, p. 313). He would go on to describe what we know today as Complex PTSD.

In 1981, at the meeting of the Swiss Psychoanalytic Society in Zurich, Niederland proposed to distinguish the two disorders as related but distinct disorders (Neiderland, 1981). He argued that severe, prolonged traumatization such as brutal persecution, methodical starvation, torture and constant fear and helplessness leads to a condition that is even more severe and chronic in nature. Niederland described seven symptom clusters: recurrent states of depression, anhedonia, anxiety, alterations in the sense of identity, psychosomatic complaints, survivors' guilt, and persistent negative emotions (Niederland, 1981). He called for his observations of nearly 2000 survivors to be clinically recognised and for further scientific enquiry into 'the survivor syndrome'. This was the first description of two distinct but related post-traumatic stress disorders and set the precedent for Judith Herman's conceptualisation of Complex PTSD which she published in 1992 (Herman, 1992).

1.2.4. Emergence of Domestic Abuse and Sexual Trauma

The literature highlights a historical pattern of rejection and dismissal of the existence of psychological disorders following traumatic events. This could not be more apparent than in the case of the unspoken abuse against the women and children during the 20th century. In the 1900s, physicians such as Charcot and Oppenheim made significant contributions to the study of PTSD, however, they failed to identify the link between traumatic sexual experiences and hysteria. Later, Charcot's students Pierre Janet and Sigmund Freud would write on the topic (Crocq & Crocq, 2022) only to have their contributions disregarded, and their credibility called into question. Freud in his paper *'The Aetiology of Hysteria*' (1896) wrote that sexual abuse in childhood was the root cause of hysteria later in life. Following his writing, he believed he had made his most significant contribution to science yet (Herman, 1992). Conversely, he was met by a cold reaction from the scientific community and eventually under the pressure of negative feedback retracted his work in 1905 (Van der Kolk & Van der Hart, 1989). He subsequently insisted that his patients had imagined and subconsciously desired the sexual experiences they endured as children, giving in to the popular belief at the time that prevalence of these incidents were extremely rare and almost non existent (Herman, 1992, p. 19). In contrast to Freud, Janet never abandoned his position on hysteria but lived to see his writings ignored and rejected. At the time, sexual and domestic abuse against women remained invisible and hidden in a

society which believed sexual abuse fulfilled a woman's deepest desires (DiMauro et al. 2014; Herman, 1992).

It wasn't until 1970, after years of research into combat neurosis, that the women's liberation movement was able to highlight the stark similarities between concentration camp survivors and abused women (Jongedijk, 2023). Numerous articles addressing issues related to domestic and sexual violence were published. Burgess and Holmstrom (1974) played a significant role in shaping the concept of PTSD and Complex PTSD by introducing and defining 'rape trauma syndrome'. They illustrated symptoms of reexperiencing, avoidance, hypervigilance, lack of sense of safety, tendencies towards self-harm, and profound challenges in interpersonal relationships (Jongedijk, 2023). The parallels between the disorders were undeniable and a significant shift took place. This revolution was driven by influential citizen movements and prominent clinical advocates who recognized the existence of severe symptom patterns not adequately addressed by the existing diagnostic frameworks. The research conducted by these scholars had a profound impact, leading to the emergence of influential concepts such PTSD and Complex PTSD (CPTSD).

In sum, understanding PTSD over the past century has been intricately linked to a number of political movements. The initial breakthrough stemmed from the recognition of hysteria, which developed within the context of the anticlerical movement in 19th century France. Subsequently, the study of combat neurosis gained prominence in the aftermath of WWI and WWII, propelled by the experiences of veterans and further fuelled by the anti-war movement following the Vietnam War. Lastly, the feminist movement in the Western world played a crucial role in raising public awareness about sexual and domestic abuse. Together, these political movements have shaped the trajectory of PTSD and CPTSD research and contributed to our current understanding of posttraumatic stress responses.

1.3. History of DSM models

Before PTSD was officially established as a mental health disorder in traditional diagnostic taxonomies, some early iterations existed. In 1952, the APA published the first edition of the DSM. In this manual, numerous mental health disorders were detailed, including a psychiatric condition called 'Gross stress reaction'. This condition was based on the work of military psychologists such as Kardiner, Grinker and Spiegel (Jongedijk, 2023), and aimed to describe the psychological impact resulting from extreme emotional stress, particularly in individuals exposed to combat or catastrophic events in civilian settings (APA, 1952). Although this was the first official recognition of a trauma-related neurosis, the disorder was 'time-limited', meaning that individuals would recover over time and symptoms would only persist in individuals with predisposed mental conditions (Jongedijk,

2023). ‘Gross stress reaction’ likely served as a forerunner to PTSD however it was not incorporated into the DSM-II (APA, 1968). Instead, a different disorder known as ‘transient situational disturbances’ took its place. Authors have proposed that this was due to the members of the APA committee having no experience with trauma-related disorders at the time of revising the manual (Scott, 1990). Finally, in 1980 after persistent advocacy from the Vietnam Veterans of America (VVA) and an emerging body literature, an APA task force was set up to revise the diagnosis. The establishment of a research-driven and operationalized approach formed the basis of scientific understanding that led to the recognition of PTSD as a distinct disorder within the DSM-III (Maercker, 2021).

DSM-III PTSD was largely based on the influential work of Horowitz (1976). His research conducted on survivors of motor accidents, sexual abuse, combat exposure and political imprisonment was the first to describe groups of core symptoms (Horowitz, 1976). These were re-experiencing the traumatic event, numbing of responsiveness and avoidance, and arousal. As a result, PTSD was classified as an anxiety disorder and included 12 symptoms relating to each of these groups of symptoms. The disorder was said to occur following the experiencing of a psychologically traumatic event outside the range of usual human experience, likely causing significant distress for most individuals (APA, 1980). The reclassification of PTSD as a general disorder represented a shift in how the disorder was conceptualised, and it meant that anyone could develop the disorder after experiencing severe trauma. The revised edition of DSM-III, DSM-III-TR (APA, 1987), expanded the concept of PTSD to include a broader range of trauma responses. It included 17 symptoms grouped into three clusters: re-experiencing, active avoidance and numbing, and hyperarousal. The duration of the symptoms had to last at least one month, and the distress caused by the traumatic event no longer needed to affect nearly everyone.

In 1992, with revisions for the DSM-IV under way, Judith Herman proposed that CPTSD should be recognised clinically and included in the psychiatric nomenclature (Herman, 1992). Although under consideration for inclusion under the name *Disorders of Extreme Stress Not Otherwise Specified* (DESNOS), the APA decided there wasn’t enough evidence to warrant its place in the DSM-IV. This decision was based on the results of the DSM-IV field trails which demonstrated that most individuals fulfilling the criteria for DESNOS also fulfilled the criteria for PTSD and was therefore considered as just a more severe form of PTSD (Resick, 2012). As a result, DESNOS was included to the appendix of the fourth edition of the manual published in 1994. For PTSD, the most notable change pertained to the definition of what constitutes a traumatic experience. The definition was expanded to include instances where an individual has observed a traumatic event (APA, 1994). Moreover, adjustments were introduced concerning the minimum number of

symptoms needed within each symptom cluster, and it was established that experiencing significant distress or a notable decline in functionality was a mandatory prerequisite. This diagnostic guideline endured without alteration in the subsequent revised edition, DSM-IV-TR (APA, 2000).

Leading up to the publication of DSM-5 in 2013, significant changes were considered and implemented (APA, 2013). A key issue was whether to define PTSD as a broad or narrow based disorder (Friedman, 2013). The APA opted for the former and expanded the diagnosis to include 20 symptoms (up from 17) distributed across four (up from three) symptom clusters. DSM-5 PTSD was reclassified as a 'trauma and stressor-related disorder,' moving away from the anxiety disorder category and giving way to its own diagnostic category. The revised classification mandated that a distressing event be a necessary requirement for diagnosis. It also broadened the definition of traumatic exposure to include firsthand experience, witnessing, or being informed about incidents that involve actual or potential death, severe injuries, or sexual violence (APA, 2013). The symptom structure of PTSD expanded to include 20 symptoms distributed across four clusters of intrusions, avoidance, negative alterations in cognitions and mood, and hyperarousal. To meet the diagnostic criteria for PTSD in the DSM-5, specific requirements regarding the traumatic event, symptom endorsement, duration, distress or impairment, and exclusion of other potential causes must be met (APA, 2013). This remained unchanged in the DSM-5-TR which was published in 2022 (APA, 2022).

While the DSM-5's diagnostic model of PTSD has been praised for its evidence-based design, it also faced criticism for its complexity (Hoge et al. 2016; Weathers et al. 2017). According to Galatzer-Levy and Bryant (2013), there exists a total of 636,120 potential combinations of symptoms that could lead to a DSM-5 diagnosis of PTSD. Given the extensive array of potential symptom combinations, clinicians have raised concerns regarding the challenge of devising effective treatments for PTSD within the DSM-5 framework. DSM models faced criticism for potentially classifying traumatic reactions excessively. This criticism come from the fact that symptoms often overlap with other conditions like major depression, borderline personality disorder, and generalized anxiety disorder, which sometimes end up incorrectly attributed to PTSD, (Pai, 2017). For instance, symptoms outlined in the DSM-5 for PTSD, such as intrusive memories, concentration difficulties, negative self-perception, and sleep disturbances, might correspond to signs of depression rather than PTSD.

1.4. ICD models

The ICD is the WHO's diagnostic manual for recording human disease and death worldwide. Designed to be globally applicable, it has been in use around the world since its inception in 1900. While the ICD and DSM share similarities, there are differences in how certain disorders, such as PTSD, are defined. In 1948, the WHO introduced mental disorders into the ICD-6 (Schnyder, 2023). This update included a trauma-related disorder referred to as 'Acute situational maladjustment' which had a subtype known as 'combat fatigue.' In the subsequent editions of both ICD-8 (WHO, 1967) and ICD-9 (WHO, 1978) there was considerable similarities to the DSM-II. However, a notable shift occurred with the release of DSM-III in 1980. While ICD-9 tried to incorporate DSM-III categories using a coding scheme, the launch of PTSD in ICD-10 in 1992 marked the creation of a distinct and independent section for mental disorders. Although ICD-10 maintained some compatibility with the DSM, it also showcased notable distinctions, signifying a crucial turning point where the two primary diagnostic classification systems began to develop separately from each other (Peters et al. 1999).

Similar to the DSM-III, the ICD-10 definition of PTSD necessitated the presence of a traumatic or stressful incident of a catastrophic or threatening nature, one that was likely to provoke distress in nearly any individual. However, unlike the DSM-III, the manuals 10th edition included three post-traumatic disorders: Acute stress reaction, PTSD and EPACE. Based on the theoretical proposal of Herman (1992), EPACE was included to acknowledge alterations in affect, identity and relational capacities that can happen as a result of continued or prolonged exposure to trauma and would later become known as CPTSD (WHO, 1999). To receive a diagnosis of PTSD, individuals were required to display symptoms related to re-experiencing the traumatic event, avoidance of trauma-related triggers, and signs of hyperarousal or memory gaps related to the trauma. Notably, the ICD-10 did not stipulate a specific timeframe for these symptoms, or the presence of functional impairment as a requirement for diagnosis.

EPCACE detailed the effects of prolonged, repeated trauma in which escape is not possible (Brewin, 2020). To receive a diagnosis of EPCACE, individuals had to exhibit symptoms of disturbances in self-organisation (DSO), these symptoms involved problems with; self-concept, persistent hostile or suspicious attitude towards the world and maintaining relationships (Maercker, 2021). Difficulties arose with EPCACE as it was not rooted in PTSD, nor did it require any endorsement of functional impairment symptoms (Resick, 2012). A qualitative study conducted on clinician's understanding of EPCACE indicated that criteria associated with the disorder were lacking specificity and posed challenges in terms of practical implementation (Beltran et al. 2008). Moreover, queries emerged concerning whether the symptoms characterizing EPCACE were synonymous with,

or merely indicative of, a chronic manifestation of PTSD. Addtionally, commonalties were observed between select attributes of EPCACE and manifestations of alternative conditions, such as major depressive disorder and borderline personality disorder. (Beltran et al. 2008). It's arbitrary prerequisites and lack of well-articulated criteria undermined the clinical utility and global applicability of EPCACE, setting up the need for a revised version.

For the 11th edition of the ICD-11 (ICD-11; WHO, 2018), the WHO aimed to enhance clinical utility, reduce diagnostic variation, and minimize comorbidity (Maercker et al. (2013). In pursuit of these objectives, WHO strived to establish disorders with the fewest core symptoms possible. Unlike the DSM, the ICD-11 offers a general guideline for diagnosing PTSD, suggesting that it can be considered after exposure to an extremely traumatic event or series of events. ICD-11 PTSD encompasses six symptoms categorized into three core clusters: 'Re-experiencing in the here and now,' 'Avoidance,' and 'Sense of Current Threat.' The 'Re-experiencing in the here and now' cluster includes symptoms like intrusive memories and distressing dreams where the trauma feels as if it's happening in the present. The 'Avoidance' cluster involves avoiding internal (thoughts and memories) and external (locations or activities) reminders of the event. The 'Sense of Current Threat' cluster comprises symptoms of ongoing hypervigilance and hyperarousal. To meet the ICD-11 PTSD criteria, an individual must have been exposed to trauma, exhibit at least one symptom from each cluster, experience symptoms for several weeks post-trauma, and display functional impairment. In contrast to the DSM-5's multitude of possible symptom combinations for PTSD (636,120), the ICD-11 criteria allow for only 27 possible combinations (Shevlin et al. 2018).

Furthermore, based on an abundance of literature demonstrating the validity and reliability of CPTSD as a diagnosis (see Brewin, 2013 for review), CPTSD was introduced to the ICD-11 as a distinct but related disorder to PTSD (code 6B41). The ICD-11 states that CPTSD typically arises as a result of sustained or recurrent exposure to traumatic stressors, especially those of interpersonal nature and within circumstances where escape is challenging or impossible. (ICD-11; WHO, 2018). While previous proposals and comparable accounts of CPTSD were offered, the ICD-11 marks its official inclusion in psychiatric nomenclature. ICD-11 CPTSD is based on Judith Herman's (1992) clinical research with survivors of prolonged 'domestic, sexual or political victimisation'. Her book 'Trauma and Recovery' has become a seminal text within the field and has paved the way for advancements in trauma research, clinical practice and public awareness (Jongedijk, 2023). Based on years factor analytic work, ICD-11 CPTSD focuses on 12 symptoms, and is rooted PTSD (Maercker, 2021). It incorporates the six core PTSD symptoms and an additional six symptoms related to disturbances in self-organization (DSO). The symptoms

related to DSO are categorized into three clusters: 'Affective Dysregulation,' 'Negative Self-concept,' and 'Disturbances in Relationships'. The 'Affective Dysregulation' cluster consists of emotional difficulties such as finding it hard to regulate strong emotions or experiencing emotional numbness. The 'Negative Self-concept' cluster involves symptoms relating to feeling like a failure or worthless. The 'Disturbances in Relationships' symptom cluster relates to difficulty remaining emotionally close to others and feeling distant or closed off. In order to satisfy the diagnostic criteria for CPTSD, an individual must meet the criteria for PTSD and at least one symptom from each DSO cluster, along with experiencing substantial functional impairment. According to the ICD-11, a person can only receive a diagnosis of either PTSD or CPTSD, but not both simultaneously. If the conditions for CPTSD are met, the diagnosis of CPTSD supersedes a diagnosis of PTSD.

Empirical studies using various statistical approaches have provided support for the ICD-11 model of PTSD and CPTSD, demonstrating factorial and discriminant validity (Brewin, 2020; Brewin et al. 2017). Much of this research is based on clinical interviews and self-report measures that were designed in accordance with the ICD-11 guidelines (e.g. Litvin et al. 2017; Roberts et al. 2018). Among the most frequently employed self-report tools is the International Trauma Questionnaire (ITQ: Cloitre et al. 2018). Studies examining the reliability of the ITQ's items related to PTSD and DSO have consistently demonstrated strong internal consistency in various study populations (Redican et al. 2021). As ongoing research continues to refine and validate the diagnostic criteria and assessment measures for PTSD and CPTSD, it is important to further investigate the psychometric properties of these classifications, particularly in diverse populations and cultural contexts, to ensure their accuracy and utility in clinical practice and research settings around the world.

1.5. Psychometric properties

1.5.1. Factorial and discriminant validity of the ITQ

Testing and establishing the psychometric properties of a measure of a diagnosis is an essential prerequisite for determining the reliability and validity of a classification system. The ITQ is an 18-item self-report questionnaire that was developed to measure the diagnostic requirements of ICD-11 PTSD and CPTSD. The questionnaire comprises a total of 12 items, with each symptom cluster for both PTSD and CPTSD being assessed by two items. Additionally, functional impairment is measured through a set of three items associated with PTSD symptoms and another set of three items linked to DSO symptoms.

Developed by Cloitre et al. (2018), the ITQ is based on numerous studies including the DSM-IV field trials (Van der Kolk et al. 2005), clinical expertise (Cloitre et al. 2011), and

item response theory analyses (Cloitre, Shevlin et al. 2018). Much of the existing validity research has been conducted using either confirmatory factor analysis (CFA) or latent class/profile analysis (LCA/LPA) (Redican et al. 2021). The discriminant validity of the proposed ICD-11 model of CPTSD has often been assessed using LCA techniques. For example, Liddell and colleagues (2019) did this by employing LCA on a sample of 112 refugees, their objective was to identify potential distinct clusters of individuals who had been exposed to trauma and assess whether their symptom profiles aligned with the differentiation between PTSD and CPTSD. Results revealed a four-class solution which yielded four distinct classes: a PTSD class, a CPTSD class, an affective dysregulation class, and a low symptom class. (Lidell et al. 2019). In addition, factor analysis was often used to identify and understand the underlying structure or pattern in a set of observed variables. CFA is used to test the assumed latent underlying a set of observed indicators (Lubke & Muthen, 2005). For example, results from the first study to assess the factorial validity of the ITQ revealed that the most accurate representation of the latent structure was a two-factor higher-order model. This model encompassed a second-order PTSD factor, which accounted for the shared variance among three primary factors (reexperiencing, avoidance, and threat symptoms), and a second-order DSO factor, which explained the commonality among another three primary factors (affect dysregulation, negative self-concept, and interpersonal problems) (Brewin et al. 2017).

A recent systematic review of the factor analytic and mixture modelling (LCA/LPA) literature mirrored these findings and suggested that the latent structure of the ITQ was most accurately represented by two primary models; (i) a correlated six-factor model which encompasses re-experiencing, avoidance, sense of threat, affect dysregulation, negative self-concept, and disturbed relationships as distinct but interrelated factors (ii) a two-factor second-order model involving second-order PTSD and DSO factors, illustrating their higher-order relationships (Redican et al. 2021) (See figure 1.1. & 1.2. for details). Furthermore, results from studies utilizing mixture modelling consistently identified discrete classes that corresponded to individuals exhibiting symptom profiles indicative of either PTSD or CPTSD (Redican et al. 2021). In total, more than 33 studies provided evidence supporting the factorial and discriminant validity of ICD-11 PTSD and CPTSD with the authors stating that '*support was found for the conceptual coherence of PTSD and CPTSD as empirically distinguishable disorders, as measured by the ITQ and that the available evidence demonstrates that the ITQ is a valid measure of ICD-11 PTSD and CPTSD*' (Redican et al. 2021, p. 1). In addition to these findings, a recent factor mixture modelling study (a combination of factor analysis and mixture modelling) found evidence for the delineation of

ICD-11 PTSD and CPTSD as well as a dose-response relationship between traumatic events and probability of CPTSD class membership (Frost et al. 2019).

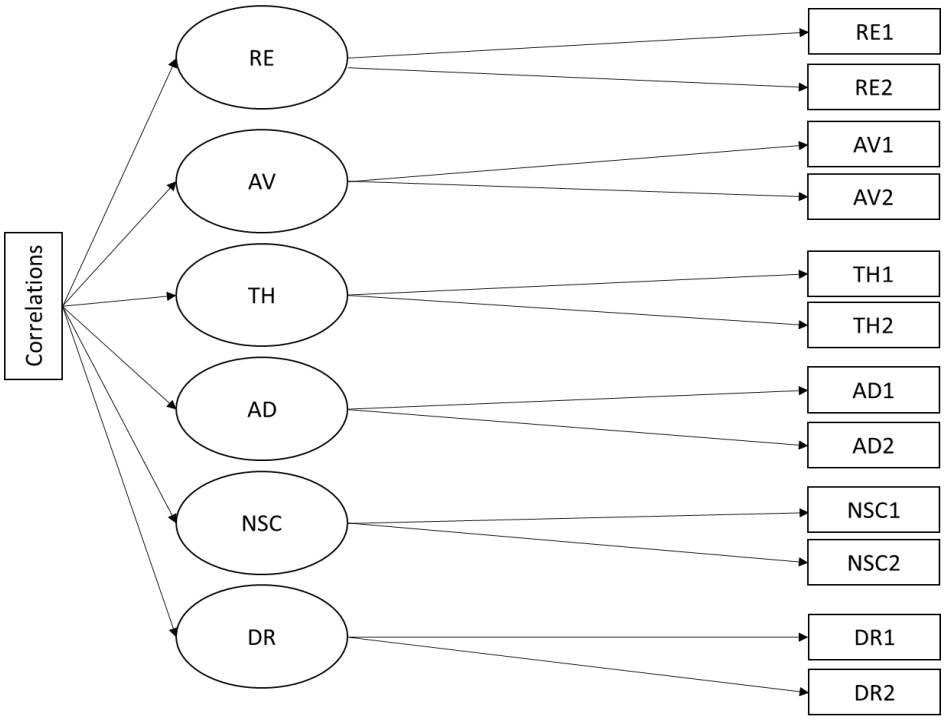


*Figure 1.1. C*orrelated six-factor model which encompasses RE = re-experiencing, AV = avoidance, TH = sense of threat, AD = affect dysregulation, NSC = negative self-concept, and DR = disturbed relationships as distinct but interrelated factors.

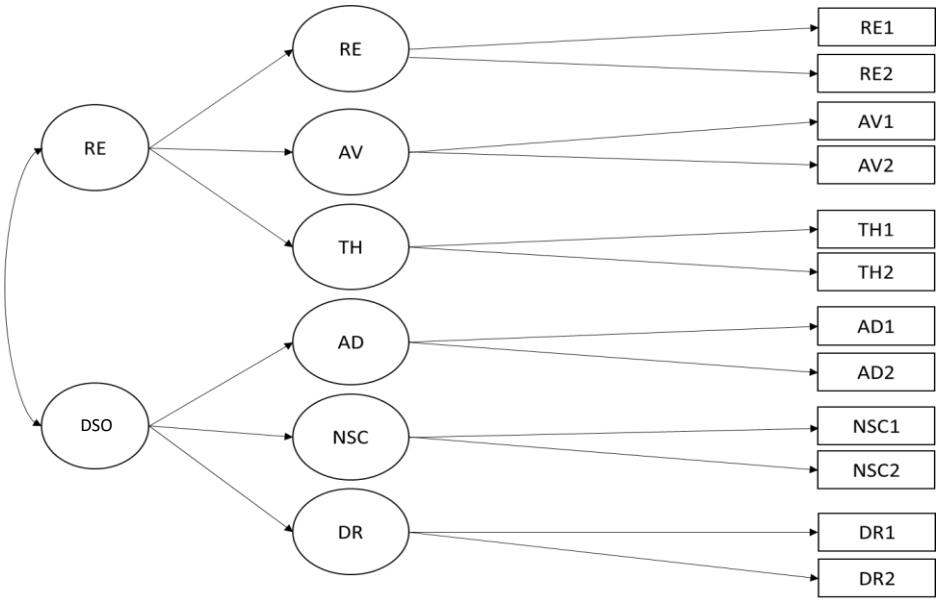


Figure 1.2. Two-factor second-order model involving second-order PTSD (post-traumatic stress disorder) and DSO (disorganised self-organisation) factors, illustrating their higher-order relationship. RE = re-experiencing, AV = avoidance, TH = sense of threat, AD = affect dysregulation, NSC = negative self-concept, and DR = disturbed relationships.

Population characteristics seem to be a significant factor in influencing findings related to the factor structure of the ITQ. Notably, Ho et al. (2019) and Sele et al. (2020) have observed that there is a stronger body of evidence supporting the two-factor, second-order model in studies conducted with clinical populations (e.g., Cloitre et al. 2019) and highly traumatized groups (e.g., refugees; Vallières et al. 2018). In contrast, research findings tend to favour the six-factor first-order model in studies conducted with community and student populations. This has been evidenced by studies such as those conducted by Ben-Ezra et al. (2018), Ho et al. (2019), and Shevlin et al. (2017).

These findings imply that the distinction between PTSD and CPTSD constructs appears to be more pronounced within clinical samples compared to the general population. This distinction may be attributed, at least in part, to the higher occurrence of these conditions in clinical populations (Ho et al. 2019). Given that much of the research on the validity of the ITQ is based on clinical or community samples, there has been a relatively limited number of studies assessing the reliability and validity of the ITQ in nationally representative general population samples. This represents an important focus of the current research project.

1.5.2. Concurrent and predictive validity (criterion-related)

The concurrent validity of the ITQ has also been supported by research indicating that the item clusters related to PTSD and DSO exhibit distinct associations in relation to various criterion variables (Ho et al. 2019; Hyland et al. 2017a). For instance, in a study assessing the concurrent validity of the Chinese version of the ITQ, results revealed that all six symptom clusters were significantly related to anxiety and depression, and this is in line with other studies which have demonstrated that PTSD is related to internalising disorders (Elklit & Shevlin, 2007). Addtionally, evidence supporting the predictive validity of the ITQ emerged in a 15-year prospective study involving former political prisoners from communist East Germany (Hyland et al. 2017b). Results revealed that symptoms reflective of ICD-11 PTSD were strong predictors of depression, quality of life, PTSD-relevant social affects and interpersonal consequences 15 years later (Hyland et al. 2017b). Finally, in terms of convergent validity, the ITQ has consistently demonstrated strong and positive association with trauma exposure and alternative measures of PTSD symptoms (Cyr et al. 2022; Ho et al. 2019).

1.5.3. Cross-cultural validity

Cross-cultural psychology explores how mental health problems manifest and are understood in diverse cultural contexts. Whether mental health problems manifest in the same way as physical health problems across cultures is a complex and debated topic (Shiraev & Levy, 2020). There are two main arguments regarding this issue, each with

philosophical underpinnings. The Universalist perspective suggests that there are fundamental similarities in the way mental health problems manifest and operate across different cultures. It argues that the basic biological and psychological processes underlying mental health issues are universal, and therefore, the core features of conditions like depression, anxiety, or schizophrenia should be relatively consistent across cultures (Fontaine, 2011). The universalist perspective is rooted in a more essentialist view of human nature and psychology. It assumes that there are common aspects of the human experience, including emotions and cognitive processes, that transcend cultural differences.

Cultural relativism contends that mental health problems are shaped and understood differently in various cultural contexts. It asserts that the expression, experience, and interpretation of mental distress are heavily influenced by cultural norms, beliefs, and social structures (Fabrega, 1989). Therefore, mental health conditions may not look the same or have the same meaning across cultures. It draws from postmodernist and constructivist philosophies, emphasizing the importance of cultural context and the socially constructed nature of reality. It questions the universality of psychological concepts and highlights the role of culture in shaping individual and collective experiences.

Given ICD-11's aim to enhance the clinical practicality and global applicability of its diagnoses (Maercker et al. 2013), cross-cultural studies using translated versions of the ITQ are imperative. The underlying structure of the ITQ has consistently been validated in numerous countries and diverse cultural contexts (Charak et al. 2022; Redican et al. 2021; Somma et al. 2019; Vang et al. 2021). However, there has been a limited amount of item response theory (IRT) based studies in cross-cultural samples. These are an important step towards exploring the ICD-11 ambition of global applicability (Nielsen et al. 2023). A recent IRT study conducted by Nielsen et al. (2023) found that in a sample of 490 treatment-seeking refugees spanning three languages (Danish, Arabic and Boasian) there was strong local dependence among items in the PTSD and DSO factors, with the exception of the affective dysregulation items.

1.5.4. Reliability

Other psychometric investigations of the ITQ involve tests of the reliability of the measure (i.e., to what extent the measurement is consistent and free from error (Portney & Watkins, 2009). Research has demonstrated strong internal consistency for the measure (Ho et al. 2019; Karatzias et al. 2016; Maercker et al. 2018; Murphy et al. 2018; Vallieres et al. 2018). While there is a scarcity of research which has assessed the test-retest reliability of the ITQ, a study conducted on a sample of 423 Chinese young adults demonstrated test-retest reliability coefficients at the item level ranging from k = .24 to .81 (Ho et al. 2019).

1.5.5. Criticism of the ICD-11 model of CPTSD and the ITQ

The formulation of complex PTSD as a unique diagnostic category has been met with considerable criticism over the years. Perhaps most notably, Resick and collegues, (2012), argued strongly that there was insufficient evidence to support to the construct validity of a complex PTSD diagnosis. They argued that the symptoms that would comprise the complex PTSD diagnosis overlapped to a considerable extent with those that define other common disorders like major depressive disorder (MDD) and borderline personality disorder (BPD). As such, the argument was that complex PTSD would simply reflect the co-occurrence of PTSD with one or both disorders. Notably, this and many other concerns about 'complex PTSD' were advanced before the proposals for CPTSD in ICD-11 were outlined in 2013.

Nevertheless, critiques of the ICD-11 model of CPTSD and the ITQ as a measure of this construct remain. Frewen et al. (2023) recently published an empirical study that questioned whether the small number of items used in the ITQ can adequately capture the many and varied ways in which complex PTSD can manifest. They queried why dedicated subscales reflecting dissociation and somatization were excluded from the ITQ. Ultimately, they argued that the ICD-11 formulation of CPTSD was too narrow and the ITQ failed to capture critical information relevant to complex PTSD.

Many of the criticisms of the ITQ articulated by Frewen et al. (2023) suggest that the target of their criticism was misplaced. Frewen and colleagues appear to believe that the ICD-11 model of CPTSD is too narrow, and this is a consequence of the nature of the ITQ. This however is to misunderstand the order of influence. The ITQ was always developed to reflect the ICD-11 description of CPTSD, not to determine it. Whether one agrees or not, it must be acknowledged that ICD-11 CPTSD is whatever the ICD-11 says is it. The ITQ was built to assess all of the diagnostic requirements for ICD-11 PTSD and CPTSD that are outlined in the ICD-11 descriptions of the disorders. A simple face-validity checks indicates that the content of the ITQ maps on to the ICD-11 descriptions incredibly closely.

Furthermore, the ITQ was never designed to make a comprehensive assessment of all possible mental health problems a person might experience as a result of a traumatic event. The ITQ is intended to be used alongside other measures to assess phenomena such as dissociation, somatization, depression, anxiety, and other mental health problems. To that end, the small number of items within the ITQ is advantageous as it can be easily used as part of a wider battery of assessments.

One may reasonably wonder if the use of two items to measure each factor in the ITQ is an issue. From a purely statistical and measurement perspective, it would be ideal to measure each proposed latent factor with many more items. However, the guiding principle

underlying diagnostic descriptions in ICD-11 was to use the smallest number of symptoms possible to define a particular disorder. As such, a balance needed to be met between clinical utility and psychometric rigor. Use of two items per factor is the minimum number required to estimate a latent variable and assess internal consistency, and this ensured the fewest number of symptoms would be used. As such, the ITQ can be said to strike an acceptable compromise that maximises clinical utility while permitting rigorous psychometric testing.

1.6. Prevalence Rate of PTSD

Given that ICD-11 PTSD and CPTSD appears to be meaningful clinical constructs that can be measured with acceptable reliability and validity with the ITQ, the prevalence rates for these disorders can be estimated with a reasonable degree of confidence. However, as sections 1.3 and 1.4 underscore, the significant diversity among classification systems highlights the need for a careful examination when interpreting available data on PTSD prevalence rates. According to the World Mental Health surveys, when analysing data from 20 different countries, the 12-month prevalence rate for DSM-IV PTSD was 1.1% (Karam et al. 2014).

While this percentage may appear relatively low, it's crucial to recognize that the prevalence of PTSD can exhibit considerable variation due to many factors. As detailed by Hoffman and colleagues (2011) these factors include the timeframe of assessment (whether it's based on lifetime or 12-month prevalence rates), the method of evaluation (ranging from self-report assessments to clinician-administered interviews), the diagnostic criteria employed (e.g., DSM or ICD), and the cultural context of the study. Cultural factors can influence how trauma is perceived, experienced, and reported, which in turn can affect the prevalence of PTSD in different populations. For example, cultural norms regarding disclosure of traumatic experiences, stigma surrounding mental health issues, and access to mental health services can all impact the observed rates of PTSD.

The composition of the sample population can also influence prevalence rates. Studies that use nationally representative samples aim to mitigate sampling bias by including participants from diverse demographic backgrounds. However, factors such as non-response bias (i.e., certain groups being less likely to participate) or sampling methods that exclude specific populations can still affect the generalizability of findings.

Finally, the type and severity of traumatic events experienced by individuals in the sample can influence PTSD prevalence rates. Certain types of traumas may be more likely to result in PTSD symptoms, and the prevalence of these events can vary across populations and geographic region. For a detailed comparison of PTSD prevalence rates in different large population samples across countries and under various diagnostic frameworks, please see Table 1.1

Table 1.1.

Prevalence rates of PTSD rates across countries and classification.

Country	Prevalence rates across classification (%)				Type	Study
	ICD-11 PTSD	ICD-11 CPTSD	DSM-IV PTSD	DESNOS		
Algeria				13.2	Not stated	Mellor et al. 2021
			37.4		Lifetime	de Jong et al. 2005
Australia	3.3				Not stated	O'Donnell et al. 2014
			9.5		12-month	Bryant et al. 2013
Belgium			0.6		12-month	Karam et al. 2014
Brazil			3.2		Lifetime	Koenen et al. 2017
Bulgaria			1.9		Lifetime	Koenen et al. 2017
Cambodia	8.1				Lifetime	Stammel et al. 2015
			28.4		Lifetime	Jong et al. 2001
Canada	5.1	2.7			12-month	Cyr et al. 2022
			2.4		12-month	Van Ameringen et al. 2008
Chile				4.4	Lifetime	Zlotnick et al. 2006
China	0.6				Not stated	Li, Guo & Chan, 2022
		0.3			Not stated	Li, Guo & Chan, 2022

			0.3		12-month	Koenen et al. 2017
Denmark	7.5		13.6		Not-stated	Hansen et al. 2022
Colombia			1.8		12-month	Karam et al. 2014
Ethiopia			15.8		Lifetime	de Jong et al. 2001
				2.2	Not stated	de Jong et al. 2005
France	7.5				12-month	Peraud et al. 2022
			1.4		1-month	Karam et al. 2014
Gazza			17.8		Lifetime	de Jong et al. 2001
				5.6	Not stated	de Jong et al. 2005
Germany	1.5	0.5				Macercker er al., 2018
			0.5		12-month	Karam et al. 2014
Ghana	17.6	13.0			Not stated	Ben-Ezra et al. 2018
Japan	1.3				Lifetime	Koenen et al. 2017
			0.3		Lifetime	Kawakami et al. 2014
Lebanon			1.6		12-month	Karam et al. 2014
			3.4		Lifetime	Koenen et al. 2017
Lithuania	5.8	1.8			Not stated	Kvedaraite et al. 2022

Mexico			11.2	Lifetime	Norris et al. 2003
Netherlands			1.2	12-month	Karam et al. 2014
			7.4	Lifetime	de Vries & Olff, 2009
New Zealand			2.1	12-month	Karam et al. 2014
N. Ireland	1.5	3.4		1-month	Redican et al. 2022*
			3.8	12-month	Karam et al. 2014
			8.8	Lifetime	Bunting et al. 2013
Ireland	2.4	8.8		1-month	McGinty et al. 2023
Israel	6.7	4.9		1-month	McGinty et al. 2022
Romania			1.2	Lifetime	Koenen et al. 2017
			1.8	12-month	Koenen et al. 2017
South Africa	14.9	11.9		12-month	Rink & Lipinska, 2020
South Korea			1.7	Lifetime	Jeon et al. 2007
			1.3	12-month	Jeon et al. 2007
Spain			2.2	Lifetime	Koenen et al. 2017
			1.0	12-month	Koenen et al. 2017
Sweden			5.6	Lifetime	Frans et al. 2005
Switzerland			5.0	Lifetime	Perrin et al. 2014

Uganda		15.0			Dokkedah et al. 2015
Ukraine	7.8	13.1		1-month	McGinty et al. 2023*
			4.8	Lifetime	Koenen et al. 2017
			2.0	12-month	Koenen et al. 2017
U.K.	5.3	12.9		1-month	McGinty et al. 2022
United States	3.4	3.8		12-month	Cloitre et al. 2019
			6.9	Lifetime	Koenen et al. 2017

*sample of only young people (11-25), DENOS = Disorder of Extreme Stress Not otherwise Specified.

1.7. Risk Factors associated with PTSD

A substantial body of evidence exists regarding the most important risk factors associated with the aetiology of traditional DSM-based PTSD. A recent umbrella review of 33 systematic reviews and meta-analyses identified 130 potential risk factors associated with PTSD (Tortella-Feliu et al. 2019). Results revealed that out of the 130 risk factors, only 21 factors were found to have strong evidence supporting their association with PTSD (see Table 1.2 for details) (Tortella-Feliu et al. 2019). Consistent with previous reviews (DiGangi et al. 2013; Ozer et al. 2003), the study categorized these risk factors into three main groups: pre-trauma risk factors (before the traumatic experience), trauma-related/peritraumatic risk factor (while the trauma was happening or immediately after) and posttraumatic risk factors (2 days to 1 month following the trauma). While there is an extensive body of research in the general literature, a crucial challenge lies in investigating whether and how these risk factors are applicable to ICD-11 PTSD and CPTSD. Identifying the risk factors associated with ICD-11 PTSD and CPTSD is vital for enhancing prediction and potential prevention strategies.

1.7.1. Pre-trauma factors

In terms of the general PTSD literature, researchers have recognized many pre-trauma risk factors. Biological sex has been established as a prominent risk factor in relation to PTSD. (Tolin & Foa, 2006). Epidemiological research has consistently shown a greater risk for developing PTSD in females when compared to males (Christiansen & Berke, 2020; Olff et al. 2007; Tolin & Foa, 2006). The same findings have been replicated in studies which use the ITQ to measure ICD-11 PTSD and CPTSD (Karatiaz et al. 2019; McGinty et al. 2022). Quite a few theories have been put forth to explain the higher prevalence of PTSD among females (see Olff et al. 2007 for review). Among these factors, a mixture of epigenetic mechanisms, hormonal influences, and societal gender roles has been proposed to contribute to an elevated risk of PTSD in women (Christiansen & Berke, 2020). Furthermore, a smaller yet significant body of research indicates that the prevalence of PTSD tends to diminish with advancing age, with the lowest rates typically found in individuals aged 65 and above (Frans et al. 2005; Reynolds et al. 2016; Kessler et al. 2005). Less research has been done to assess these age differences using measures reflective of ICD-11 of PTSD and CPTSD.

Poverty has been consistently recognised as pre-trauma risk factors for PTSD in the general population (Brewin et al. 2000; Xue et al. 2015) with studies demonstrating similar findings when utilizing measures of ICD-11 PTSD (Hyland et al. 2017b; Kazlauskas et al. 2022). This association has been suggested to be linked to a reduced likelihood of traumatic exposure in individuals with higher levels of income (Breslau et al. 1991), as well as greater

access to quality social services and financial resources to manage the after effects of trauma exposure (Lenart et al. 2021). Pre-existing psychological conditions are also a strong predictor of PTSD (DiGangi et al. 2013). Those with a prior diagnosis of a psychological disorder have been found to be at a heightened risk of developing PTSD (Brewin et al. 2000; Heron-Delaney et al. 2013). Moreover, the presence of a family history of psychological disorders is also associated with a higher likelihood of developing PTSD (Breslau, 2002; Brewin et al. 2000; Ozer et al. 2003), highlighting the importance of genetic vulnerability in the development of PTSD.

Finally, adverse childhood experiences (ACE) have found to be another important risk factor in the development and maintenance of PTSD (Frewen et al. 2019). Research has consistently shown that exposure to ACEs can significantly increase the risk of experiencing more trauma and developing PTSD later in life (Hyland et al. 2017c; Tabb et al. 2022). Traumatic experiences in childhood such as sexual abuse, (Ben-Ezra et al. 2018; Frost et al. 2019a; Karatzias et al. 2017a) neglect (Frost et al. 2019b; Karatzias et al. 2020) and physical abuse (Hyland et al. 2017c; Karatzias et al. 2017; Karatzias et al. 2018) can lead to changes in the brain's structure and function, increasing vulnerability to stress-related disorders like PTSD (Andersen et al. 2008; Herzog & Schmahi, 2018; McLaughlin et al. 2020). These changes can affect how the brain processes and responds to traumatic events leaving individuals vulnerable to the effects of trauma in adulthood (McLaughlin et al. 2020). ACEs often co-occur with other risk factors for PTSD, such as a lack of social support, economic hardship, or limited access to mental health services. The combination of these factors may further increase the risk of developing and maintaining PTSD.

1.7.2. Peritraumatic risk-factors

Early research studies revealed that the seriousness of a traumatic experience, such as the perception of life-threatening danger, plays an important role in the risk of developing PTSD (Brewin et al. 2000; Heron-Delaney et al. 2013; Kessler et al. 2014; Ozer et al. 2003; Xue et al. 2015). For instance, traumatic experiences such as torture, physical assault resulting in injury, rape or being trapped due to an earthquake, in which escape is difficult or impossible, have been consistently linked to PTSD severity (Foy et al. 1984; van der Kolk, 2022; Strelau & Zawadzki, 2005). Moreover, logistic regression analysis has often revealed that individuals who have experienced traumas of an interpersonal nature demonstrate significantly higher likelihoods of receiving a PTSD diagnosis than other types of traumas (Ozer et al. 2003). In her seminal text "Trauma and Recovery*"* Hermann (1992), highlights that experiencing trauma at the hands of another person shatters a persons sense of trust in the safety of the world and in others (Hermann, 1992, p.61). Researchers have added that a

combination of social (resilience) and environmental (ostracized or shamed) factors could play a role in who goes on to develop PTSD following such traumas (Charuvastra & Cloitre, 2008). In terms of the ICD-11 literature, studies have consistently shown that complex interpersonal traumas in which escape is difficult or impossible can lead to the development of CPTSD over PTSD (Karatizas et al. 2019).

Furthermore, peritraumatic dissociation, which occurs throughout or immediately after a traumatic event, plays a crucial role in determining the severity of subsequent PTSD symptoms (Breh & Seidler, 2007; Lensvelt & Mulders et al. 2008; Ozer et al. 2003). Dissociation is a complex psychological phenomenon that involves a range of dissociative reactions, including emotional numbing and alterations in consciousness and perception of one's surroundings and reality (Bryant, 2007). Dissociation is often considered a defence mechanism or coping strategy in response to severe stress or traumatic experiences. Individuals experiencing dissociation may feel detached from themselves or their surroundings, almost as if they are observing their own experiences from a distance. The disruption caused by dissociation can impede the encoding and immediate processing of traumatic events and can have several implications such as fragmented memory, delayed emotional response, impaired coping, reexperiencing symptoms (Brewin, 2001; Brewin & Holmes, 2003; van der Kolk et al. 2012).

1.7.3. Posttraumatic risk-factors

Developing Acute Stress Disorder (ASD) following a traumatic event has been consistently understood as a risk factor for the development of PTSD (Cahil & Pontoski, 2005). The inclusion of ASD in the fourth edition of the DSM (APA, 2000) aimed to identify trauma survivors who were unlikely to naturally recover over time and facilitate early intervention. A recent systematic review of 22 studies examining the predictive power of ASD in relation to the subsequent development of PTSD, found a reasonably positive predictive value (Bryant, 2010a). The findings suggest that a proportion of individuals diagnosed with ASD do progress to develop PTSD, indicating its utility as a predictive marker. However, the sensitivity of the ASD diagnosis was found to be poor, indicating its inadequacy in identifying those who would later meet the criteria for PTSD. This raises significant questions about the diagnostic accuracy of ASD in recognizing the majority of individuals at risk for PTSD. The review highlights the need for a revaluation of how ASD is understood and acute stress reactions are approached (Byrant, 2010).

A variable that received recent research attention as an important risk factor for developing PTSD is loneliness (Fox et al. 2021; Shevlin et al. 2015; van der Velden, Pijnappel & van der Meulen, 2018). Research has shown that loneliness can lead to

hypervigilance and negative cognitive biases, causing individuals to perceive their environment as threatening and fostering a sense of hostility, anxiety, and stress (Hawkley & Cacioppo, 2010). Over time, these patterns can contribute to the development of psychopathological conditions, including PTSD (Hawkley & Cacioppo, 2010). Addtionally, a recent longitudinal study in older adults found that emotional loneliness, which involves a lack of intimate relationships and close attachments, is associated with PTSD symptoms over time (Fox et al. 2021). The authors suggested that loneliness may to lead to PTSD through a number of different channels such as social withdrawal, negative cognitions and sleep problems (Fox et al. 2021).

Sleep problems are another important risk factor that have garnered research attention in recent years. Evidence from prospective longitudinal studies has shown that sleep disturbances lead to increased levels of posttraumatic stress symptoms (Koffel et al. 2016). Sleep problems following traumatic experiences are linked to increased stress, distressing nightmares, impaired cognitive functioning, heightened emotional reactivity, and chronic stress (Babson & Feldner, 2020). These factors can make individuals more vulnerable to the effects of traumatic events, increasing the risk of developing PTSD (Byrant, 2010b). Recognizing the link between sleep problems, loneliness and ICD-11 PTSD and CPTSD is crucial for both prevention and treatment strategies. In sum, there are many risk factors involved in the development and maintenance of PTSD. What's left to be determined is how these risk factors relate to ICD-11 PTSD and CPTSD.

Table 1.2.

Risk factors of PTSD in the general adult population based on Tortella-Feliu et al. (2019) umbrella review of 33 systematic reviews and meta-analyses.

Pre-trauma risk factors	Peritraumatic risk factors	Posttraumatic risk factors
Sex (female)	Severity of trauma	Acute stress disorder (ASD)
Indigenous people of the Americas	Cumulative trauma exposure	ASD symptoms
Lower socioeconomic status	Being stuck or can't escape	
History of illness or disease	Torture	ASD-related anxiety
Family history of psychopathology	Peritraumatic dissociation	
Adverse childhood experiences	Injury	ASD-related depression
	Witnessing grievous injury/death	
	Bereavement	

1.8. Clinical Correlates and Outcomes of ICD-11 PTSD and CPTSD

Although a significant amount of research has been conducted on the risk factors that are associated with developing PTSD, there has been limited research identifying the clinical and behavioural correlates associated with the development of ICD-11 CPTSD and PTSD (Hyland et al. 2018). Research indicates that clinical factors such as depression, dissociation, anxiety, and aggression (Elklit et al. 2014; Hyland et al. 2018) could potentially elevate the probability of developing CPTSD. Currently, there is a scarcity of psychological interventions tailored specifically for CPTSD (as reviewed by Cloitre et al. 2010). By understanding the clinical factors that differentiate CPTSD from PTSD, it could significantly improve the development of interventions tailored to individuals suffering from CPTSD. A study conducted on a predominantly female clinical sample from Scotland (N=110) found that ICD-11 CPTSD was distinguished from ICD-11 PTSD on the basis of higher levels of dissociation, depression, and borderline personality disorder symptoms (Hyland et al. 2018). Additionally, results revealed that there was a strong association between ICD-11 CPTSD and anxiety and suicidality (Hyland et al. 2018). This is consistent with a small number of studies which have identified a relationship between the two disorders and suicide ideation and behaviour (Karatzias et al. 2019; Møller et al. 2021). Further research is warranted to elucidate the relationship between ICD-11 CPTSD and the risk of suicidality, with a specific emphasis on understanding how the distinct symptom clusters within CPTSD may be intercorrelated with suicidal tendencies.

Furthermore, an important variable in relation to PTSD and CPTSD that has yet to be explored comprehensively is coping styles. Coping styles refer to the cognitive and behavioural efforts people make to manage external and internal demands and conflicts (Folkman & Lazarus, 1980). In a systematic review of coping styles used by Internally Displaced People (IDPs) in conflict-affected low-and middle-income countries, researchers identified the most frequently coping strategies among refugees and IDPs. Strategies included support-seeking, positive cognitive restructuring, avoidant coping and problem-focused approaches (Seguin & Roberts, 2014). Notably, problem-focused coping has been proposed as more effective than emotion-focused and avoidant coping in addressing traumatic stress (Gorst-Unsworth & Goldenberg, 1998). Emotion-focused and avoidant coping strategies are generally considered less adaptive and less effective in dealing with enduring trauma (Folkman & Moskowitz, 2020). Moreover, studies have shown that among IDPs suffering from conflict-related PTSD, the use of avoidant coping styles is associated with greater symptom severity (Saxon et al. 2018). Research has consistently shown that levels of PTSD and CPTSD are higher among IDP and refugees samples compared to the general population (de Silva et al. 2021; Mellor et al. 2021), however, very little studies have

examined what coping strategies are utilized by individuals meeting the diagnostic criteria for ICD-11 PTSD and CPTSD.

1.9. Conclusion

In conclusion, there is an abundance of literature highlighting the prevalence rates, correlates and outcomes associated with PTSD. Similarly, a substantial amount of studies provide strong support for the psychometric properties of the ICD-11 models of PTSD and CPTSD. Reviewing the current evidence makes it clear that although a strong literature exists, gaps remain. For instance, relatively few studies have assessed the reliability and validity of the ITQ in its finalized version and in nationally representative general population samples. Similarly, the vast literature that has evidenced pre-, peri-, and post-trauma risk factors are associated with traditional models of PTSD, and studies that have assessed risk factors that are uniquely associated with ICD-11 CPTSD are limited. Moreover, further research is needed to understand how ICD-11 CPTSD is related to risk of suicide, and particularly how the specific symptoms clusters are related to suicidality. Identifying these factors can be used to guide clinical assessments and approaches to treatment.

In addition, while PTSD and CPTSD can follow any type of trauma, CPTSD is more likely to follow trauma exposure that is prolonged and difficult to escape from (Hyland et al. 2021; Karatzias et al. 2019), and this may be particularly relevant in the context of an ongoing war. Understanding the rates of ICD-11 PTSD and CPTSD in a war-torn country such as Ukraine may be useful in informing crisis level mental health responses. Addtionally, many studies have identified factors associated with ICD-11 PTSD and CPTSD, however, one potentially important variable that has yet to be investigated is coping styles. Understanding what kind of coping styles individuals with symptom profiles consistent with ICD-11 PTSD and CPTSD can have significant clinical implications for mental health responders.

The discriminant validity of ICD-11 PTSD and CPTSD has been extensively tested using mixture-modelling statistical methods (Redican et al. 2021). Studies using these methods have routinely identified evidence of distinct groups of trauma-exposed persons with symptom profiles consistent with ICD-11 PTSD and CPTSD. Furthermore, multiple studies have also identified a subset of individuals who exhibit a heightened likelihood of reporting all DSO symptoms but a low likelihood of reporting PTSD symptoms (Liddell et al. 2019; Perkonigg et al. 2016). It is probable that these individuals are experiencing psychological distress unrelated to trauma, such as depression or generalized anxiety. Furthermore, PTSD and CPTSD have been found to be comorbid with ADHD. However, very few studies have examined how these disorders relate to one another. Determining if

ADHD is related to ICD-11 PTSD and CPTSD is another important step toward understanding the aetiology and treatment approaches tailored to treating both disorders.

Finally, with an ever-growing number of studies using the ICD-*11* models of PTSD and CPTSD it is important that to determine if traditionally understood sex and age differences in trauma-related psychopathology are still being observed in the context of ICD-11 PTSD and CPTSD.

1.10. Aims of the Thesis

The overarching goal of the thesis was to advance current understandings of the validity of ICD-11 PTSD and CPTSD and their correlates and outcomes in an international context. To achieve this goal, several research objectives were formulated. The first objective was to test the factorial validity, prevalence and correlates of the ICD-11 model of CPTSD in a nationally representative sample of Irish adults. The following hypotheses were formulated in relation to this objective:

1. In line with previous findings (Hyland et al. 2021b), it was hypothesized that approximately 12% of people would meet the criteria for ICD-11 PTSD or CPTSD and that rates of PTSD and CPTSD would be similar to one another.
2. In line with previous findings such as Redican et al.'s (2021) systematic review, it was hypothesized that the correlated six-factor model and the two-factor second-order model would fit the sample data well, but the former would provide a closer fit.

The second objective was to estimate specific rates of ICD-11 PTSD among internally displaced people in Ukraine, and what types of coping strategies are associated with meeting diagnostic requirements for PTSD and CPTSD. The following hypotheses were formulated in relation to this objective.

3. It was hypothesized that the selected predictor variables in the first study would explain a substantial proportion of variance in CPTSD symptoms, but no formal hypotheses were made about which variables would-be uniquely associated with which CPTSD symptom clusters given how few studies have assessed these correlates simultaneously. This objective, therefore, was largely exploratory in nature.
4. It was hypothesized that the CPTSD symptom clusters would be positively associated with suicide risk, but given the limited evidence base, no formal hypotheses were made about which CPTSD symptom clusters would be most strongly associated with suicide risk

The third objective was to determine if ADHD symptoms significantly differed across persons defined by symptoms of ICD-11 PTSD and CPTSD in a sample of Canadian adults. Related to this objective, and with reference to the existing theoretical and empirical literature, the following hypotheses and research questions were formulated.

5. In line with the existing literature (e.g., Knefel et al. 2018; Liddell et al. 2019; Perkonigg et al. 2016; Redican et al. 2021), it was hypothesised that the best fitting LCA model would include classes whose symptom profiles were consistent with ICD-11 PTSD and CPTSD.
6. In line with previous literature (Facer-Irwin et al. 2022) it was hypothesised that levels of ADHD would be significantly higher in those with symptom profiles reflecting ICD-11 PTSD and CPTSD compared to those with few or any such symptoms but given the scant evidence regarding levels of ADHD across ICD-11 PTSD and CPTSD, this aspect of the study was approached in an exploratory manner.

The fourth and final objective was to assess for age and sex differences in prevalence rates of PTSD and CPTSD across four countries, the United States (US), the Republic of Ireland, Israel, and the United Kingdom (UK).

Chapter 2

Assessing prevalence, validity, and correlates of ICD-11 posttraumatic stress disorder and complex posttraumatic stress disorder in Ireland

A paper based on this chapter has been published in Psychological Trauma: Theory, Research, Practice, and Policy

McGinty, G., Fox, R., & Hyland, P. (2023). Assessing prevalence, validity, and correlates of ICD-11 posttraumatic stress disorder and complex posttraumatic stress disorder in Ireland. *Psychological Trauma: Theory, Research, Practice, and Policy*. Advance online publication. https://doi.org/10.1037/tra0001472

Abstract

Background: The most frequently used measure of ICD-11 Complex Posttraumatic Stress Disorder (CPTSD) is the *International Trauma Questionnaire* (ITQ). While there is strong support for the psychometric properties of the ITQ, few studies have assessed its reliability and validity in nationally representative samples. Additionally, several risk factors for ICD-11 CPTSD have been identified; however, few studies have assessed multiple risk factors simultaneously.

Objective: To assess the factorial validity and internal reliability of the ITQ in a nationally representative sample of adults living in Ireland (N =1,100); determine the prevalence rates of ICD-11 PTSD and CPTSD; and identify risk factors for CPTSD symptoms, and how CPTSD symptoms relate to risk of suicide.

Methods: Confirmatory factor analysis was performed to evaluate the factorial validity of the ITQ, and structural equation modelling was used to determine the unique multivariate associations between 10 predictor variables (age, sex, urban dwelling, unemployment status, number of traumatic events, COVID-19 infection, knowing someone who died from COVID-19, loneliness, social support, and sleep problems) and symptoms of CPTSD, and the unique associations between CPTSD symptoms and suicide risk.

Results: The ITQ produces reliable and valid scores, 11.2% of people met requirements for ICD-11 PTSD (2.4%) or CPTSD (8.8%), exposure to a higher number of traumatic life events, higher levels of loneliness, and more sleep problems predicted CPTSD symptoms; and negative self-concept symptoms were most strongly associated with suicidality.

Conclusions: In situations where the risk of suicide is high, treating symptoms of negative self-concept may be advisable.

Key words: PTSD, trauma, suicide, CPTSD, Loneliness, negative self-concept

2.1. Introduction

Complex posttraumatic stress disorder (CPTSD) was included in the eleventh edition of the *International Classification of Diseases* (ICD-11; WHO, 2018) as a sibling disorder to posttraumatic stress disorder (PTSD). ICD-11 CPTSD in defined by six symptom clusters of re-experiencing in the here and now, avoidance of traumatic reminders, sense of current threat, affect dysregulation, negative self-concept, and disturbances in relationships. The first three symptom clusters are shared with PTSD and the latter three symptom clusters are collectively termed 'Disturbances in Self-Organization' (DSO). Several studies have estimated the prevalence of ICD-11 PTSD and CPTSD in nationally representative samples of the general adult population. In the United States, prevalence rates were 3.4% and 3.8% for PTSD and CPTSD, respectively (Cloitre et al. 2019); in Israel rates were 6.7% and 4.9% for PTSD and CPTSD, respectively (Hyland et al. 2020); in Lithuania rates were 5.8% and 1.8% for PTSD and CPTSD, respectively (Kvedaraite et al. 2021); and in Ireland, rates were 5.0% and 7.7% for PTSD and CPTSD, respectively (Hyland et al. 2020a).

The most frequently used measure of ICD-11 CPTSD symptoms is the *International Trauma Questionnaire* (ITQ: Cloitre et al. 2018). The ITQ is a self-report scale that captures all diagnostic requirements for PTSD and CPTSD set out in the ICD-11. A recent systematic review of 33 studies provided strong support for the psychometric properties of the ITQ (Redican et al. 2021), and indicated that the latent structure is best described by two models: a correlated six-factor model reflecting the six PTSD and DSO symptom clusters and a higher-order model with second-order PTSD and DSO factors explaining the correlations between the six first-order factors. The review found that both models performed well across different samples, but the correlated six-factor model performed slightly better in non-clinical samples. While there is strong support for the psychometric properties of the ITQ, relatively few studies have assessed the reliability and validity of the measure in nationally representative general population samples.

Several risk factors associated with symptoms of ICD-11 CPTSD (that is to say, PTSD and DSO symptoms) have been identified across various studies. Demographic factors such as younger age, female sex, unemployment status, growing up in an urban area, and history of emigration are positively associated with CPTSD symptomatology (e.g., Hyland et al. 2021a; Karatzias et al. 2019). Additionally, exposure to higher number of traumatic events during one's lifetime is associated with symptoms of CPTSD (Hyland et al. 2021b; Karatzias et al. 2019). Loneliness and low levels of social support are well-established correlates of posttraumatic stress symptoms (Brewin et al. 2000; De Soir et al. 2015; Heron-Delaney et al. 2013; Ozer et al. 2003; Steine et al. 2017), and while several studies have shown loneliness to be correlated with ICD-11 CPTSD symptoms (Fox et al. 2022), there is little or no data on how social support is associated with ICD-11 CPTSD

symptoms. Moreover, the author is unaware of any study that has modelled the relationships between loneliness and social support with ICD-11 CPTSD symptoms simultaneously. Finally, while there is evidence from prospective longitudinal studies that sleep problems lead to increased levels of posttraumatic stress symptoms (Koffel et al. 2016), there are limited data on how sleep problems are related to ICD-11 CPTSD symptoms. One study with a Swedish clinical sample found that symptoms of insomnia were positively associated with PTSD and DSO symptoms (Bondjers et al. 2019). Continued study of the relationship between sleep problems and ICD-11 PTSD/CPTSD symptoms is important because unlike the DSM-IV/DSM-5 models of PTSD, sleep disturbance is not included in the ICD-11 as a symptom of either PTSD or CPTSD. Continued assessment of what risk factors are uniquely associated with specific symptom clusters of ICD-11 CPTSD is also important as such findings can be used to guide clinical assessments and approaches to treatment.

Meta-analytic studies have found associations between PTSD and suicidal ideation and behavior (Krysinska & Lester, 2010; Panagioti et al. 2009). Longitudinal studies have also found that PTSD predicts subsequent suicidal ideation (Panagioti et al. 2017) and suicidal attempts (Stanley et al. 2019), and both outcomes were uniquely predicted by the hyperarousal cluster of PTSD symptoms. It is important to note that the hyperarousal symptom cluster in DSM-IV/DSM-5 PTSD does not correspond to the sense of current threat symptom cluster in ICD-11 PTSD/CPTSD. Although both include symptoms of hypervigilance and an exaggerated startle response, the DSM includes additional indicators of hyperarousal such as sleep disturbances, heightened aggression, engagement in risky behaviors, and difficulty concentrating. There are a small number of studies that have assessed how ICD-11 PTSD and CPTSD are associated with suicide ideation and behavior. In a trauma-exposed community sample from the United Kingdom, Karatzias et al. (2019) found that meeting diagnostic requirements for ICD-11 PTSD and CPTSD were both associated with reporting suicidal thoughts and behaviors. In a study of Danish outpatients, Møller et al. (2021) found that 42% of those who met diagnostic requirements for ICD-11 CPTSD reported suicidal ideation, while no patients with ICD-11 PTSD reported suicidal ideation. More research is needed to understand how ICD-11 CPTSD is related to risk of suicide, and particularly how the specific symptoms clusters are related to suicidality.

This study was performed with several objectives in mind. The first was to estimate the prevalence rates of ICD-11 PTSD and CPTSD in a nationally representative sample of adults living in Ireland. In line with findings from a prior nationally representative sample of adults living in Ireland conducted in 2019 (Hyland et al. 2021a), it was hypothesized that approximately 12% of people would meet criteria for ICD-11 PTSD or CPTSD, and that rates of PTSD and CPTSD would be similar to one another. Second, the factorial validity and internal reliability of the ITQ was tested in this sample. Consistent with the findings of

Redican et al.'s (2021) systematic review, it was hypothesized that the correlated six-factor model and the two-factor second-order model would fit the sample data well, but the former would provide a closer fit. Third, the associations between a range of demographic, trauma, and psychosocial variables and symptoms of ICD-11 CPTSD were estimated. Here it was hypothesized that the selected predictor variables would explain a substantial proportion of variance in CPTSD symptoms, but no formal hypotheses were made about which variables would be uniquely associated with which CPTSD symptom clusters given how few studies have assessed these risk factors simultaneously. This objective, therefore, was largely exploratory in nature. Fourth, the relationships between ICD-11 CPTSD symptoms and indicators of suicidal ideation and behavior was assessed. It was hypothesized that the CPTSD symptom clusters would be positively associated with suicide risk but given the limited evidence base, no hypotheses were made about which CPTSD symptom clusters would be most strongly associated with suicide risk.

2.2. Methods

2.2.1. Participants and procedures

This study utilized data from Wave 5 of the Irish arm of the COVID-19 Psychological Research Consortium Study, a longitudinal, internet-based project assessing the population's psychological and social adjustments to the pandemic (Hyland et al. 2020). These data were collected between March 19th and April 9th, 2021, which was a time of strict lockdown measures in the Republic of Ireland. These data were collected by the survey company Qualtrics. Quota sampling methods were used to construct a non-probability-based sample (N = 1,100) that was representative of the entire adult population of the Republic of Ireland based on distributions of sex, age, and geographical location, as per the 2016 Irish census (Central Statistics Office, 2017). Inclusion/exclusion criteria were simple in that participants were required to be at least 18 years of age, a resident of the Republic of Ireland at the time of the survey, and able to complete the survey in English. Participants were recruited by Qualtrics from existing, actively managed, double-opt-in research panels via email, SMS, or in-app notifications. Qualtrics remunerated each participant and collected informed consent. Ethical approval was granted by the Social Research Ethics Committee at Maynooth University [SRESC-2020-2402202]. Table 1 provides sociodemographic details of the sample.

Table 2.1.

Sociodemographic characteristics and descriptive statistics (N = 1,100).

	% or Mean	SD
Age in years	Mean = 44.91	15.71
Sex		
Male	48.0%	
Female	51.7%	
Transgender, Prefer not to say	0.3%	
Area of residence		
Rural, suburb, town	75.1%	
Urban	24.9%	
Employment status		
Employed	85.2%	
Unemployed	14.8%	
Trauma exposed		
No	29.9%	
Yes	70.1%	
Trauma Total	Mean = 2.74	2.90
COVID-19 infection		
Yes	9.5%	
No	90.5%	
Someone close died of COVID-19		
Yes	8.6%	
No	92.0%	
PTSD symptoms		
Re-experiencing in the here and now	Mean = 1.37	1.95
Avoidance	Mean = 1.43	2.07
Sense of threat	Mean = 1.48	2.07
DSO symptoms		
Affect dysregulation	Mean = 1.88	2.02
Negative self-concept	Mean = 1.63	2.30
Disturbed relationships	Mean = 1.83	2.22
Loneliness	Mean = 4.89	1.84
Social Support		
Instrumental support	Mean = 12.37	5.73
Emotional support	Mean = 12.89	5.28

Insomnia		
Sleep quality	Mean = 12.44	5.74
Sleep function	Mean = 8.72	3.33
Suicidality		
Ideation	27.9%	
Self-harm lifetime	12.9%	
Attempt lifetime	11.0%	

Empirical analyses have shown the sample is highly representative of population on each of the quota variables with sample proportions falling within ~1% of the known, census-derived population parameters (Spikol *et al.* 2021). Moreover, the sample was also reasonably representative of the population on several non-quota variables such as ethnicity, religious affiliation, educational achievement, and employment status. *A priori* power analyses were conducted to determine the optimal sample size for identifying mental health disorders in the general population with a prevalence of 5%. A sample size of 1,842 was necessary to detect a disorder with a 5% prevalence with a precision of 1% and 95% confidence. However, Qualtrics was only able to guarantee 1,000 participants so the target sample size was set at 1,000 which, holding all other parameters in the sample size calculation equal, resulted in a precision of 1.35%.

2.2.2. Measures

Trauma exposure: A modified version of the *International Trauma Exposure Measure* (ITEM: Hyland et al. 2021) was used to assess lifetime exposure to 16 different traumatic life events. The ITEM measures trauma exposure in a manner that is consistent with the ICD-11's definition of a traumatic event as any event of an extremely threatening or horrific nature. Participants were asked if they had ever experienced any of the 16 events and respond using a 'Yes' (1) or 'No' (0) response format. Participants were also asked to identify their worst traumatic experience. For this study, a summed total score (based on a classical test theory approach, that is, using a count of trauma experiences) of the number of different traumatic life events experienced was developed. Scores could therefore range from 0-16 with higher scores reflecting a higher number of traumatic life events.

ICD-11 CPTSD: Symptoms of ICD-11 CPTSD were measured using the ITQ (Cloitre et al. 2018). Participants were instructed to keep in mind their worst traumatic event, as identified by the ITEM, when completing the ITQ. There are six items measuring the PTSD symptoms and six items measuring the DSO symptoms (two items per symptom cluster). Additionally, the PTSD and DSO symptoms are followed by measures of functional impairment across three different domains of life. PTSD symptoms are answered in relation to how bothersome each symptom has been over the past month, and DSO symptoms are

answered in relation to typical reactions. All items are answered using a five-point Likert scale that ranges from 0 ('Not at all') to 4 ('Extremely'), and a symptom is considered present based on a response of $\geq$ 2 ('Moderately'). Diagnostic requirements for PTSD include trauma exposure, one symptom present from each PTSD cluster, and presence of functional impairment associated with these symptoms. Diagnosis of CPTSD requires that all PTSD criteria are met, one symptom is present from each DSO cluster, and evidence of functional impairment associated with these symptoms. If an individual meets the criteria for CPTSD, they do not also receive a PTSD diagnosis.

Loneliness: The Three-Item Loneliness Scale (TILS: Hughes et al. 2004) was designed for use in large-scale population surveys and asks respondents to indicate how often they feel that they lack companionship, feel left out, and feel isolated from others. Responses are scored on a three-point scale including 'Hardly ever' (1), 'Sometimes' (2), and 'Often' (3), and higher scores reflect higher levels of loneliness. The internal reliability of the scale scored was good in this sample (α = .86).

Social Support: Social support was measured using the Modified Medical Outcome Social Support Survey *(mMOS-SSS*) (Moser et al. 2012). The 8-item mMOS-SSS is an abbreviated version of the 19-item MOS-SSS (Sherbourne & Stewart, 1991) that asks respondents to report how frequently they have available to them two domains of social support: instrumental/tangible and emotional. Items include, "*How often are each of the following kinds of support available to you if you need it: to help you if you were confined to bed?*" and "*to love you and make you feel wanted?*" All items are scored on a five-point Likert scale ranging from 1 ('None of the time') to 5 ('All of the time'). The measure had good internal reliability (Cronbach's alpha range .88-.93) when used in studies of older women diagnosed with breast cancer (Moser et al. 2012), and studies have also demonstrated support for the two-factor model (Moser et al. 2012). The internal reliability of the instrumental/tangible (α = .96) and emotional (α = .95) subscales in this sample were excellent.

Sleep problems: The *Sleep Condition Indicator* (SCI: Espie et al. 2014) was used to measure sleep problems. The SCI is an eight-item measure developed to screen for DSM-5 Insomnia Disorder. Participants report on different types of sleep problems, sleep dissatisfaction, and consequences of poor sleep. All items use a five-point Likert scale (0-4) with possible scores ranging from 0-32, and lower scores indicate more sleep problems. The psychometric properties of the SCI scale score have been supported in multiple general population samples, with results supporting a two-factor model structure inclusive of 'sleep quality' and 'sleep function' (Espie et al. 2018). The internal reliability of the sleep quality (α = .86) and sleep function (α = .93) subscale scores in this sample were excellent.

Experiences of COVID-19: Given the timing of the data collection, two variables relating to people's experience of the COVID-19 pandemic were added to the model. Participants were asked "*Have you been infected by COVID-19?*" answers were given on a 'Yes' (1) or 'No' (0) basis. Similarly, participants were asked, "*Has anyone close to you died because of COVID-19?*" to which participants answered either 'Yes' (1) or 'No' (0)

Suicidality: Participants were asked three questions regarding suicide, and these items were adapted from the 2014 English Adult Psychiatric Morbidity Survey (McManus et al. 2016). One question related to lifetime suicidal or self-harming ideation, "*Have you ever thought of harming yourself or taking your life, even if you would not really do it?*" Another question measured lifetime non-suicidal self-injurious behaviour (NSSI), "*Have you ever deliberately harmed yourself in any way but not with the intention of taking your own life?*" Finally, a third question measured lifetime attempted suicide, "*Have you ever made an attempt to take your own life?*" Each question was answered on a 'Yes' (1) or 'No' (0) basis.

2.2.3. Data analysis

The analytical strategy included three steps. First, descriptive statistics were used to determine what proportion of the sample met diagnostic criteria for ICD-11 PTSD and CPTSD. Second, confirmatory factor analysis (CFA) was used to test the fit of the two models of the ITQ, and the internal reliability of the ITQ scale scores was then assessed using composite reliability (CR) analysis (Raykov, 1997). Third, structural equation modelling (SEM) was used to determine (1) the unique multivariate associations between 10 predictor variables (age, sex, urban dwelling, unemployment status, number of traumatic events, COVID-19 infection, knowing someone who died from COVID-19, loneliness, social support, and sleep problems) and symptoms of CPTSD, and (2) the unique associations between CPTSD symptoms and suicide.

The SEM model is shown in Figure 2.1, and as can be seen, age, sex (0 = males, 1 = females), urban dwelling (0 = no, 1 = yes), unemployment status (0 = no, 1 = yes), number of traumatic events, COVID-19 infection (0 = no, 1 = yes), and knowing someone who died from COVID-19 (0 = no, 1 = yes) were added as observed variables. Loneliness was added as a latent variable measured by the three items from the TILS; social support was added as a latent variable using parcels consisting of the summed scores from each subscale within the mMOS-SSS; sleep problems was added as a latent variable using parcels consisting of the summed scores from each subscale within the SCI; and suicide was also modelled as a latent variable measured by the three dichotomous indicators of ideation, NSSI, and attempted suicide. Summed scores for parcels were created using a classical test theory approach.

The CFA and SEM analyses were tested using Mplus 8.2 (Muthén & Muthén, 2017), and the models were estimated using robust maximum likelihood estimation (MLR:

Yuan & Bentler, 2000). Standard guidelines for determining model fit were followed (see Bollen, 1989; Hu & Bentler, 1999) wherein acceptable fit was indicated by a non-significant chi-square (χ^2) result; Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) values ≥ .90; and Root Mean Square Error of Approximation (RMSEA) values with 90% confidence intervals and the Standardized Root Mean Square Residual values ≤ .08. The two CFA models were compared using the Bayesian information criterion (BIC) statistic as it contains a penalty for increasing model complexity. The model with the lowest BIC value is the better fitting model.

Given the limitations of the Cronbach's alpha statistic in estimating the internal reliability of measures with a small number of items, composite reliability was used as a metric of internal consistency for the ICD-11 CPTSD symptom clusters. Unlike Cronbach's alpha, composite reliability does not carry the strict assumption of tau-equivalence, which can adversely impact reliability estimates, particularly among measures with fewer items (Graham, 2006; Raykov, 1997). Composite reliability values ≥ .60 are deemed acceptable (Bagozzi & Yi, 1988). In relation to suicidality, the standard method of composite reliability can be biased for dichotomous indicators, therefore Raykov et al. (2010) proposed an alternative method which was used for these indicators.

2.3. Results

The descriptive statistics for all study variables are reported in Table 2.1. Notably, 70.1% (n = 768) of the sample was exposed to at least one traumatic life event, and the mean number of traumatic events was 2.74 (*Mdn* = 2.0, SD = 2.90). The most frequently nominated worst traumatic life event was 'knowing someone close to you who died in an awful manner' (10.8%, n = 120). Distribution of responses across the individual items of the ITQ and ITEM are presented in Supplementary Table 2.1 and 2.2. The prevalence rates of ICD-11 PTSD and CPTSD were 2.4% (95% CI = 1.5%, 3.3%) and 8.8% (95% CI = 7.2%, 10.5%), respectively.

Six factor correlated model vs two-factor higher-order model.

The CFA results indicated that both models provided very close fit to the sample data. The two-factor higher-order model fit the data well (χ^2 (47) = 89.52, p < .001; CFI = .992; TLI = .989; RMSEA = .029 [90% CI = .019-.037], SRMR = .026), as did the correlated six-factor model (χ^2 (39) = 54.67, p = .051; CFI = .997; TLI = .995; RMSEA = .019 [90% CI = .000-.030], SRMR = .014). However, the correlated six factor model had a lower BIC value (28736 vs 28751) and was therefore deemed to be statistically superior, therefore was taken forward into the SEM. The parameter estimates for the six-factor correlated model are available in Table 2.2 The parameter estimates for the two-factor higher-order model are available in Supplementary table 2.3.

Table 2.2

Standardized factor loadings and factor correlations (and standard errors) for the MLR estimated correlated six-factor model.

	RE	AV	TH	AD	NSC	DR
Factor loadings						
Nightmares	.84 (.02)					
Flashbacks	.91 (.01)					
Internal avoidance		.93 (.07)				
External avoidance		.89 (.01)				
Hypervigilance			.88 (.01)			
Startle response			.88 (.02)			
Difficulty calming down				.74 (.02)		
Feeling numb				.89 (.02)		
Failure					.94 (.01)	
Worthless					.95 (.08)	
Distant from others						.90 (.01)
Difficult to stay close to others						.85 (.02)
Factor correlations						
Re-experiencing	1					
Avoidance	.91 (.02)	1				
Sense of current threat	.83 (.02)	.86 (.02)	1			
Affective dysregulation	.76 (.03)	.74 (.03)	.75 (.03)	1		
Negative self-concept	.66 (.03)	.67 (.03)	.70 (.03)	.86 (.02)	1	
Disturbances in relationships	.68 (.03)	.69 (.03)	.71 (.03)	.91 (.02)	.90 (.02)	1

Note: All factor loadings are statistically significant ($p < .001$); RE = Re-experiencing in the here and now; AV = Avoidance; TH = Sense of current threat; AD = Affective dysregulation; NSC = Negative self-concept; DR = Disturbed relationships.

In the correlated six factor model, all factor loadings were positive, high, and statistically significant ($p < .001$), and the correlations between the factors were all statistically significant ($p < .001$) and moderate-to-strong (r values ranged from .69 to .89). The composite reliability estimates for the ITQ were all satisfactory: re-experiencing in the here and now (CR = .85), avoidance (CR = .89), sense of current threat (CR = .85), affective dysregulation (CR = .77), negative self-concept (CR = .93), and disturbed relationships (CR = .85). The composite reliability for suicidality was also satisfactory (CR = .73)

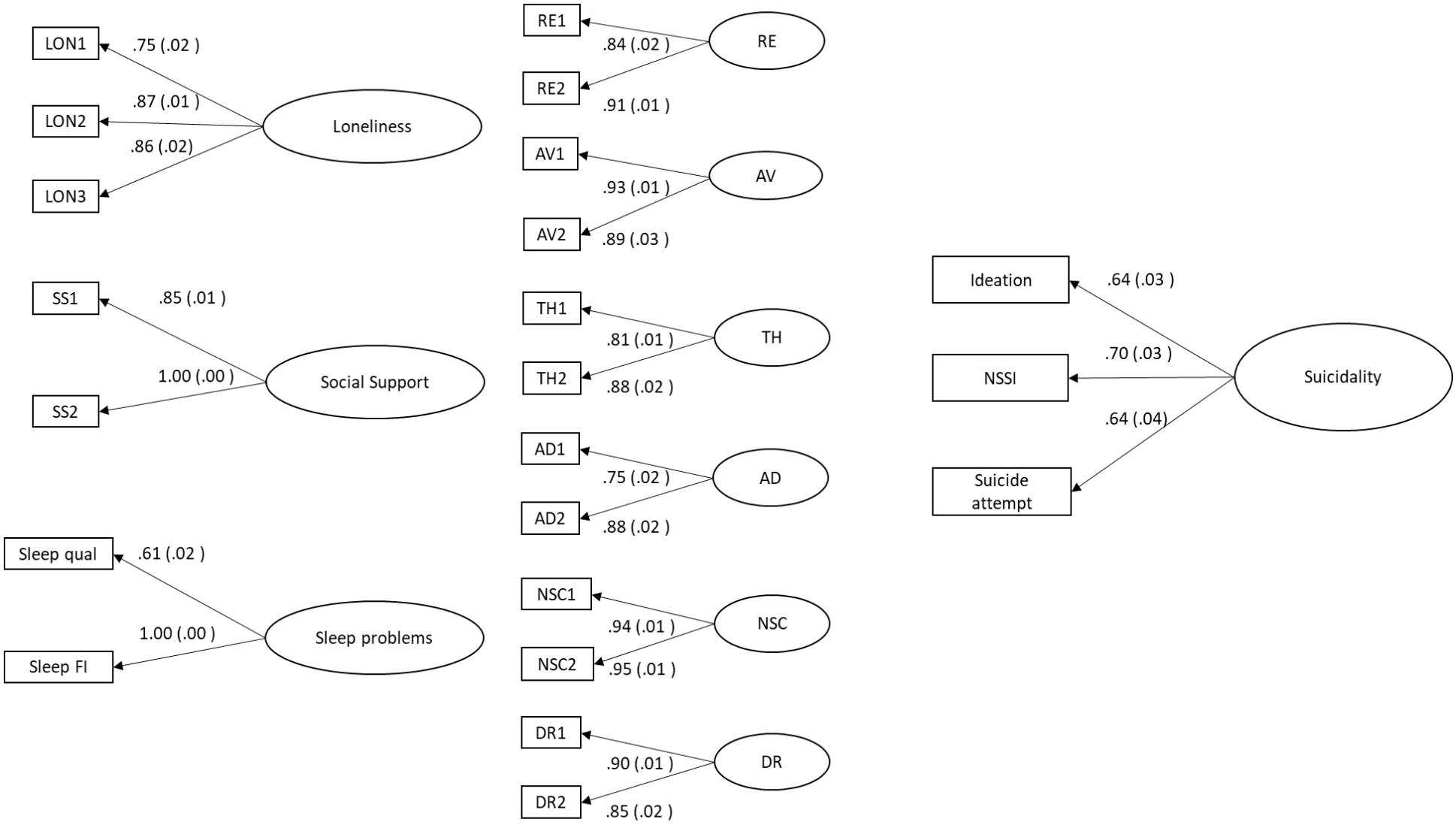
Measurement model

The measurement model (see Figure 3.1.) initially produced two Heywood cases (factor loading greater than one) between the (1) second parcel of social support (i.e. SS2; emotional subscale) and the "Social support" factor and (2) the sleep functional impairment parcel and the "Sleep problem" factor, producing a negative residual variance for each. As this residual variance was nonsignificant, the model was re-evaluated with the residual variance fixed to zero (Chen et al. 2001), which also constrains the factor loading to one. The re-specified model demonstrated excellent statistical fit to the data χ^2 (282) = 166, $p <$ .001; CFI = .990; TLI = .986; RMSEA = .025 [90% CI = .020-.030], SRMR = .021.

Structural model

The overall SEM model fit the data well: χ^2 (281) = 846.70, $p < .001$; CFI = .958; TLI = .943; RMSEA = .043 [90% CI = .039-.046], SRMR = .084 (See Figure 2.2). The predictor variables explained 38.3% of variance in re-experiencing symptoms, 40.0% of variance in avoidance symptoms, 40.2% of variance in sense of current threat symptoms, 50.4% of variance in affective dysregulation symptoms, 49.8% of variance in negative self-concept symptoms, and 57.0% of variance in disturbed relationship symptoms (all ps < .001). Furthermore, 39.1% of variance was explained in suicide ($p < .001$).

Figure 2.1. Measurement Models for all latent variables.



Note: SS1 = Instrumental/tangible support, SS2 = emotional support, Sleep FI = Sleep functional impairment, Sleep qual = sleep quality, Re = Re-experiencing, AV = Avoidance, TH = Sense of threat, AD = Affective dysregulation, NSC = Negative self-concept, DR = Dysfunctional relationships, Ideation = suicidal ideation, NSSI = non-suicidal-self-injurious behaviour

The standardized regression coefficients are presented in Table 2.3. Number of traumatic events was positively and significantly associated with every CPTSD symptom cluster (βs ranged from .21 to .32); loneliness was also positively and significantly associated with every CPTSD symptom cluster (βs ranged from .17 to .49); and sleep problems were negatively and significantly associated with all CPTSD symptom clusters (βs ranged from -.31 to -.39). Younger age was significantly associated with higher levels of avoidance, sense of current threat, and disturbed relationships. Social support was significantly, weakly, and positively associated with re-experiencing, avoidance, and sense of threat. COVID-19 infection was positively and significantly associated with avoidance symptoms. Of the six CPTSD symptom clusters, only the negative self-concept cluster was significantly associated with suicide (β = .37).

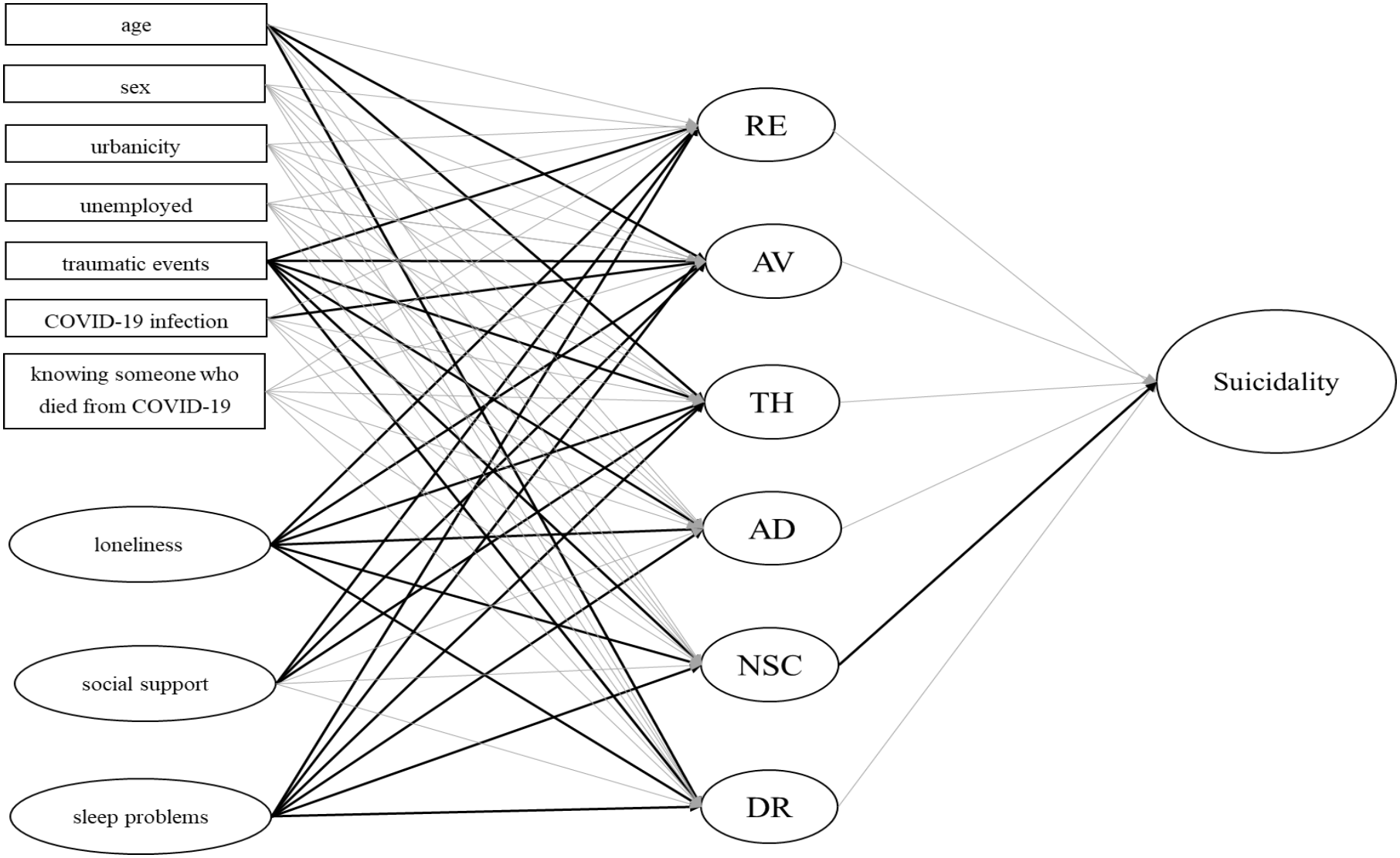
Table 2.3

Standardized regression effects derived from the structural equation modelling results (N = 1,107).

	RE	AV	TH	AD	NSC	DR
Risk factors						
Age	-0.10	**-0.16**	**-0.13**	-0.06	-0.06	**-0.12**
Sex (Males = 0, Females = 1)	-0.03	-0.00	-0.01	-0.01	-0.01	-0.03
Urban dwelling	0.04	-0.01	0.04	0.00	0.00	-0.03
Unemployed	-0.01	0.02	-0.00	0.03	0.03	0.01
Number of traumas	**0.32**	**0.31**	**0.28**	**0.24**	**0.24**	**0.22**
COVID-19 infection	0.07	**0.10**	0.06	0.04	0.04	-0.02
Someone close died of COVID-19	-0.00	-0.01	0.02	-0.01	-0.01	-0.03
Loneliness	**0.17**	**0.22**	**0.28**	**0.38**	**0.40**	**0.49**
Social support	**0.05**	**0.07**	**0.06**	0.06	0.01	0.02
Sleep problems (low scores = more sleep problems)	**-0.39**	**-0.35**	**-0.33**	**-0.33**	**-0.35**	**-0.31**
Outcome variable						
Suicidality	0.08	0.15	-0.07	-0.06	**0.37**	0.22

Note: RE: re-experiencing in the here and now, AV: active avoidance, TH: sense of threat AD; affect dysregulation, NSC: negative self-concept, DR: disturbed relationships. Statistically significant effects ($p < .05$) are in bold.

Figure 2.2. SEM model assessing correlates of ICD-11 CPTSD.



Note: RE = Re-experiencing, AV = Avoidance, TH = Sense of threat, AD = Affective dysregulation, NSC = Negative self-concept, DR = Dysfunctional relationships

2.4. Discussion

This study was conducted to assess the psychometric properties of the ITQ in a nationally representative sample of adults living in Ireland, to determine the prevalence rates of ICD-11 PTSD and CPTSD, and to identity unique correlates of CPTSD symptoms. Key findings were (1) the factorial validity and internal reliability of the ITQ were supported, (2) 11.2% of people met diagnostic requirements for ICD-11 PTSD or CPTSD, (3) specific CPTSD symptom clusters were uniquely associated with a range of previously identified risk factors including greater trauma exposure, higher levels of loneliness, and higher levels of insomnia, and (4) negative self-concept symptoms were strongly associated with increased risk of suicide.

Consistent with the findings of Redican et al.'s (2021) systematic review, the CFA results indicated that the correlated six-factor model and the two-factor higher order model of the latent structure of the ITQ fit the sample data well, with the former providing superior fit. Moreover, every subscale of the ITQ demonstrated satisfactory internal reliability. To our knowledge, this is the first study to provide evidence of the factorial validity and internal reliability of the finalized 12-item version of the ITQ in a nationally representative sample of the general adult population. All prior studies with nationally representative samples assessed the pre-finalized versions of the ITQ. Thus, researchers using the ITQ to measure ICD-11 CPTSD symptoms in the general population should be confident that the scores they obtain are likely to be both valid and reliable.

Approximately one-in-nine people (11.2%) met the diagnostic requirements for ICD-11 PTSD or CPTSD, with more people meeting criteria for CPTSD (8.8%) than PTSD (2.4%). The overall rate of PTSD and CPTSD is consistent with findings from a 2019 survey of the Irish adult general population (12.7%) (Hyland et al. 2021a), and findings from an Israeli general adult population survey (11.6%) (Hyland et al. 2020). Notably, however, this figure is higher than what has been observed in the general adult populations of the United States (7.2%) (Cloitre et al. 2019) and Lithuania (7.6%) (Kvedaraite et al. 2021). While more work is clearly required to ascertain rates of ICD-11 PTSD and CPTSD in many more nations around the world, it may be reasonably assumed at this point that approximately 7-12% of the adult population may be suffering from either of these trauma disorders.

The SEM results showed that each ICD-11 CPTSD symptom cluster was related to multiple exogenous risk factors. More specifically, three risk factors were associated with all CPTSD symptom clusters: trauma, loneliness, and sleep problems. Consistent with theory and previous research, exposure to a higher number of different traumatic life events was associated with higher levels of each CPTSD symptom cluster (Frost et al. 2019; Hyland et al. 2021a; Karatzias et al. 2019).

Loneliness was moderately correlated with each symptom cluster, and interestingly, social support was only (weakly) correlated with the three PTSD symptoms. Previous meta-analyses (Brewin et al. 2000; Ozer et al. 2003) have found that lower levels of social support are related to DSM-based PTSD symptoms but few, if any, of these earlier studies controlled for loneliness. There is an emerging literature that loneliness is strongly associated with ICD-11 CPTSD (Fox et al. 2022), which fits within a much wider body of evidence regarding the important role of loneliness in predicting an array of mental health problems (Hyland et al. 2019; McHugh & Lawlor, 2013; Peerenboom et al. 2015). Additionally, our findings align with previous literature which that loneliness is a stronger predictor of the DSO symptom clusters, compared to the core PTSD symptom clusters (Fox et al. 2022). Given the subjective nature of loneliness, which pertains to the perception of lacking intimate relationships and the yearning for a sense of belonging within a broader social network, it is reasonable to infer that loneliness may play a more critical role in the development and persistence of the DSO symptoms than the objective availability of social support resources.

Sleep problems have previously been shown to correlate with PTSD and DSO symptoms in a clinical sample of Swedish adults (Bondjers et al. 2019), and these findings have been extended by showing that the same effects hold in the general adult population. While both studies employed cross-sectional designs, other longitudinal work has shown that sleep problems predict the later development of DSM-based PTSD symptoms. Given the frequency with which sleep problems occur in the general population (Bjorvatn et al. 2016; Mallon et al. 2014), public mental health efforts to improve the quality of sleep would likely to yield positive results in terms of lowering the population risk of trauma-related distress. Moreover, there is a great deal of evidence to support the efficacy of cognitive-behavior therapy for insomnia (CBT-i) (van Straten et al. 2018), and given the probable role of sleep problems in the development of PTSD/CPTSD symptoms, this treatment could be considered for those who have been recently traumatized, and/or, elements of CBT-i could be incorporated within treatments of ICD-11 PTSD/CPTSD to possibly improve their efficacy.

In relation to our final objective which sought to investigate the relationship between ICD-11 CPTSD symptoms and suicidality, results revealed that only the negative self-concept symptom cluster was positively associated with suicidality. Previous research has found a strong association between meeting diagnostic requirements for ICD-11 PTSD and CPTSD and suicidal thinking and behavior (Karatzias et al. 2019; Møller et al. 2021), and current findings indicates that the negative self-concept symptoms may be most critical to understanding risk of suicide. Karatzias and Cloitre (2019) have recommended a modular approach to treating CPTSD where the specific symptom clusters are targeted one-by-one,

and in an order agreed upon between therapist and patient. In situations where the therapist believes that the risk of suicide may be high, focusing as quickly as possible on the symptoms of negative self-concept may be advisable.

There are several limitations associated with this study that ought to be considered. First, the non-probability nature of the sample means these findings may not generalize to the entire adult population. Second, the cross-sectional nature of the study precludes causal inferences from being drawn. Future work should study the longitudinal associations between traumatic events, loneliness, and sleep problems in relation to ICD-11 CPTSD symptoms to assess directionality and causal pathways. Similarly, outcomes associated with these disorders such as suicidality should be modelled longitudinally. Third, a relatively small set of risk factors in relation to both disorders was assessed. These variables were selected based on existing evidence, however, there may well be other risk factors that are relevant to ICD-11 PTSD and CPTSD which were not assessed.

Despite these limitations, the current study adds important new information to the existing literature. The results provide evidence that the ITQ produces reliable and valid scores in a general population sample, that approximately 11% of adults living in Ireland meet diagnostic requirements for ICD-11 PTSD or CPTSD, that exposure to a higher number of traumatic life events, higher levels of loneliness, and more sleep problems are important risk factors for CPTSD symptoms, and that negative self-concept symptoms are most important in understanding risk of suicide.

Chapter 3

The relationship between ICD-11 posttraumatic stress disorder and complex posttraumatic stress disorder and symptoms of attention deficit hyperactivity disorder

Abstract

Background: The ICD-11 presents Posttraumatic Stress Disorder (PTSD) and Complex PTSD (CPTSD) as separate disorders. Although there is evidence of an association between symptoms of posttraumatic stress and attention deficit/hyperactivity disorder (ADHD), very few studies have examined how ADHD symptoms relate to ICD-11 PTSD and CPTSD.

Methods: Data were collected from a representative quota sample of adults from Montreal and analyses were limited to those trauma exposed (N = 747). Latent class analysis (LCA) was used to test if distinct groups were identifiable with symptom profiles reflective of ICD-11 PTSD and CPTSD, and differences in ADHD symptoms were assessed using analysis of variance tests.

Results: The best-fitting LCA model include four-classes: a 'Low' symptom class (39.7%), 'PTSD' class (13.6%), 'CPTSD' class (27.9%), and a class defined by elevated disturbance in self-organisation symptoms (18.8%). All three symptom classes had significantly higher ADHD symptoms compared to the 'Low' symptom class. The 'CPTSD' class had the highest levels of ADHD symptoms, and significantly higher than the 'PTSD' class.

Conclusions: Trauma-exposed adults in the general population with symptoms reflective of ICD-11 PTSD and CPTSD have elevated symptoms of ADHD. Symptoms of ADHD appear to be particularly elevated among those with symptoms of ICD-11 CPTSD.

Key words: posttraumatic stress disorder (PTSD); complex posttraumatic stress disorder (CPTSD); attention deficit/hyperactivity disorder (ADHD).

3.1 Introduction

Much research has focused on the association between attention-deficit/hyperactivity disorder (ADHD) and posttraumatic stress disorder (PTSD). Researchers and clinicians agree that ADHD and PTSD are distinct disorders (Biederman et al. 2014; Ford & Connor, 2009), but a large body of evidence demonstrates significant comorbidity between these disorders and indicates that symptoms of each may be exacerbated by the other (e.g., Ford & Connor, 2009). Distinguishing between the two disorders can be difficult and nuanced (Biederman et al. 2014; Ford & Connor, 2009). In the 11th version of the *International Classification of Diseases* (ICD-11: World Health Organisation [WHO], 2019), posttraumatic stress-related problems are delineated across two disorders of PTSD and Complex PTSD (CPTSD). PTSD is comprised of symptoms of re-experiencing in the here and now, avoidance, and sense of threat, while CPTSD includes these symptoms plus additional symptoms of affective dysregulation, negative self-concept, and disturbed relationships, which are collectively termed 'Disturbances in Self-Organization' (DSO) symptoms. Very few studies have examined how ADHD is related to the newly conceptualised constructs of PTSD and CPTSD in ICD-11. One exception however is that Facer-Irwin et al. (2022) recently showed that meeting diagnostic criteria for ICD-11 CPTSD was associated with a higher likelihood of meeting diagnostic criteria for ADHD in a study of male prisoners from the United Kingdom.

ADHD typically emerges during childhood and frequently endures into adulthood (Kessler et al., 2006). It is marked by a persistent pattern of inattention and/or hyperactivity-impulsivity, lasting at least six months, which directly effects academic, professional, or social functioning (WHO, 2019). Research from the World Mental Health Survey Initiative has reported an average adult ADHD prevalence of 2.8% across 20 countries, with the lowest rates found in Iraq (0.6%) and Romania (0.6%), and the highest in France (7.3%) (Fayyad et al., 2017).

It has been suggested that ADHD and ICD-11 CPTSD share etiological mechanisms. Studies have shown that exposure to interpersonal childhood trauma could trigger ADHD symptoms in individuals with a genetic predisposition (Carrion & Wong, 2012; Zhang et al., 2022). Conversely, prospective studies involving childhood ADHD patients have indicated that children and adolescents with ADHD are more prone to experiencing traumatic events. This heightened risk is often attributed to their increased engagement in risky behaviours due to difficulties in planning and inhibitory control (Schilpzand et al., 2018). This elevated exposure to traumatic events may consequently

heighten the likelihood of developing symptoms related to traumatic stress among individuals with ADHD.

The discriminant validity of ICD-11 PTSD and CPTSD has been extensively tested using mixture-modelling statistical methods (Redican et al. 2021). Studies using these methods (e.g., latent class analysis [LCA] or latent profile analysis [LPA]) routinely identify evidence of distinct groups of trauma-exposed persons in the same sample with symptom profiles consistent with ICD-11 PTSD (i.e., elevated probabilities of endorsing PTSD symptoms and low probabilities of endorsing DSO symptoms) and CPTSD (i.e., elevated probabilities of endorsing PTSD and DSO symptoms). Notably, several studies also find a group of individuals with elevated probabilities of endorsing all of the DSO symptoms but low probability of endorsing the PTSD symptoms (Liddell et al. 2019; Perkonigg et al. 2016). It is likely that these individuals are experience non-trauma related form of psychological distress (e.g., depression, generalized anxiety).

In this study, data from a large general population sample of adults from Montreal, Canada was used to examine the relationship between ADHD symptoms and ICD-11 PTSD and CPTSD. Specifically, this study was conducted to determine if levels of ADHD symptoms significantly differed across persons defined by symptoms of ICD-11 PTSD and CPTSD. The first objective of this study was therefore to use LCA to test the discriminant validity of ICD-11 PTSD and CPTSD. Based on the existing literature (e.g., Knefel et al. 2018; Liddell et al. 2019; Perkonigg et al. 2016; Redican et al. 2021), it was hypothesised that the best fitting LCA model would include classes whose symptom profiles were consistent with ICD-11 PTSD and CPTSD. The second objective was to assess if levels of ADHD symptoms significantly differed across these classes. It was hypothesised that levels of ADHD would be significantly higher in those with symptom profiles reflecting ICD-11 PTSD and CPTSD compared to those with few or any such symptoms (Facer-Irwin et al. 2022), but given the scant evidence regarding levels of ADHD across ICD-11 PTSD and CPTSD, this aspect of the study was approached in an exploratory manner.

3.2. Methods

3.2.1. Participants

The study uses data collected as part of the Greater Montreal Area Study which focused on the relationship between mental health and creativity. Data were collected in July 2021 using the online sampling company Qualtrics. Quota sampling methods were used to construct a non-probability-based sample (N = 1,000) representative of the entire Greater Montreal Area adult population based on distributions of sex, age, and geographical

location, as per the geolocation coordinates. Inclusion/exclusion criteria were simple in that participants were required to be at least 18 years of age, a resident of the Greater Montreal Area at the time of the survey, and able to complete the study in English. Qualtrics recruited participants from existing, actively managed, double-opt-in research panels via email, SMS, or in-app notifications. Qualtrics remunerated each participant and collected informed consent. The second-author university granted ethical approval, and each participant signed an electronic informed consent before answering the survey.

All participants completed a measure of lifetime trauma exposure (described below), and this study is based on those participants that reported experiencing at least one traumatic life event (74.7%, *n* = 747). Of these participants, 51.1% (*n* = 382) were male and 48.9% were female (*n* = 365). Ages ranged from 18-67 (M=37, SD= 13), most were in a committed relationship (60.1%, *n* = 449), whilst 39.9% of the sample were not in a committed relationship (*n* = 298). In terms of education, 28.5% of the sample completed secondary/high school (*n* = 213), 34.7% completed an undergraduate degree (*n* = 259), 35.3% completed a postgraduate degree (*n* = 264), and 1.5% completed none of the above. Finally, 57.4% of the sample were in full-time employment (*n* = 429), 18.3% were in part-time employment (*n* = 137), 8.0% not in employment and seeking work (*n* = 60), and 16.2% (n = 121) were not in employment and not seeking work due to disability, retirement, looking after family members.

3.2.2 Measures

Trauma exposure: The Life Events Checklist for DSM-5 (LEC-5; Weathers et al. 2013) was used to assess for lifetime exposure to 16 different traumatic events. Participants indicated on a "Yes" (1) or "No" (0) basis if they had directly or indirectly experienced each traumatic event. Total scores range from 0-16 with higher scores indicating exposure to a higher number of different traumatic life events.

ICD-11 PTSD and CPTSD: Symptoms of ICD-11 PTSD and CPTSD were assessed using the International Trauma Questionnaire (ITQ: Cloitre et al. 2018). Participants first identify their most distressing traumatic event and are instructed to respond to all items in relation to that event. There are six items measuring the PTSD symptoms and six items measuring the DSO symptoms (two items per symptom cluster). PTSD symptoms are answered in relation to how bothersome each symptom has been over the past month, and DSO symptoms are answered in relation to typical reactions. All items are answered using a five-point Likert scale that ranges from 0 ('Not at all') to 4 ('Extremely'). According to the scoring scale of the ITQ (Cloitre et al. 2018), a symptom is considered to be present if rated 2 ('Moderately') or higher on the Likert scale, and one of two symptoms in each cluster

must be present for diagnostic purposes. Total PTSD and DSO symptom scores range from 0-24 and total CPTSD symptom scores range from 0-48. The psychometric properties of the ITQ are well supported (Redican et al. 2021), and the internal reliability of the six PTSD items (α = .87), the six DSO items (α = .86), and all 12 items (α = .90) was high.

ADHD: The Adult ADHD Self-Report Scale (ASRS-v1.1) Symptom Checklist is an 18-item measure used to assess symptom burden in adult ADHD (Keesler et al. 2005). In this study, only the first six items of the measure were used which assess the frequency with which participants have experienced the core ADHD symptoms over the past six months. All items are answered using a five-point Likert scale ranging from 0 ('Never') to 4 ('Very often'). Scores range from 0-24 with higher scores indicating higher levels of ADHD symptoms. The ASRS-v1.1 Symptom Checklist has been validated in community-based and referred individuals, with high internal consistency estimates found, regardless of whether it was self-reported by the patient or administered by a clinician (Cronbach's α = .88-.89) (Adler et al. 2006). Cronbach's alpha for scores in the current sample was high (α = .84).

3.2.3. Analytic plan

First, descriptive statistics were used to report sample means, medians, standard deviations, and ranges for number of traumatic life events, and symptom levels of PTSD, CPTSD, and ADHD. Second, LCA was used to the test the study's first hypothesis. Consistent with the approach employed in many other such studies (see Redican et al. 2021), the LCA was based on six observed binary indicators. These six indicators were whether participants met diagnostic requirements for each ICD-11 PTSD/CPTSD symptom cluster (i.e., one of two symptoms rated > 2 for re-experiencing in the here and now, avoidance, sense of threat, affective dysregulation, negative self-concept, and disturbed relationships). Models with one to six classes were estimated using robust maximum likelihood (MLR) estimation, and 500 random sets of starting values were used followed by 100 final stage optimizations in order to avoid solutions based on local maxima. The optimal model was determined using several model comparison fit indices: the Akaike information criterion (AIC; Akaike, 1987), the Bayesian information criterion (BIC; Schwarz, 1978), the sample size-adjusted BIC (ssaBIC; Sclove, 1987), and the Lo–Mendell–Rubin adjusted likelihood ratio test (LMR-A; Lo et al. 2001). Lower AIC, BIC, and ssaBIC values indicate better model fit. A non-significant LMR-A value indicates that the model with one less class should be accepted. Previous Monte Carlo simulation studies indicated that the BIC is the best indicator for class enumeration (Nylund et al. 2007). These analyses were performed using Mplus version 8.2 (Muthen & Muthen, 2018).

Following the selection of the optimal LCA model, class probabilities were saved, and a class membership variable was used as an independent variable in a one-way analysis

of variance (ANOVA) test to determine if levels of ADHD significantly differed across the classes. These analyses were performed in SPSS v28. The Tukey post-hoc test was used for pairwise comparisons. Effect sizes are reported as partial eta squared values (η^2) where values less than .06 indicate a small effect, values from .06 to .13 indicate a medium effect, and value of .14 or above indicate a large effect (Cohen, 1988).

3.3. Results

The mean number of different traumatic life events was 5.19 (SD = 3.81, range 1-10), the mean ICD-11 PTSD symptom score was 9.21 (SD = 6.59, range 0-24) and the mean ICD-11 CPTSD symptom score was 18.66 (SD = 11.97, range 0-48). The mean symptom score for ADHD was 5.13 (SD = 4.29, range 0-18).

The LCA model fit results are reported in Table 3.1. The BIC and ssaBIC results were lowest for the four-class solution, suggesting its statistical superiority. Also, the LMR-A became non-significant at five-classes suggesting the superiority of the four-class solution. Thus, the four-class model was deemed to be the optimal representation of the sample data, and the profile plot is presented in Figure 3.1.

Table 3.1.
Latent class analysis fit statistics.

Classes	Log likelihood	AIC	BIC	ssaBIC	LMR-A (*p*)	Entropy
1	-3033.52	6079.05	6106.75	6087.70	-	-
2	-2418.33	4862.65	4922.66	4881.38	1204 (< .001)	0.84
3	-2353.41	4746.82	4839.14	4775.63	127 (< .001)	0.74
4	**-2306.00**	**4665.97**	**4790.60**	**4704.87**	**92 (< .001)**	**0.77**
5	-2301.93	4671.86	4828.80	4720.84	8 (.059)	0.81

Note: *n* = 747; Estimator = MLR; AIC = Akaike information criterion; BIC = Bayesian Information Criterion; ssaBIC = sample size-adjusted Bayesian Information Criterion; LMR-A = Lo–Mendell–Rubin adjusted likelihood ratio test. Best fitting model in bold

Class 1 (13.6%, *n* = 123) was characterised by high probabilities of meeting diagnostic criteria for the three PTSD symptom clusters and lower probabilities of meeting diagnostic criteria for the three DSO symptom clusters, especially the negative self-concept and disturbed relationship symptom clusters. This was labelled the 'PTSD' class. Class 2 (39.7%, *n* = 211) was characterised by low probabilities of meeting the diagnostic criteria for all six symptom clusters and was therefore labelled the 'Low' symptom class. Class 3

(27.9%, *n* = 317) was characterized by high probabilities of meeting diagnostic criteria for the three PTSD symptom clusters and the three DSO symptom clusters. This class was therefore labelled the 'CPTSD' class. Finally, Class 4 (18.8%, *n* = 95) was characterized by moderate-to-high probabilities of meeting the diagnostic criteria for the three DSO symptom clusters and low probabilities of meeting criteria for the three PTSD symptom clusters. This class was labelled the 'DSO' class.

To determine if mean levels of ADHD differed depending upon class, a one-way between groups ANOVA was conducted. There was a statistically significant overall effect (F (3, 745) = 122.79, $p < .001$), and the effect size was 'large' ($\eta^2 = .33$). Table 3.2 provides the means and standard deviations of ADHD symptoms for each latent class. The Tukey post-hoc comparisons indicated that those in the CPTSD class ($M = 7.85$, SD = 3.17) and the PTSD class ($M = 3.80$, SD = 3.47) had significantly higher ($p < .001$) levels of ADHD symptoms compared to those in the low symptom class ($M = 2.07$, SD = 2.91). Moreover, those in the CPTSD class had significantly higher levels of ADHD symptoms than those in the PTSD class ($p < .001$). Those in the DSO class (M = 4.63, SD = 3.17) had significantly higher levels of ADHD than those in the low symptom class ($M = 2.07$, SD = 2.91; $p < .001$) and lower levels of ADHD than the CPTSD class ($p < .001$). There was no statistically significant difference between the DSO class and the PTSD class (p = .313).

Table 2.2.

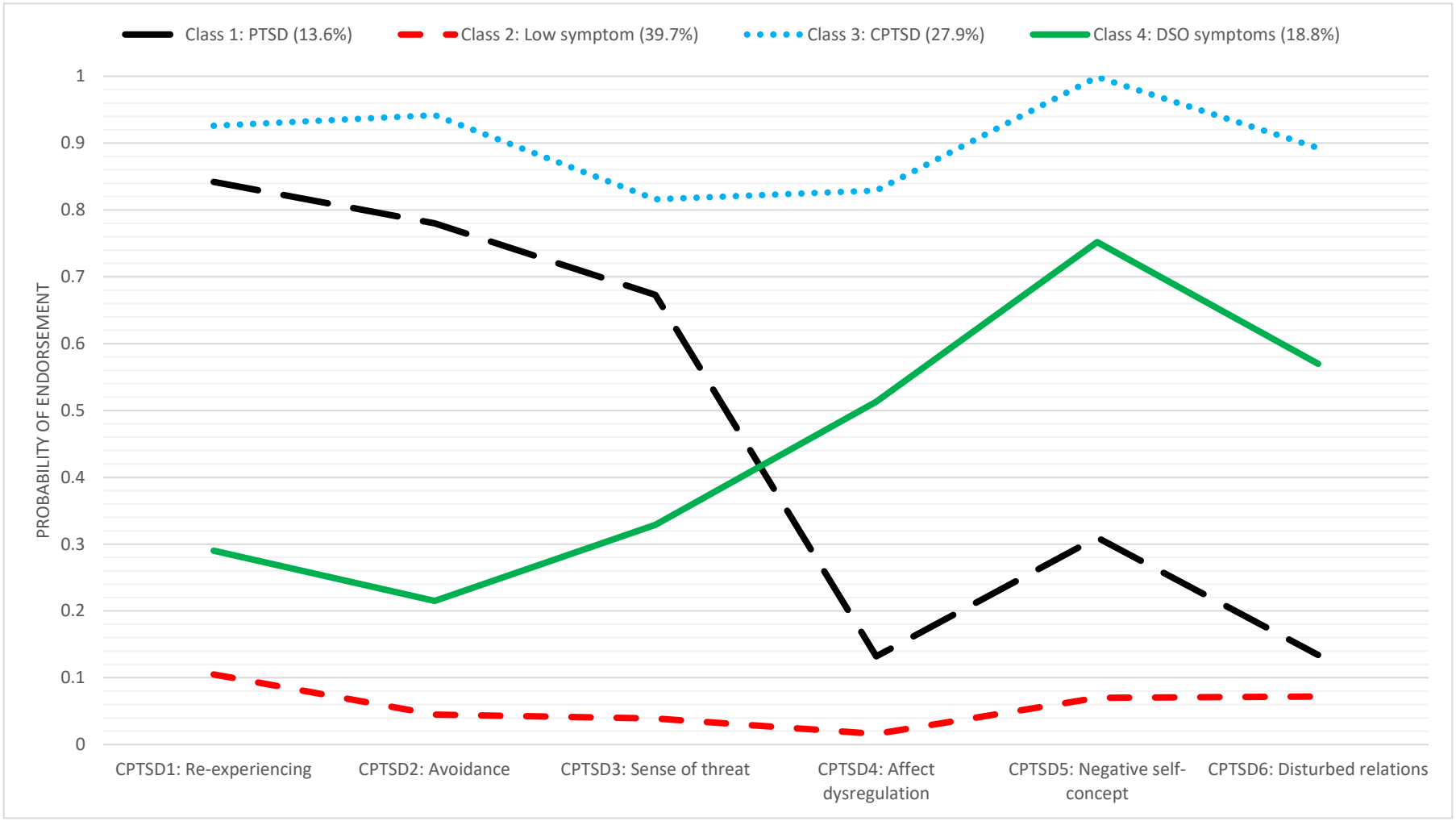
Differences in Symptoms of ADHD Across the Latent Classes.

	Class	N	M	SD	F	η^2
ADHD symptoms					122.79*	.33
	Low	211	2.07	2.91		
	PTSD	123	3.80	3.46		
	CPTSD	317	7.85	3.98		
	DSO	95	4.63	3.17		

Note. η^2 = eta squared; Statistical significance: *$p < .001$

Figure 2.1.

Latent Class Profile Plot.



2.4. Discussion

The primary goal of this study was to explore the relationship between ICD-11 PTSD and CPTSD and ADHD symptoms in a general adult population sample. Despite the evidence demonstrating a robust association between ADHD symptoms and posttraumatic stress symptoms, only one other study prior to this one had examined how ADHD symptoms were related to the newly described constructs of PTSD and CPTSD in ICD-11. Since ICD-11 is now the global system for recording mental health disorders, it is imperative to understand how ADHD symptoms relate to these constructs. Our findings provided further support for the discriminant validity of ICD-11 PTSD and CPTSD, as well as evidence that (a) individuals displaying symptoms of ICD-11 PTSD and CPTSD have significantly higher levels of ADHD than individuals without such symptoms, and (b) that symptoms of ADHD are significantly higher among individuals with symptoms of ICD-11 CPTSD relative to those with symptoms of ICD-11 PTSD.

Consistent with many studies using mixture-modelling statistical methods (Redican et al. 2021), identified distinct groups of trauma-exposed persons with symptom profiles reflecting the distinctions between ICD-11 PTSD and CPTSD were identified. Results also revealed evidence of a group of individuals with elevated probabilities of endorsing the DSO symptoms but low probabilities of endorsing PTSD symptoms in a trauma-exposed general adult population sample. This is aligned with prior LCA studies in community samples (Knefel et al. 2018; Liddell et al. 2019; Perkonigg et al. 2016), and it has been suggested that these individuals may be experiencing non-trauma related forms of psychological distress such as depression or generalized anxiety. Very little work has been conducted, however, to know with confidence what type of psychological distress best describes these individuals.

Our findings also indicated that individuals with symptoms reflective of ICD-11 PTSD had significantly higher levels of ADHD symptoms than those without any posttraumatic stress symptoms, while those with symptoms reflective of ICD-11 CPTSD had significantly higher levels of ADHD than those with symptoms reflective of ICD-11 PTSD. Facer-Irwin et al. (2022) had previously shown a correlation between meeting diagnostic criteria for ICD-11 CPTSD and ADHD in a sample of male prisoners, and our findings further suggest that the correlation between ICD-11 CPTSD and ADHD is also evident in a general population sample.

There are some clinical implications associated with these findings. For example, treatment of ADHD symptoms may enhance engagement in, and the outcome of, treatments for ICD-11 PTSD and CPTSD. Similarly, ADHD treatment may be improved by reducing anxiety and stress-reactivity inherent to PTSD and CPTSD which can exacerbate ADHD

symptoms by contributing indirectly to inattention or impulsivity (Ford & Connor, 2009). Given the relatively strong association that appears to exist between ADHD and both ICD-11 PTSD and CPTSD, it is important that clinicians treating people with ICD-11 PTSD and CPTSD be cognizant for symptoms of ADHD among their patients. Engagement in trauma reprocessing, which is essential for successful treatment of ICD-11 PTSD and CPTSD, may be hampered by the presence of ADHD symptoms, and it may be necessary to stabilise these symptoms before trauma reprocessing can begin. Additionally, the treatment of ADHD symptoms may benefit from common treatments for posttraumatic stress symptoms such as trauma-focussed cognitive behaviour therapy and eye-movement desensitization and reprocessing.

Several limitations should be noted. Although the ASRS-v1.1 Symptom Checklist has been validated in community-based samples and produces scores with high internal reliability, this is only a brief screening instrument for ADHD symptoms. Future research should aim to replicate the current study using the 18-item checklist which provides a broader assessment of the symptom profile of adult ADHD. Secondly, the use of a sample of adults from Montreal, Canada limits the generalizability of the findings to other populations. Third, while the use of a representative quota sample is a key strength of the study, this was a non-probability-based sample and did not include members of the public that are institutionalised (e.g., hospital care, prisons, refugee centres) or difficult to reach (e.g., those not online, the homeless, etc.). The inability to survey these members of society also limits the generalisability of our results. Finally, the cross-sectional nature of the sample means it was not possible to examine the longitudinal relationship between ICD-11 PTSD/CPTSD and ADHD symptoms. Understanding how these constructs influence one another over time will be an important topic for future work.

Despite these limitations, the current study provides important new information regarding the association between ICD-11 PTSD/CPTSD and ADHD symptoms among traumatized individuals from the general population. Our findings provide initial empirical evidence that individuals displaying symptoms of ICD-11 PTSD and CPTSD have significantly higher levels of ADHD than individuals without such symptoms, and that symptoms of ADHD are highest among those with symptoms reflective of ICD-11 CPTSD.

Chapter 4

Post-traumatic Stress Disorder, Complex Post-traumatic Stress Disorder, and Coping Styles among Internally Displaced Ukrainians

A paper based on this chapter has been published in the Journal of Loss and Trauma

McGinty, G., Fox, R., Roberts, B., Makhashvili, N., Javakhishvili, J. D., & Hyland, P. (2023). Post-traumatic Stress Disorder, Complex Post-traumatic Stress Disorder, and Coping Styles among Internally Displaced Ukrainians. *Journal of Loss and Trauma*, 28(7), 571-587. https://doi.org/10.1080/15325024.2023.2217002

Abstract

This study examined the relationship between coping styles and ICD-11 PTSD and Complex PTSD in a large sample of Ukrainian Internally Displaced Persons. Data were collected in 2016 using self-report measures from all Ukrainian oblasts not occupied by Russian forces. In total, 13.1% of people met diagnostic requirements for Complex PTSD, and 7.8% for PTSD. Higher levels of avoidant coping were evident in those meeting diagnostic requirements for PTSD and Complex PTSD compared to those not meeting requirements for either. Mental health interventions targeting avoidant coping might be particularly useful in reducing the burden of traumatic stress among war-affected Ukrainians.

4.1. Introduction

On February 24th, 2022, Russia launched a full-scale invasion of Ukraine. At the time of writing, the war has led to over 12 million Ukrainians being displaced internally and externally (International Organization of Migration, 2022). It is well established that refugees and internally displaced persons (IDPs) are more likely to be exposed to trauma that is continuous in nature (Morina et al. 2018) and are ten times more likely to experience traumatic-stress related mental health problems compared to the general population (Fazel et al. 2005). A systematic review of data from 40 countries showed that the prevalence of posttraumatic stress disorder (PTSD) among IDPs was 30.6%, while another revealed that rates of PTSD among IDPs can range from 3% to 88% (Pham et al. 2004; Rieder & Elbert, 2013). Addtionally, type III traumas that are continuous in nature have been proven to have more serious negative effects on individuals and groups and are a predictor of Complex PTSD (CPTSD) in IDPs (Kira et al. 2022). A study using a sample of Palestinian adolescents found that continuous traumatic stressors (Type III) related to collective identity was the strongest contributing factor predicting the severity of physical and mental health symptoms (Kira et al. 2013).

The Russian invasion of Ukraine in 2022 followed the 2014 invasion of the south and east of Ukraine that resulted in 1.8 million people becoming internally displaced. In 2016, The Internally Displaced Persons Mental Health Survey (IDPMHS) was conducted to assess the mental health impact of the invasion on Ukrainian IDPs. More than one-in-five people (22%) exceeded clinical thresholds for major depression, nearly one-in-five (18%) exceeded clinical thresholds for generalized anxiety (Roberts et al. 2019), more than one-in-four (27.4%) met diagnostic requirements for DSM-5 PTSD (Shevlin et al. 2017), and more than half (55%) exceeded clinical thresholds for somatization (Cheung et al. 2018). Furthermore, 14.3% of men and 1.7% of women reported potentially hazardous drinking (Ramachandran et al. 2019). Recently, Shevlin et al. (2022) called for a greater focus on the potential development of CPTSD in Ukraine because of the 2022 Russian invasion. In the eleventh version of the International Classification of Diseases (ICD-11: World Health Organisation [WHO], 2022), CPTSD is a disorder comprised of the core symptoms of PTSD (i.e., re-experiencing in the here and now, avoidance, sense of threat) plus 'Disturbances in Self-Organization' (DSO) symptoms that include affective dysregulation, negative self-concept, and interpersonal problems. While PTSD and CPTSD can follow any type of trauma, CPTSD is more likely to follow trauma exposure that is prolonged and difficult to escape from (Hyland et al. 2021; Karatzias et al. 2019), therefore it may be particularly relevant to the context of ongoing war in Ukraine.

In the IDPMHS project, ICD-11 PTSD and CPTSD symptoms were assessed using the *International Trauma Questionnaire* (ITQ) (Cloitre et al. 2018), which is a reliable and valid self-report measure of these constructs (Redican et al. 2021). As the IDPMHS study was conducted prior to the finalization of the ICD-11 model of CPTSD, rates of ICD-11 CPTSD were not calculated or reported. The authors did, however, report that 21.0% of Ukrainian IDPs screened positive for a possible diagnosis of ICD-11 PTSD *or* CPTSD. With the diagnostic profile of CPTSD now finalized, it is possible to determine the rates of ICD-11 PTSD *and* CPTSD in this cohort. Rates of ICD-11 PTSD and CPTSD have been calculated in several other samples of refugees and asylum seekers including treatment-seeking Syrian refugees in Lebanon (where rates of PTSD and CPTSD were 25.2% and 36.1%, respectively) (Vallières et al. 2018), West Papuan refugees (6% and 3%, respectively) (Silove et al. 2017), and treatment-seeking refugees resettled in Switzerland (19.7% and 32.8%, respectively) (Nickerson et al. 2016). These findings were also recently replicated in a non-treatment IDP community sample of Syrian IDPs (13.9% and 33.1%) (Kira et al. 2022). Thus, it is possible that a sizeable proportion of the 21% of Ukrainians that screened positive for ICD-11 PTSD or CPTSD may have the latter. Determining the differential rates of PTSD and CPTSD is important because CPTSD is associated with higher levels of impairments and comorbidity (e.g., Karatzias et al. 2019; Hyland et al. 2021), and likely requires greater clinical resources to achieve treatment gains (Karatzias & Cloitre, 2019).

Many studies have identified factors associated with ICD-11 PTSD and CPTSD, however, one potentially important variable that has yet to be investigated is coping styles. Coping can be described as the cognitive and behavioural efforts made to master, tolerate, or reduce external and internal demands and conflicts among them (Folkman & Lazarus, 1980). A systematic review of 50 studies assessing coping strategies in conflict-affected adults in low- and middle-income countries revealed that the most commonly reported coping strategies used by conflict-affected residents, refugees and IDPS were support-seeking, positive cognitive restructuring, and problem-focused domains (Seguin & Roberts, 2014). Problem-focused coping has been suggested to be more effective than emotion-focused and avoidant coping in managing traumatic stress (Gorst-Unsworth & Goldenberg, 1998). Emotion focused and avoidant coping strategies are typically perceived as somewhat maladaptive or ineffective psychological strategies when it comes to enduring and overcoming trauma (Folkman & Moskowitz, 2020). Among IDPs suffering from conflict-related PTSD, avoidant coping style have been reported to be associated with greater symptom severity (Saxon et al. 2018) Additionally, a study with Bosnian refugees in Denmark found that both problem-focused coping and avoidant coping strategies were

positively related to PTSD severity (Elkit et al. 2012), while another study from Australia found an initial positive correlation between avoidant coping strategies and PTSD scores in resettled refugee youths, but it became non-significant after controlling for potential confounders (McGregor et al. 2015).

Understanding what coping strategies are most commonly used by Ukrainian IDPs that screened positive for ICD-11 PTSD and CPTSD may be useful in informing mental health responses to the current conflict. This is the primary purpose of the current study. Here, data from the 2016 IDPMHS project was re-analysed to investigate three objectives. The first was to determine what proportions of Ukrainian IDPs met diagnostic criteria for ICD-11 PTSD *and* CPTSD. The second was to assess the reliability and validity of the measure of coping styles used in the IDPMHS project. The IDPMHS study authors selected 14 items from the standard 28-item Brief Cope measure (Carver, 1997) to assess coping, and it is therefore necessary to determine the optimal latent structure of these items and their internal consistency. The third objective was to assess how different measured coping styles were related to ICD-11 PTSD and CPTSD, and if these relationships were moderated by sex.

4.2. Methods

4.2.1. Participants

IDPMHS data were collected from March to May 2016, and the survey covered all oblasts of Ukraine and 74 settlements (mainly urban), excluding occupied territories. Time location sampling was chosen as a probabilistic method to recruit hard-to-reach and migrant populations. In total, 121 unique locations were used for recruitment during the survey: 33.0% from collective centres, 31.0% from NGOs that work with IDPs, 6.0% from state institutions, 24.0% were recruited with the help of another person (informant), and 6.0% were reached by other means. A weighting variable was calculated to correct the regional structure of the sample in accordance with official statistics and was applied for all analyses. The sample (N = 2,198) includes male and female IDPs (91.8% had official IDP status with the UNHCR) who lived both in institutional and noninstitutional settings on the territories controlled by the Ukrainian government. A person in this study was considered an IDP if they answered ‘yes’ to the screening question that they had been forced to flee their home because of conflict and were currently living away from their home. Exclusion criteria included people deemed under the influence of alcohol or drugs, and those with severe intellectual or mental impairment at the time of the survey. Data collectors were trained in the identification of these predetermined exclusion criteria that related to criteria of understanding, expression, communication, and behaviour.

The mean time since displacement was 17.49 months (SD = 4.49). The sample included 1,496 (68.1%) females, and the mean age was 45 years (SD = 16.99). The majority of participants reported being married or cohabiting (52.7%), 20.2% were single, 14.3% were divorced, and 12.8% were widowed. Most participants had completed higher education (35.9%) or secondary technical education (29.5%) with the remaining having lower levels of educational attainment. Participants who were working were in regular paid work (22.4%), irregular paid work (9.9%), or self-employed (2.8%); 28.9% were retired due to old age or invalidity, and 17.9% were unemployed and seeking work. The remaining participants (18.1%) were doing voluntary work, students, homemakers, or on maternity leave. The questionnaires were completed through face-to-face interviews in either Ukrainian or Russian by trained enumerators from the Kyiv International Institute of Sociology (KIIS) in a private space chosen by the respondent. Before administering the questionnaire, each respondent listened to the explanations about the aim of the survey and terms of participation. In addition, the participant received an information sheet and consent form and then gave either written or verbal consent. Ethical approval was provided by the KIIS Institutional Review Board. All team leaders of regional groups of interviewers were instructed and trained before the survey, and the team leaders provided the training to their teams of experienced data collectors. The response rate of IDPs was around 90% in the whole sample.

4.2.2. Measures

ICD-11 PTSD and CPTSD: Participants completed the pre-finalized version of the ITQ (Cloitre et al. 2018). This version of the ITQ contained the final set of 12 items measuring PTSD and DSO symptoms as well as an additional set of test items. Prior to completing the ITQ, participants were screened for lifetime trauma exposure using the Life Events Checklist for DSM-5 (Weathers et al. 2013). If reporting multiple traumatic life events, participants were asked to select the event they found most distressing and complete the ITQ with that event in mind. The ITQ includes six items that measure the three PTSD symptom clusters of re-experiencing in the here and now, avoidance of traumatic reminders, and sense of current threat. A further six items are used to measure the three DSO symptom clusters of affective dysregulation, negative self-concept, and disturbed relationships. Three items measure functional impairment in different domains of life associated with the PTSD and DSO symptoms, respectively. Respondents were asked to indicate how bothered they were by the PTSD symptoms over the past month, and how they typically feel, think about themselves, and relate to others for the DSO symptoms. All items, including indicators of functional impairment, are answered on a five-point Likert scale anchored by ‘Not at all’ (0) and ‘Extremely’ (4). As per the scale instructions, a symptom is considered ‘present’ based

on responses on the Likert scale of ≥ 2 ('Moderately'). "The diagnostic criteria for ICD-11 PTSD requires trauma exposure, one symptom to be present from each of the three PTSD clusters, plus evidence of functional impairment associated with these symptoms. The diagnostic criteria for ICD-11 CPTSD requires trauma exposure, one symptom to be present from each of the three PTSD clusters and one symptom to be present from each of the three DSO clusters, plus evidence of functional impairment associated with the PTSD and DSO symptoms." As per ICD-11 diagnostic rules, a person may only be diagnosed with PTSD or CPTSD. Thus, if a person meets criteria for CPTSD, they do not also receive a diagnosis of PTSD. The internal the reliability of the total scale scores in this sample was excellent (α = 0.89).

Coping styles: In the IDPMHS project, 14 items were used to measure coping, and these were taken from the Brief COPE (Carver, 1997). The Brief COPE includes 28 items measuring 14 facets of coping (active coping, use of informational support, positive reframing, planning, emotional support, venting, humour, acceptance, religion, self-blame, self-distraction, denial, substance use, behavioural disengagement). The scale is intended to reflect three higher-order dimensions of problem-focused coping, emotion-focused coping, and avoidant focused coping. The 14 items selected for use in the IDPMHS project are listed in Table 2 and were selected by the study developers as those deemed to be most applicable to the study population and setting per consultation with Ukrainian collaborators, and they were piloted prior to use. Response to all items were recorded on a four-point scale from 1 ('I haven't been doing this at all') to 4 ('I've been doing this a lot').

4.2.3. Analytic plan

To address the first study objective, prevalence rates of ICD-11 PTSD and CPTSD were calculated. To assess the second objective, two analytic strategies were used. First, exploratory factor analysis (EFA) with weighted least squares mean- and variance-adjusted (WLSMV) estimation and geomin rotation was used to determine the latent structure of the 14 items of the adapted Brief COPE. This analysis was carried out in Mplus version 8.2 (Muthén & Muthén, 2017). The WLSMV estimator is appropriate for ordered categorical indicators, and it has been shown to perform equally well or better than other estimation methods with ordered categorical and skewed data (Flora & Curran, 2004; Liang & Yang, 2014). The fit of the competing models was assessed using the chi-square (χ^2) test, the Comparative Fit Index (CFI: Bentler, 1990), the Tucker Lewis Index (TLI: Tucker & Lewis, 1973), the root mean square error of approximation (RMSEA; Steiger & Lind, 1980), and the standardized root mean squared residual (SRMR; Hu & Bentler, 1999). As per standard guidelines (Hu & Bentler, 1999), good model fit is indicated by a non-significant χ^2

result, CFI and TLI values greater than 0.90, and RMSEA and SRMR values less than 0.08. In EFA, models with increasing numbers of extracted factors fit sample data more closely. Thus, to compare the fit of the different models, changes (Δ) in the CFI, TLI, and RMSEA were assessed. ΔCFI and ΔTLI >. 010, and ΔRMSEA >. 015 were taken to indicate significant improvement in model fit (Chen, 2007; Cheung & Rensvold, 2002; Putnick & Bornstein, 2016). In addition to statistical comparisons, the optimal model solution was informed by inspection of the model parameters to ensure a meaningful interpretation of the factors could be achieved. Upon selection of the optimal latent structure, the internal reliability of the scale was assessed using composite reliability analysis (Raykov, 1997). Composite reliability is superior to Cronbach's alpha as it does not assume tau equivalence, and estimates are based on the results of the factor analysis. Composite reliability values range for 0-1 where higher scores reflect greater reliability, values greater than .60 are recommended for acceptable reliability (Raykov, 1997).

The third objective was assessed using two-way between group analysis of variance (ANOVA) tests. The independent variables were diagnostic status (0 = No diagnosis, 1 = ICD-11 PTSD, 2 = ICD-11 CPTSD) and sex (0= males, 1 = females), and the dependent variable(s) were the different coping styles identified by the EFA results. Effect sizes are reported as partial eta squared values (η^2) where values less than .06 indicate a small effect, values from .06 to .13 indicate a medium effect, and value of .14 or above indicate a large effect (Cohen, 1988). Missingness ranged from 1.8% to 24.4%. Missing data was handled using the pairwise deletion methods for EFA and listwise deletion methods for ANOVA.

4.3. Results

The prevalence rate of ICD-11 PTSD was 13.1% (95% CI = 11.7%, 14.6%). Of this percentage 2.3 % were male and 10.8% were female. The rate of ICD-11 CPTSD was 7.8% (95% CI = 6.7%, 9.0%). Of this percentage 1.8% were males and 6.0% were female.

Initial exploration of the coping data revealed that participants endorsed the full range of responses on the 14 items, providing suitable variability to proceed with EFA. Correlations ranged between 0.08 and 0.69. The EFA fit statistics are reported in Table 4.1.

Table 4.1.

Exploratory Factor Analysis Model Fit Statistics for the adapted Brief COPE.

	χ^2	df	p	CFI	TLI	RMSEA (90% CI)	SRMR	ΔCFI	Δ TLI	Δ RMSEA
One-factor model	2438.69	77	<.001	.740	.692	.119 (.115 - .123)	.145	-	-	-
Two-factor model	1471.46	64	<.001	.845	.779	.101 (.096 - .105)	.099	.105	.087	.018
Three-factor model	769.25	52	<.001	.921	.862	.080 (.075 - .085)	.065	.076	.083	.021
Four-factor model	**131.80**	**41**	**<.001**	**.990**	**.978**	**.032 (.026 - .038)**	**.028**	**.069**	**.116**	**.048**
Five-factor model	71.88	31	<.001	.995	.987	.025 (.017 - .032)	.019	.005	.009	.007

Note: Estimator = WLSMV; χ^2 = Chi-square Goodness of Fit statistic; *df* = degrees of freedom; p = Statistical significance; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; RMSEA (90% CI) = Root-Mean-Square Error of Approximation with 90% confidence intervals; SRMR = Standardized Root-Mean Square Residual; selected model in bold. (N = 2166)

The one- and two-factor models provided poor fit to the sample data. The three-factor solution provided adequate fit based on the CFI, RMSEA, and SRMR results. However, the four-factor model provided substantially closer fit, as the ΔCFI and ΔTLI values were > .010, and the ΔRMSEA was > .015. The five-factor model also provided close fit to the data but relative to the four-factor model, the ΔCFI and ΔTLI values were not > .010, and the ΔRMSEA was not > .015. Thus, from a statistical perspective, the four-factor model was deemed the optimal fitting solution. The four factors extracted each had eigenvalues greater than 1.00 (i.e., 4.20, 2.38, 1.45 and 1.16), and were conceptually distinguishable and interpretable. Factor loadings are shown in Table 4.2.

Two items loaded positively onto factor 1: '*doing something to think about it less*' and '*taking action to make situation better*'. This was labelled 'Problem focused coping'. Two items loaded positively onto factor 2: '*getting emotional support from others'* and '*getting help and advice from other people*'. This was labelled 'Emotion focused coping'. Four items loaded positively onto factor 3: '*use of alcohol or drugs to cope*', '*giving up trying to cope and deal with it*', '*expressing negative feelings*', and '*blaming myself for things that happened*'. This was labelled 'Avoidant coping'. Three items loaded positively onto factor 4: '*looking for something good in what is happening*', '*thinking hard about what steps to take*', '*using humour*', and '*learning to live with it/getting used to it*''. This was labelled 'Stoic coping'. Two items did not clearly load onto any factor: '*refusing to believe that it has happened*' and '*comfort in religion or spiritual beliefs*'. Thus, these items were not considered when forming sum scores of coping styles. All factors were positively and statistically significantly correlated with one another. The strongest correlations were between Problem Focused Coping and Emotion Focused Coping (r = .36) and between Problem Focused Coping and Stoic Coping (r = .34). The composite reliability estimates for each factor were all satisfactory: problem focused coping (CR =.64), emotional focused coping (CR = .84), avoidant coping (CR = .75) and stoic coping (CR = .72). The composite reliability for the full 12 item scale was also satisfactory (CR = .91).

The results of the two-way between groups ANOVAs are presented in Tables 4.3 and 4. With respect to Problem Focused Coping and Stoic Coping, there were no main effects for diagnostic status nor sex, and there were no interaction effects. For Emotion Focused Coping, there was no interaction effect, nor a main effect for diagnostic status, but there was a significant (p = .049) and small (η^2 = .02) main effect for sex with females having slightly higher levels than males. For Avoidant Coping, there was a significant (p < .001) and large (η^2 = .15) main effect for diagnostic status with those with CPTSD having higher levels than those with PTSD and those with no diagnosis, and those with PTSD having higher levels than those with no diagnosis. There was no main effect for sex, but

there was a significant interaction effect. For males those meeting Criteria for PTSD and CPTSD had significantly higher levels of avoidant coping than those who did not meet either disorder, but there was no significant difference for those with PTSD and CPTSD. On the other hand, females with PTSD and CPTSD had significant higher levels of avoidant coping than those who did not meet criteria, and females with CPTSD had significantly higher levels of avoidant coping than those with PTSD.

Table 4.2.

Factor Loadings and Factor Correlations for the Four Factor Model.

	Problem focused	Emotion focused	Avoidant	Stoic
Factor loadings				
1. Doing something to think about it less.	**0.576***	0.265*	0.053*	-0.001
2. Taking action to make situation better.	**0.781***	-0.054*	-0.035*	0.334*
3. Refusing to believe that it has happened.	0.320*	0.158*	0.354*	-0.060*
4. Use of alcohol or drugs to cope.	0.184*	-0.114*	**0.585***	0.136*
5. Getting emotional support from others.	0.017	**0.850***	-0.035	0.020
6. Giving up trying to cope and deal with it.	0.014	0.193*	**0.628***	-0.209*
7. Expressing negative feelings.	0.023	0.003	**0.630***	0.013
8. Getting help and advice from other people.	0.023	**0.848***	-0.013	0.087*
9. Looking for something good in what is happening.	0.038*	0.231*	0.027	**0.676***
10. Thinking hard about what steps to take.	0.467*	0.045	-0.003	**0.445***
11. Using humour.	0.215*	0.011	-0.001	**0.894***
12. Learning to live with it/getting used to it.	0.063*	0.213*	0.054*	**0.427***
13. Comfort in religion or spiritual beliefs.	0.068	0.177*	0.204*	0.009

14. Blaming myself for things that happened.	0.031	-0.044	**0.750***	0.044
Factor correlations				
Problem focused coping	1			
Emotion focused coping	0.358*	1		
Avoidant coping	0.005	0.120*	1	
Stoic coping	0.161*	0.337*	0.158*	1

Note: * = statistically significant ($p < .05$) loadings and correlations; items assigned to factors are in bold.

Table 4.3.

Descriptive statistics for each of the variables.

Variable	Sex	Diagnosis	Range	M	SD	N
Problem focused coping	Male	None		6.17	1.84	433
		PTSD		6.28	1.57	40
		CPTSD		6.46	1.58	28
	Female	None		6.30	1.68	795
		PTSD		6.63	1.44	174
		CPTSD		6.61	1.56	100
	Total		2-8	6.34	1.68	1899
Emotion focused coping						
	Male	None		5.20	1.99	471
		PTSD		5.69	1.64	39
		CPTSD		5.71	1.68	28
	Female	None		5.84	1.90	871
		PTSD		5.81	1.64	173
		CPTSD		5.99	1.67	101
	Total		2-8	5.66	1.85	2050
Avoidant focused coping						
	Male	None		5.61	2.01	417
		PTSD		8.13	2.23	31
		CPTSD		8.09	2.43	23
	Female	None		5.53	1.76	689
		PTSD		6.85	2.21	146
		CPTSD		8.93	1.96	87
	Total		4-15	5.99	2.14	1675

Stoic focused coping						
	Male	None		10.26	3.30	378
		PTSD		10.24	2.78	38
		CPTSD		10.83	3.01	24
	Female	None		10.35	3.31	378
		PTSD		10.05	2.78	38
		CPTSD		11.05	2.51	96
			4-16	10.37	3.16	1654

Table 4.4

Two-Way Between Groups ANOVA Results.

Variable	Group	F	df	p	η^2
Problem focused coping	Sex	1.75	1	.186	.00
	ICD-11 diagnosis	2.04	2	.130	.00
	Interaction	0.24	2	.789	.00
Emotion focused coping	Sex	**3.89**	**1**	**.049**	**.02**
	ICD-11 diagnosis	2.10	2	.123	.00
	Interaction	1.43	2	.240	.00
Avoidant coping	Sex	0.74	1	.389	.00
	ICD-11 diagnosis	**117.49**	**2**	**<.001**	**.15**
	Interaction	**6.99**	**2**	**.001**	**.01**
Stoic coping	Sex	0.03	1	.862	.00
	ICD-11 diagnosis	1.82	2	.162	.00
	Interaction	0.15	2	.863	.00

Note: η^2 = partial eta squared; significant effects in bold.

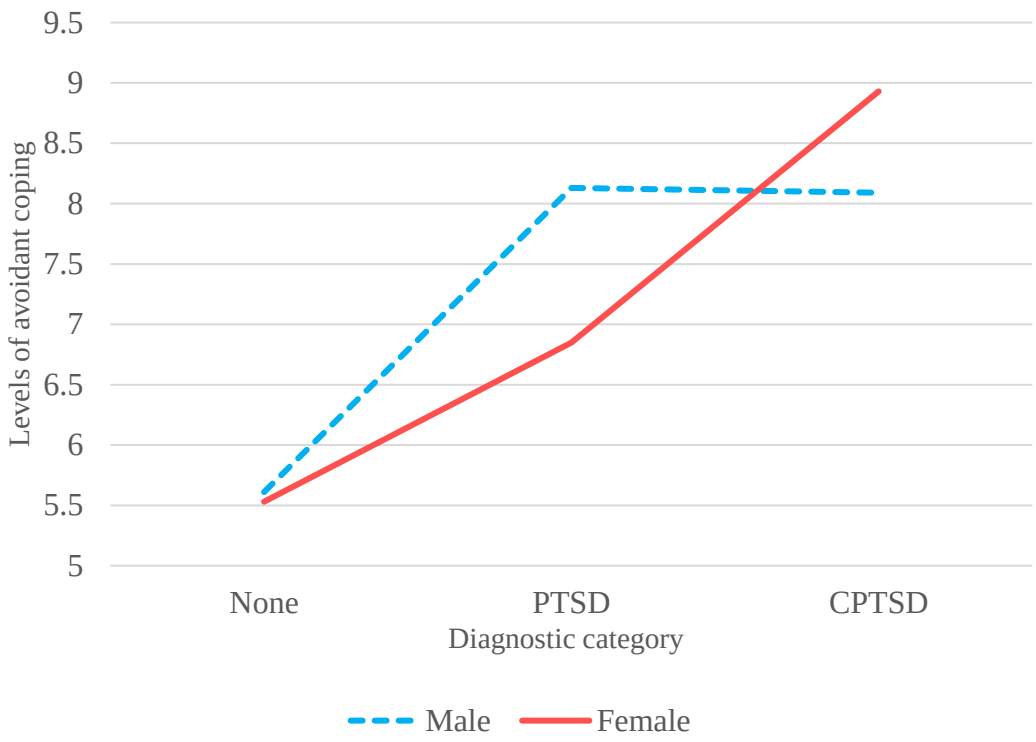


Figure 4.1 Interaction between sex and diagnostic category on levels of avoidant coping in a Ukrainian IDP sample (n= 1675)

4.4. Discussion

The current study was conducted to determine rates of ICD-11 PTSD and CPTSD in a nationally representative sample of Ukrainian IDPs from 2016, and to understand what coping strategies differentiate these disorders for males and females. Key findings were that (1) more people met diagnostic requirement for ICD-11 PTSD (13.1%) than CPTSD (7.8%), (2) four coping styles were identified with three reflecting positive strategies (i.e., emotion-focused, problem-focused, stoic coping), and one reflecting negative strategies (i.e., avoidant coping), (3) those meeting diagnostic requirements for ICD-11 PTSD and CPTSD could be most readily distinguished from those without a traumatic stress problem in terms of having higher levels of avoidant coping, and (4) differences in levels of avoidant coping across diagnostic status were different for male and female IDPs.

Approximately one-in-five Ukrainian IDPs met the diagnostic criteria for ICD-11 PTSD or CPTSD, with more people meeting the criteria for PTSD (13.1%) rather than CPTSD (7.8%). Previous studies with refugee and asylum-seeking samples have reported higher rates of CPTSD than PTSD (Nickerson et al. 2016; Vallieres et al. 2018; Kira et al. 2022), Our findings suggest that in the general population of war-affected displaced persons, PTSD is the more common response. These findings have potentially important implications

for humanitarian planning and responses to the current crisis in Ukraine. It is likely that a substantial proportion of the Ukrainian population will be experiencing trauma-related distress reaching clinical thresholds, and that the core PTSD symptoms of present-moment reliving of threatening events, avoidance of reminders of such events, and heightened arousal related to a sense of current threat and danger will be especially common. Mental health interventions that address these symptoms, and that can be delivered to many people, possibly without the role of a highly trained professional, will be especially important. Interventions that include a continuous trauma-based focus have been documented as most effective for PTSD and CPTSD symptoms (Clotire et al. 2021) Narrative exposure therapy (NET) is emerging as the treatment of choice for traumatised refugees and IDPs (Lely, 2019), A recent study found that in 16 randomized controlled trials, involving 947 participants, large non-controlled effect sizes were found for PTSD symptoms, at post-treatment (g = 1.18, 95% confidence interval [0.87; 1.50]) and follow-up (g = 1.37 [0.96; 1.77]). Addtionally, current, continuous, cumulative, trauma focused cognitive behaviour therapy (CCC-TF-CBT) may be particularly useful for mental health workers who work with multiply traumatized clients (Kira et al.., 2013). Adaptation of such an interventions to the Ukrainian context may be beneficial.

Results of the EFA demonstrated that a four-factor model of the adapted Brief COPE fit the sample data well. One of the aims of this study was to identify the latent structure of this adapted measure in order to compare coping styles among individuals who met the diagnostic criteria for either ICD-11 PTSD or CPTSD. Three of the four coping strategies identified were consistent with the intended higher-order structure of the Brief COPE and these were problem-focused coping, emotion-focused coping, and avoidant focused coping. Notably, evidence of a fourth factor which reflected a tendency to look for the good in the situation, to use humour, to adapt and live with new circumstances, and to take steps to improve the situation was found. This was labelled as a positive coping style ,stoic coping. Inspection of the descriptive statistics for the different coping styles showed that, on average, Ukrainian IDPs had high levels of positive coping styles, and low levels of negative coping styles. This consistent with previous research in Ukrainian samples that has revealed high levels of positive coping in the face of adversity (Bohucharova, 2017). These findings speak to the high levels of resilience of the Ukrainian population in the face of extreme hardship.

Consistent with previous research demonstrate that avoidant coping is associated with greater traumatic symptom severity in displaced populations (Matheson et al. 2008; Huijts et al. 2012; Finklestein et al. 2012), our findings showed that males and females meeting criteria for ICD-11 PTSD and CPTSD had significantly higher levels of avoidant

coping. In fact, it was only avoidant coping that differentiated those with PTSD and CPTSD from those not meeting criteria for either disorder. Avoidant coping strategies are maladaptive as they are efforts to escape reality and ignore the problem through emotional suppression. From a clinical perspective, reducing engagement in avoidant coping strategies such as self-blame or use of drugs and alcohol to suppress negative emotions, is likely to be more successful in managing and alleviating traumatic distress than attempting to develop positive coping skills. Interventions based on acceptance and commitment therapy such as the World Health Organization's Self-Help Plus (Acarturk et al. 2022), could be particular helpful in relation to reducing engagement in negative coping strategies. These type of interventions can be trained in peer non-specialist facilitators in large groups and adapted to the Ukrainian context. Self Help Plus has been proven to be effective in reducing mental health problems among Syrian refugees (Acarturk et al. 2022).

Our findings indicated that the relationship between avoidant coping and ICD-11 PTSD and CPTSD was different for men and women. For men, avoidant coping was higher in those with PTSD and CPTSD compared to those not meeting criteria for either disorder, but levels of avoidant coping were not different between those meeting criteria for PTSD and CPTSD. For women, however, levels of avoidant coping increased significantly from those not meeting criteria for a trauma disorder, to those with PTSD, to those with CPTSD. Thus, greater use of avoidant coping styles may be helpful in differentiating women with CPTSD to those with PTSD. Moreover, clinical strategies that target and address avoidant coping styles may be especially beneficial for women with CPTSD.

Several limitations should be noted. The study design used a time-location sampling method which may have omitted those not in identified locations (e.g. locations providing support to IDPs or known residential and social locations of IDPs). This may have potentially excluded those that are less vulnerable (as they are not seeking support) or those that are most vulnerable and not able to access support. However, this potential for sampling bias was minimized by including as wide a range of potential locations as was possible. While the coping assessment has been used previously in conflict-affected populations, limitations of its use include relatively value-laden assumptions regarding coping behaviours. Those under the influence of alcohol at the time of the interviews were also excluded from the original study (after attempts to re-visit), and those with severe alcohol use disorders may be less likely to frequent locations from which participants were recruited. Both could result in fewer people with problematic drinking participating in the study. However, the number of participants in the sample will mitigate some of these limitations.

Despite these limitations, the current study provides important new information that may be relevant to the mental health response to the ongoing war in Ukraine. Findings indicate that of the approximately one-in-five Ukrainian IDPs that meet criteria for a trauma-related disorder, more satisfied the requirements for PTSD than CPTSD. Furthermore, engagement in avoidant coping strategies - although generally low in this sample - were importantly related to ICD-11 PTSD and CPTSD for male and female Ukrainian IDPs. Interventions that address these coping methods might be useful in reducing the burden of traumatic stress among war-affected Ukrainians

Chapter 5

Sex and age differences in ICD-11 PTSD and complex PTSD

A paper based on this chapter has been published in European Psychiatry

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Abstract

Posttraumatic stress disorder (PTSD) is traditionally understood as a disorder that occurs more commonly in women than in men, and in younger age groups than in older age groups. The objective of this study was to determine if these patterns are also observed in relation to ICD-11 PTSD and Complex PTSD (CPTSD).

Secondary data analysis was performed using data collected from three nationally representative samples from the Republic of Ireland (N = 1,020), the United States (N = 1,839) and Israel (N = 1,003), and one community sample from the United Kingdom (N = 1,051).

Estimated prevalence rates of ICD-11 PTSD were higher in women than in men in each sample, and at a level consistent with existing data derived from DSM-based models of PTSD. Furthermore, rates of ICD-11 PTSD were generally lower in older age groups for men and women. For CPTSD, there was inconsistent evidence of sex and age differences, and some indication of a possible interaction between these two demographic variables.

Despite considerable revisions to PTSD in ICD-11, the same sex and age profile was observed to previous DSM-based models of PTSD. CPTSD, however, does not appear to show the same sex and age differences as PTSD. Theoretical models that seek to explain sex and age differences in trauma-related psychopathology may need to be reconsidered given the distinct effects for ICD-11 PTSD and CPTSD.

Key words: PTSD; Complex PTSD; ICD-11; sex; age.

5.1. Introduction

There are two systems used by mental healthcare professionals to diagnose trauma-related disorders: the fifth edition of the *Diagnostic and Statistics Manual of Mental Disorders* (DSM–5; American Psychiatric Association [APA], 2013) and the 11th version of the *International Classification of Diseases* (ICD-11; WHO, 2018). The former describes Posttraumatic Stress Disorder (PTSD) using 20 symptoms categorised into four clusters (Intrusions, Avoidance, Negative Alterations in Cognitions and Mood (NACM), and Hyperarousal), while the latter includes two related-but-distinct disorders of PTSD and Complex PTSD (CPTSD). ICD-11 PTSD includes six symptoms distributed across three clusters (Reexperiencing in the here and now, Avoidance, and Sense of Threat) and ICD-11 CPTSD includes 12 symptoms; the six PTSD symptoms and six 'Disturbance in Self-Organisation' (DSO) symptoms which are distributed across three symptom clusters (Affect Dysregulation, Negative Self Concept, and Difficulties in Relationships). Thus, DSM-5 includes a broad array of trauma-specific and non-specific symptoms under a single diagnostic category, while ICD-11 distinguishes trauma-specific and non-specific symptoms into discrete diagnostic categories, each with a narrow set of symptom indicators. Decades of research with DSM-based models indicates that PTSD is more common among females than males, and among younger rather than older cohorts, however, it is unknown whether these sex and age differences occur with respect to ICD-11 PTSD and CPTSD.

Epidemiological research with DSM-IV (APA, 1994) and DSM-5 (APA, 2013) models of PTSD consistently found that women were about twice as likely as men to meet diagnostic criteria for PTSD (Christiansen & Elklit, 2012; Frans et al. 2005; Olff, 2017; Tolin & Foa, 2006), even when controlling for differences in trauma type, diagnostic measures, culture, measurement error, reporting bias, and file drawer effects (Christiansen & Berke, 2020; Christiansen & Elklit, 2012; Kessler et al. 1995; Kilpatrick et al. 2013; Tolin & Foa, 2006). A study with Danish bank employees exposed to several robberies found that a combination of pre-, peri- and post-traumatic risk factors that were more commonly reported by women accounted for 83% of the variance in the association between sex and PTSD (Christiansen & Hansen, 2015). Similarly, a recent systematic review of 19 studies found that a combination of genetic predisposition, hormonal influences, and gender roles combine to leave women at higher risk of developing PTSD (Christiansen & Berke, 2020). There is a smaller, but nonetheless substantial body of evidence showing that rates of PTSD tend to decline in older age, with lowest rates being observed amongst those aged 65 and older (Creamer & Parslow, 2008; Frans et al. 2005; Gum et al. 2009; Kessler et al. 2005; Reynolds et al. 2016). Several explanations have been offered for this, including an increased risk of early mortality due to PTSD (Ahmadi et al. 2011; Boscarino, 2006), under reporting of

symptoms due to fears of stigma in older age groups (Böttche et al. 2012; Cook & Simiola, 2018; Palmer et al. 1997; Pless & Kaiser et al. 2019; Thorp et al. 2011) and greater resilience against adverse situations in older age (Gooding et al. 2011; Grossmann et al. 2010; MacLeod et al. 2016; Kennedy et al. 2004; Reed & Carstensen, 2012; Thomas et al. 2016).

With an ever-growing number of studies using the ICD-11 models of PTSD and CPTSD (Brewin, 2017; Brewin, 2020), it is important that to determine if traditionally understood sex and age differences in trauma-related psychopathology are observed in the context of ICD-11 PTSD and CPTSD. In this study, data from four general population samples were reanalysed to determine if there are consistent sex and age differences in rates of ICD-11 PTSD and CPTSD.

5.2. Methods

5.2.1. Sample and Procedures

This study utilized data from four existing general population, internet-based surveys from the United States (US), the Republic of Ireland, Israel, and the United Kingdom (UK). The US sample was collected by the survey company GfK; the Irish and UK samples were collected by the survey company Qualtrics; and the Israeli sample was collected by the survey company Ipanel. In every case, participants were recruited from existing, double opt-in research panels. Each survey lasted 20-30 minutes, and in every case, participants were required to be aged 18 years or older, living in their respective country, and to provide informed consent. The Israeli and US data were collected in 2017, the UK data in 2018, and the Irish data in 2019. Ethical approval for the collection of each dataset, and use for secondary analyses, was obtained by the various study authors from their respective institutions. Ethical approval for this study was provided to the first author by the Social Research Ethics Committee at Maynooth University.

The US sample (N = 1,839) was a nationally representative, probability-based sample of adults aged 18-70 years. In addition to the inclusion criteria previously mentioned, participants were also selected if they had experienced at least one traumatic life event. Furthermore, females and ethnic minority groups (African American and Hispanic) were oversampled, each at a 2:1 ratio. 3,953 people were contacted and 1,839 met the inclusion criteria (participation rate = 46.3%). These data were weighted to take account of all inclusion criteria and ensure representativeness to the entire US adult population. Further details can be found in Cloitre et al. (2018).

The Irish (N = 1,020) and Israeli (N = 1,003) samples were nationally representative, non-probability-based adult samples. Quota sampling methods were used to construct samples that represented the respective populations in relation to several demographic variables (i.e., age, sex, and regional distribution). All Israeli participants were trauma-

exposed (Cloitre et al. 2019) while 82.3% of the Irish participants met the DSM-5's Criterion A trauma exposure criterion (Karatzias et al. 2019) Further details about these samples can be found in Ben-Ezra et al. 2018 and Hyland et al. 2019.

The UK sample (N = 1,051) was a community sample of trauma-exposed adults. Exposure to a traumatic life event was an inclusion criterion, and although age and regional quotas were used to select sample participants, this sample was not constructed to be nationally representative. Further details about this sample can be found in Karatzias et al. (2019). Table 5.1 presents the sociodemographic characteristics for each sample.

Table 5.1.

Demographic characteristics of each sample.

	Ireland (N = 1020)	United States (N = 1839)	Israel (N = 1003)	UK (N = 1051)
Age, Mean (SD)	43.10 (15.2)	44.51 (14.5)	40.62 (14.5)	47.13 (14.9)
Age range	18-87	18-70	18-70	18-90
Age bands (%)				
18-24	12.3	10.0	15.9	5.1
25-34	20.2	20.7	25.8	21.0
35-44	23.5	19.0	19.8	18.3
45-54	29.2	18.5	16.5	21.6
55-64	14.1	21.6	15.8	19.7
65+	10.8	10.2	6.3	14.3
Sex (%)				
Men	49	48	48.3	31.6
Women	51	52	51.7	68.4
Relationship status (%)				
Not in a committed relationship	30.5	36.6	29.5	29.6
In a committed relationship	69.5	63.4	70.5	70.4
Highest level of education (%)				
Primary school or less	7.1	9.1	2.5	1.7
High school/secondary school	39.2	28.7	29.1	35.7
College/University	36.9	30.3	68.4	62.7
Postgraduate*	16.9	31.8	-	-

Employment (%)				
Full-time	45.8	71.1	61.8	36.1
Part-time	17.8	-	20.9	19.2
Voluntary work*	-	-	-	3.2
Unemployed, seeking work	8.6	5.6	6.3	7.1
Unemployed, not seeking work	27.7	23.3	11.0	34.3

*****items regarding post-graduate qualification and voluntary work were not included in demographic questions for countries with blank spaces.

5.2.2. Materials

Trauma exposure: The Life Events Checklist for DSM-5 (LEC-5: Weathers et al. 2013) (LEC-5) was used to screen for traumatic exposure in the US, Israeli, and UK samples. The LEC-5 includes descriptions of 16 traumatic life events and participants were asked to indicate if they had experienced each event on a 'Yes' (1) or 'No' (0) basis. The International Trauma Exposure Measure (ITEM; Hyland et al. 2021b) was used to screen for traumatic exposure in the Irish sample. The ITEM was developed to capture traumatic exposure in a manner that is consistent with the ICD-11's broader definition of a traumatic event (i.e., any event of an extremely threatening or horrific nature). It includes descriptions of 21 events, 16 of which meet the DSM-5's definition of a traumatic event and five that meet the ICD-11, but not DSM-5, definition (i.e., stalking, bullying, emotional abuse, emotional neglect, and physical neglect). To ensure consistency across all samples, in this study only used the 16 events from the ITEM that match the DSM-5 definition of trauma were used. These events map onto the 16 events in the LEC-5. Thus, diagnostic rates for all samples are reported based on a traumatic exposure criterion that is in-line with the DSM-5's Criterion A definition.

PTSD and CPTSD: All samples completed the International Trauma Questionnaire (Cloitre et al. 2018). This 12-item, self-report measure was designed to capture all elements of the ICD-11 diagnostic criteria for PTSD and CPTSD. Respondents first identify their most distressing traumatic event and indicate how long ago it occurred. Respondents are then instructed to answer all questions in relation to this event. Six items measure PTSD symptoms, and these items are answered in terms of how much the respondent has been bothered in the past month. Three questions measure functional impairment associated with these symptoms in the domains of social, occupation, and other important areas of life. A further six items measure the DSO symptoms, and these are answered in terms of how respondents typically feels, think about themselves, and relates to others. There are three items that measure functional impairment associated with these symptoms too. All items are based on a five-point Likert scale from 0 (*Not at all*) to 4 (*Extremely*), and a symptom is considered to be present based on a score of ≥ 2 (*Moderately*). The internal reliability (Cronbach's alpha) estimates of the subscale scores in each sample were all greater than $\alpha = .90$.

To meet diagnostic criteria for PTSD or CPTSD, a person must have experienced at least one traumatic event. For a diagnosis of PTSD, at least one symptom must be present from each PTSD cluster, and at least one indicator of functional impairment associated with these symptoms must be endorsed. To meet diagnostic criteria for CPTSD, at least one symptom must be present from the six symptom clusters, and endorsement of functional impairment associated with the PTSD and DSO symptoms must be present. As per the ICD-

11 diagnostic guidelines, a person may only be diagnosed with PTSD or CPTSD, but not both. If a person meets the diagnostic criteria for CPTSD, they do not also receive a diagnosis of PTSD. Diagnostic rates presented in this study represent those from the finalised version of the ITQ, and consistent with the ICD-11 diagnostic algorithms.

5.2.3. Statistical analysis

Binary logistic regression analysis was used to determine if there were statistically significant differences in the estimated prevalence rates of PTSD and CPTSD across the sexes, and across six age categories (18-24, 25-34, 35-44, 45-54, 55-64, and 65 and older). These age categories were used because these were the age bands employed by the various survey companies to establish sample quotas. Odds ratios (OR) with 95% confidence intervals were estimated to quantify the magnitude of the sex and age differences. For sex, males were used as the reference category, and for age, those aged 65 years and older were used as a reference category.

5.3. Results

5.3.1. Descriptive statistics

The mean number of traumatic life events in the US sample was 3.77 (*Mdn* = 3.00, SD = 2.65); in the Irish sample, the mean number was 3.26 (*Mdn* = 3.00, SD = 3.18); in the Israeli sample, the mean number was 4.07 (*Mdn* = 4.00, SD = 2.77); and in the UK sample, the mean number was 3.18 (*Mdn* = 2.00, SD = 2.61). There was a statistically significant difference between the groups with Israel having the highest number of mean traumatic life events (F (3, 4910) = [82.83], p <.000)

The estimated prevalence rates of PTSD and CPTSD, and the differences between males and females, are presented in Table 5.2. There were statistically significant differences ($p < .05$) in the rates of PTSD between males and females in every sample. Females were between 1.73 (Israel) and 2.56 (US) times more likely to meet diagnostic criteria for PTSD. With respect to CPTSD, a statistically significant ($p < .01$) sex difference was present only in the US sample where females were 1.84 times more likely to meet diagnostic criteria.

Table 5.2.

Sex differences in estimated prevalence rates of ICD-11 PTSD and CPTSD using binary logistic regression.

	PTSD % (n)	Males % (n)	Females % (n)	OR (95% CI)	CPTSD % (n)	Males % (n)	Females % (n)	OR (95% CI)
Ireland	5.0 (51)	3.6 (18)	6.3 (33)	**1.82 (1.00 – 3.26)**	7.7 (79)	6.6 (33)	8.8 (46)	1.37 (0.86 - 2.19)
United States	3.4 (62)	1.9 (17)	4.8 (45)	**2.56 (1.46 – 4.53)**	3.9 (70)	2.7 (24)	4.9 (46)	**1.84 (1.11 – 3.05)**
Israel	6.7 (67)	5.0 (24)	8.3 (43)	**1.73 (1.03 – 2.90)**	4.9 (49)	5.2 (25)	4.6 (24)	0.89 (0.50 – 1.58)
United Kingdom	5.3 (56)	3.0 (10)	6.4 (46)	**2.20 (1.10 – 4.41)**	12.9 (136)	13.0 (43)	12.9 (93)	1.00 (0.68 – 1.47)

Note: Statistically significant ($p < .05$) effects are in bold. OR = Odds ratios. 95% CI = 95% Confident intervals.

5.3.2. Inferential

Age differences in rates of PTSD and CPTSD are presented in Table 3. There was a statistically significant age effect for PTSD ($p < .001$) and CPTSD ($p < .05$) in the US sample, and a statistically significant effect for CPTSD ($p < .001$) in the UK sample. In the US, individuals aged 25-35 were 4.19 times more like than those aged 65+ to meet criteria for PTSD; while those aged 44-54 were 3.32 more likely to meet criteria for CPTSD. In the UK, all age groups other than those aged 55-64 were significantly more likely than those aged 65+ to meet criteria for CPTSD with ORs ranging from 2.60 to 7.47. The rates of PTSD and CPTSD in each age group and in all samples are presented in Figures 1 and 2. As can be seen, there was a consistent trend of lower rates of PTSD in the older age groups, whereas there was little evidence of consistent differences in rates of CPTSD across the age groups.

As a post-hoc exploratory analysis, the four samples were disaggregated by sex, and age differences in the rates of PTSD and CPTSD were plotted (see Figure 3). In the case of PTSD, there was a consistent trend of lower rates in the older age groups for both sexes. This was not the case for CPTSD. In the Irish and US samples, rates of CPTSD for women were highest in the middle age groups, and lowest in the youngest and oldest age groups, whereas in the Israeli and UK samples, rates were lowest for women in the oldest age groups. For males, one notable trend was that rates of CPTSD were relatively higher in those aged 65+ in the Irish and Israeli samples.

Table 5.3

Binary logistic regression analysis predicting likelihood of receiving PTSD and CPTSD diagnosis across age groups.

	PTSD % (n)	B	S.E.	OR (95% CI)	**CPTSD % (n)**	B	S.E.	OR (95% CI)
Ireland								
18-25	8.0 (10)	0.60	0.56	1.82 (0.60 – 5.52)	8.0 (10)	-.02	.47	.976 (0.38 – 2.50)
25-35	7.3 (15)	0.50	0.53	1.65 (0.58 – 5.66)	4.9 (10)	-.55	.47	.537 (0.23 – 1.45)
35-44	3.8 (9)	-0.20	0.57	0.82 (0.27 – 2.50)	7.9 (19)	-.03	.42	.965 (0.42 – 2.20)
44-54	4.1 (8)	-0.10	0.53	0.90 (0.29 – 2.82)	9.7 (19)	.19	.42	1.21 (0.52 – 2.82)
55-65	2.8 (4)	-0.51	0.68	0.60 (0.16 – 2.29)	8.3 (12)	.02	.46	.600 (0.15 – 2.29)
65+	4.5 (5)	-	-	-	8.2 (9)	-	-	-
United States								
18-25	4.9 (9)	1.1	.68	3.13 (0.82 – 11.92)	1.6 (3)	-.18	.80	.83 (0.17 – 3.93)
25-35	6.2 (23)	**1.4**	**.62**	**4.19 (1.23 – 14.23)***	4.6 (17)	.92	.59	2.50 (0.78 -7.89)
35-44	2.9 (10)	0.6	.67	1.79 (0.48 – 6.67)	4.3 (15)	.85	.59	2.33 (0.72 – 7.47)
44-54	4.5 (15)	1.0	.64	2.91 (0.82 – 10.27)	6.2 (21)	**1.2**	**.58**	**3.32 (1.06 – 10.35)***
55-65	0.5 (2)	-1.2	.95	0.28 (0.04 – 1.82)	2.5 (10)	.26	.62	1.30 (0.38 – 4.40)
65+	1.6 (3)	-	-	-	2.2 (4)	-	-	-

Israel								
18-25	10.7 (17)	.87	.66	2.39 (0.67 – 8.87)	7.5 (12)	.91	.78	2.49 (0.54 – 11.45)
25-35	5.0 (13)	.05	.67	1.06 (0.29 – 3.83)	6.2 (16)	.70	.76	2.00 (0.45 - 8.97)
35-44	5.0 (10)	.06	.68	1.05 (0.28 – 3.97)	5.5 (11)	.57	.78	1.79 (0.38 – 8.28)
44-54	9.1 (15)	.70	.65	2.00 (0.56 – 7.16)	3.0 (5)	-.05	.85	.953 (0.18 – 5.04)
55-65	5.7 (9)	.20	.68	1.21 (0.31 – 4.62)	1.9 (3)	-.53	.93	.580 (0.09 – 3.62)
65+	4.8 (3)	-	-	-	3.2 (2)	-	-	-
United Kingdom								
18-25	5.6 (3)	1.4	.93	4.35 (0.70 – 26.7)	29.6 (16)	2.0	.47	**7.47 (2.98 – 18.77)***
25-35	7.2 (16)	1.7	.76	5.77 (1.31 – 25.5)	17.6 (39)	1.3	.40	**3.80 (1.72 – 8.40)***
35-44	7.3 (14)	1.8	.76	5.82 (1.30 – 26.0)	19.3 (37)	1.4	.41	**4.23 (1.90 – 9.40)***
44-54	3.5 (8)	.99	.79	2.70 (0.56 – 12.9)	12.8 (29)	.95	.41	**2.60 (1.15 – 5.85)***
55-65	6.3 (13)	1.6	.76	4.95 (1.10 – 22.3)	4.3 (7)	-.48	.53	.621 (0.22 – 1.75)
65+	1.3 (2)	-	-	-	5.3 (8)	-	-	-

Note: Statistically significant ($p < .05$) effects are in bold. B = unstandardized beta value; SE = standard error of beta; OR (95% CI) = Odds ratio with 95% confidence intervals.

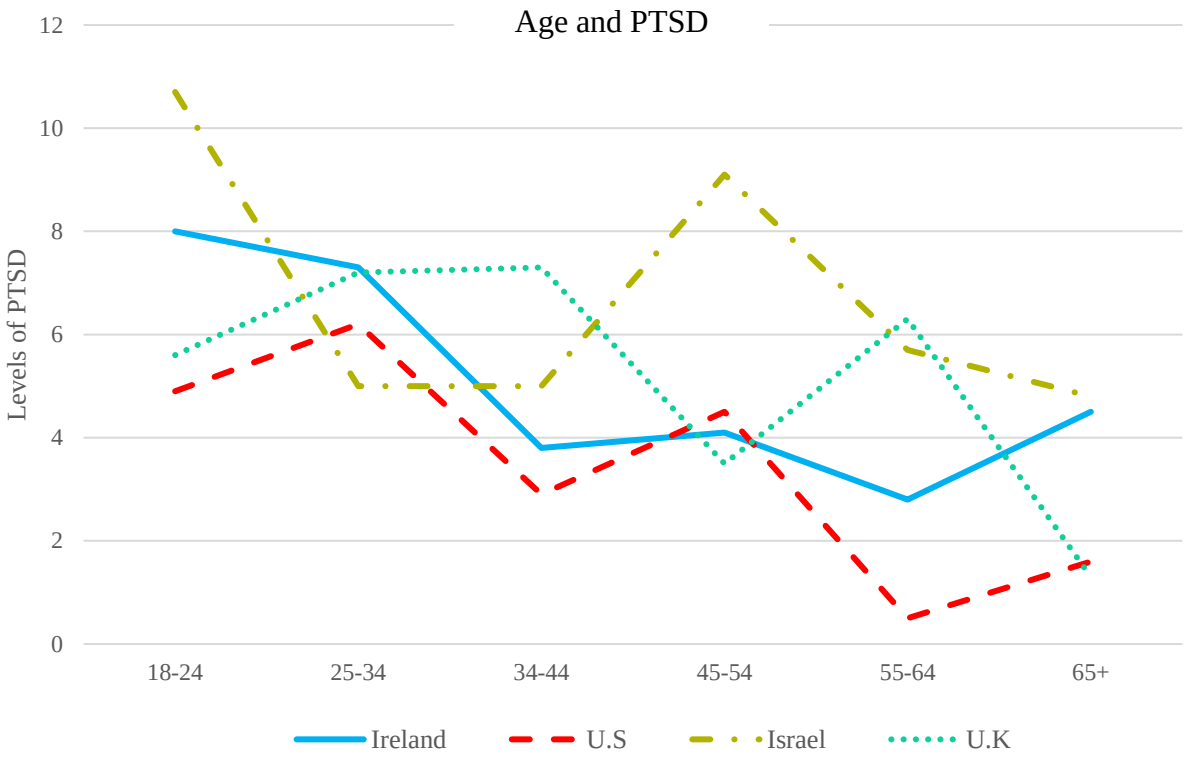


Figure 5.2. ICD-11 PTSD across age groups

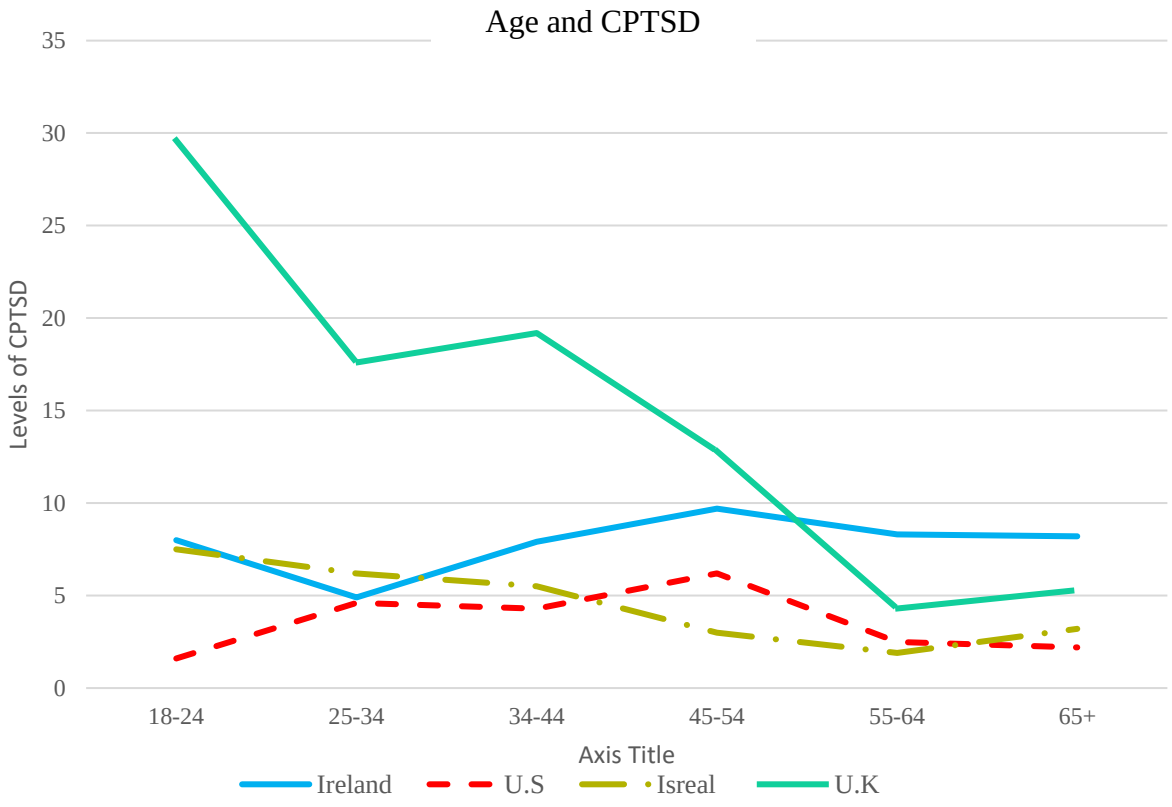


Figure 5.3. ICD-11 CPTSD across age groups

Figure 5.4. Sex differences in ICD-11 PTSD and CPTSD for Ireland, The U.S, Israel, and the U.K illustrated across age groups.

5.4. Discussion

PTSD is normally understood as a disorder more common in women than in men, and in younger adults than in older adults. With ICD-11, PTSD was reconceptualised as a narrow, fear-based disorder, and CPTSD was introduced into the diagnostic nomenclature for the first time, sparking considerable research attention (Fox et al. 2020; Ditlevsen & Elkit, 2010). This necessitated a reassessment of common assumptions about sex and age differences in trauma-related psychopathology. This study set out to explore these issues by re-analysing data from four independent, general population samples. Our findings suggest that ICD-11 PTSD follows the same general sex and age profile as the DSM-based models of PTSD, while CPTSD does not.

In each sample, women had higher rates of PTSD than men, and the magnitude of these differences were consistent with previous epidemiological research using DSM models of PTSD (Christiansen & Elklit, 2012; Frans et al. 2005; (Christiansen & Elklit, 2012; Frans et al. 2005; Kessler et al. 1995; Olff, 2017; Tolin & Foa, 2006). It was found that women were approximately two- to two-and-a-half times more likely than men to meet diagnostic criteria for ICD-11 PTSD. This is in-line with the well-established 2:1 ratio of PTSD in women compared to men (Olff, 2017). So, even though PTSD is defined by a much narrower set of symptoms than in DSM-IV and DSM-5 – 11 and 14 fewer symptoms, respectively – the same sized sex differences in meeting diagnostic criteria appear to remain.

In contrast, in three of the four samples there were no differences in rates of CPTSD between men and women. Only in the US sample were women significantly more likely than men to meet criteria for CPTSD, with women being nearly two times more likely than men to meet diagnostic criteria. Prior to the introduction of ICD-11, sex differences in PTSD had been proposed to be due to a multitude of biopsychosocial factors including sex differences in neuroendocrine functioning following early life trauma, perceptions of threat and loss of control, peritraumatic dissociation, social isolation, and social support following traumatic experiences (Olff, 2017), and it had been suggested that these factors may also give rise to the same sex differences in ICD-11 CPTSD (Clotrie et al. 2019). This appears not to be the case. It is unclear, however, why factors such as these would lead to sex difference in PTSD but not in CPTSD. One possibility for the observed effects could be methodological; namely that the PTSD items are biased such that women are more likely to endorse these symptoms compared to men, irrespective of their underlying levels of PTSD distress. However, this seems unlikely given that a recent comprehensive assessment found no evidence of differential item functioning based on sex for the six symptoms of ICD-11 PTSD (Fox et al. 2020). If the current findings of sex differences in rates of PTSD but not CPTSD are evidenced in future general population surveys, a theoretical account of why such effects should occur will be required. Establishing the underlying mechanisms that contribute to

higher PTSD prevalence rates in females is critical to improving treatment and prevention, globally. In doing so, this will also improve sex- and gender-specific approaches to helping those affected by trauma as well as gender-sensitive outreach, engagement, and intervention programs (Christiansen & Berke, 2020).

In terms of age differences in the rates of PTSD, there was only a statistically significant effect observed in the US sample, however, and as illustrated in Figure 5.1, there was a clear of lower rates of PTSD in the older age groups. This pattern is consistent with existing data from DSM-based models of PTSD, and with research on the prevalence of other psychiatric disorders across the lifespan (Reynolds et al. 2016). Thus, it could be said with some confidence that ICD-11 PTSD is like DSM-based PTSD in that prevalence rates are higher in younger age groups than in older age groups. Interestingly, quite a different pattern emerged for CPTSD. As illustrated in Figure 2, in the UK sample there was the typical profile of the highest rates in the youngest age groups and the lowest rates in older age groups. There was also some evidence of this in the Israeli sample (e.g., a drop from 7.5% in those aged 18-14 to 3.2% in those aged 65 and older). However, in the Irish sample, rates of CPTSD were lowest in those aged 25-34 and highest in those aged 44-54. In the US sample, rates of CPTSD were lowest amongst those aged 18-24 and highest in those aged 44-54 years.

Many theories have been proposed to account for decreasing rates of PTSD in older age. Compared to younger adults, when faced with adverse situations and stressful events older adults are generally more resilient and have greater cognitive reappraisal capacities (Gooding et al. 2012; Grossman et al. 2010; MacLeod et al. 2016; Thomas et al. 2016). Theories such as the socioemotional selectivity theory suggest that older adults seek emotionally meaningful goals and select familiar social partners which decreases the likelihood of experiencing stressful situations and increases positive experiences (Reynolds et al. 2016). It has also been suggested that old age is associated with spending more time in quiet reflection, a decreased interest in superfluous social interactions, and acceptance of earlier life events (Cook et al. 2018). Furthermore, there have been contrasting arguments asserting that older adults may be more reluctant to acknowledge mental health concerns due to fears of stigma and to convey their psychological concerns as somatic complaints (Bottche et al. 2012; Cook & Simiola, 2018; Palmer et al. 1997; Pless Kaiser et al. 2019; Thorp et al. 2011); to under report symptoms due to cognitive impairment (Thomas et al. 2016), and to possibly reflect a survivor bias where older adults are far less likely to survive until old age with a PTSD diagnosis (Cook et al. 2016; Cook & Similoa, 2018). Additionally, there have been concerns regarding the accuracy of psychiatric assessments in older adults given that older adults may not fit easily into our existing disorder classification systems (Cloitre et al. 2013). As with the discussion of sex differences, why these processes

would lead to lower rates of PTSD in older age but not in CPTSD is unclear. One possibility is that because CPTSD is more likely to occur following early developmental trauma and/or multiple traumatization (Karatiaz et al. 2019; Hyland et al. 2021; Maercker et al. 2021) and is associated with greater comorbidity and difficulties in functioning than PTSD [Hyland et al. 2021; Cloitre et al. 2013) it may remit as commonly as PTSD in older age.

When age differences in rates of PTSD and CPTSD were examined separately for men and women, it was found that the general pattern of lower rates of PTSD in older age groups was present for men and women. Thus, there appears to be little evidence of any interaction between sex and age in relation to PTSD. As such, it may be said with reasonable confidence that women are at higher risk of PTSD than men irrespective of age, and that rates of PTSD are generally higher in younger age groups irrespective of sex. In the case of CPTSD, however, there were signs of an interaction between sex and age. For example, in Ireland, rates of CPTSD in women followed an n-shaped distribution peaking in the middle-aged groups whereas for men, rates of CPTSD were elevated in those 18-24, were lower in all age groups up to those aged 55-64, and then were at their highest in those aged 65 and older. A similar pattern was evident in the US sample save for the high rates of CPTSD in men over 65; an effect that may due to the fact that the US sample only included adults up to the age of 70. In Israeli, rates of CPTSD for men and women were similar for every age group before a stark difference becoming evident in those aged 65 and older where men had considerably higher rates. Almost the opposite pattern was evident in the UK where rates of CPTSD were starkly different between men and women aged 18-24 and were then very similar among the middle- older-aged groups. Consequently, these findings suggest that rates of CPTSD at different ages may depend on one's sex.

These findings should be considered in light of some limitations. The four samples were drawn from high-income countries and findings may not generalise to other nations. The use of general population samples means that these findings may not generalise to clinical populations. Relatedly, only the US sample was a probability based nationally representative sample. The sample sizes were relatively small when attempting to categorise people into different age groups, and this likely increased the risk of Type 2 errors when testing for age differences. Finally, the cross-sectional nature of the sample means that it is impossible to disentangle age versus cohort effects. It may only be concluded that rates differ across age groups but not those rates change because of the aging process.

In conclusion, result show consistent evidence that rates of ICD-11 PTSD were higher in women than in men, and at a level that was consistent with existing data derived from DSM-based PTSD research. Moreover, also in-line with DSM-based research, rates of ICD-11 PTSD followed a general trend of decreasing frequency in older age for both men and women. The picture for CPTSD was quite distinct with inconsistent evidence of sex and

age differences, and some indication of an interaction between these two demographic variables. More research is required to understand the epidemiology of CPTSD, and theoretical models of sex and age differences in trauma-related psychopathology may need to be reconsidered in light of distinct effects for PTSD and CPTSD.

Chapter 6

General Discussion

6.1. Introduction

A major goal of the ICD-11 was to maximize the clinical utility and international applicability of all diagnoses, including PTSD and CPTSD, by focusing on the core symptoms of disorders. Considerable evidence accumulated in the first years after proposals for these disorders were presented to support their validity (see Brewin et al. 2017 for a review), however, limited studies have yet systematically assessed the validity of these diagnoses using finalised measures and in nationally representative samples. The primary goal of this PhD was to assess the validity of the ICD-11 model of CPTSD through a systematic assessment of nationally representative data collected from 7 countries, spanning 3 continents. To achieve this goal, several objectives were formulated; the first objective was to test the factorial validity, prevalence and correlates of the ICD-11 model of CPTSD in a nationally representative sample of Irish adults. The second objective was to determine what types of coping strategies are used by internally displaced people in Ukraine who have symptom profiles reflective of PTSD and CPTSD. The third objective was to determine if ADHD symptoms significantly differed across persons defined by symptoms of ICD-11 PTSD and CPTSD in a sample of Canadian adults. The fourth was to assess for age and sex differences in prevalence rates of PTSD and CPTSD across four countries.

This chapter will first provide an overview of the main findings from each of the four empirical chapters. Next, the unique contributions of these findings will be discussed, followed by the strengths and limitations of this work, possible future directions for research and clinical implications followed by final concluding remarks. A summary of the main findings from this thesis can be found in Table 6.1

Table 6.1. Summary of main findings arising from this research

Study	Research Questions	Study Design	Methods	Main Findings
Chapter 2	Examine: 1. Is ICD-11 model of CPTSD factorially valid and internally reliable ? 2. What are the prevalence rates of ICD-11 PTSD and CPTSD in Ireland? 3. What are the most important correlates of CPTSD symptoms? 4. How are CPTSD symptoms related to suicidality	*N* = 1,100 Age 18-81 (M= 44.91; SD =16.71) 51.7% Female Cross-sectional Design Confirmatory factor analysis (CFA) and Structural equation modelling (SEM)	CFA was performed on a nationally representative sample of Irish adults to assess the factorial validity of the ITQ, SEM was used to (i) determine the unique multivariate associations between 10 predictor variables (age, sex, urban dwelling, unemployment, traumatic events, COVID-19 infection, knowing someone who died from COVID-19, loneliness, social support, and sleep problems) and symptoms of CPTSD, (ii) and the unique associations between CPTSD symptoms and suicide risk.	1. The factorial validity and internal reliability of the ITQ were supported. 2. 11.2% of people met diagnostic requirements for ICD-11 PTSD (2.4%) or CPTSD (8.8%). 3. Specific CPTSD symptom clusters were uniquely associated with a range of previously identified risk factors including greater trauma exposure, higher levels of loneliness, and higher levels of insomnia. 4. Negative self-concept symptoms were strongly associated with increased risk of suicide.
Chapter 3	Examine: 1. Does the ITQ demonstrate discriminant validity 2. Are there empirically distinct groups of people with symptom profiles consistent with the distinction between ICD-11 PTSD and CPTSD? 3. Do levels of ADHD symptoms significantly differ across persons	*N* = 1,000 Age 18-67 (M=37; SD=13) 48.9% Female Cross-sectional Design Latent class analysis (LCA) and one-way	Data were collected from a representative quota sample of adults from Montreal. Analyses were limited to those trauma exposed (*N* = 747). Latent class analysis (LCA) was used to test if distinct groups were identifiable with symptom profiles reflective of ICD-11 PTSD and CPTSD, and differences in ADHD symptoms were assessed using one-way ANOVA	1. The discriminant validity of the ITQ was supported 2. Individuals exhibiting symptoms of ICD-11 PTSD and CPTSD exhibit significantly higher levels of ADHD symptoms compared to those without such symptoms, and 3. Symptoms of ADHD are notably higher in individuals displaying symptoms of ICD-11 CPTSD in comparison to those with symptoms of ICD-11 PTSD

	defined by symptoms of ICD-11 PTSD and CPTSD?	analysis of variance (ANOVA)		
Chapter 4	Examine: 1. What are the rates of ICD-11 PTSD and CPTSD in a sample of Ukrainian IDPs? 2. What coping strategies do IDPs who meet the criteria for ICD-11 PTSD and CPTSD use? 3. Do these coping strategies differ across diagnosis and sex	*N* = 2,198 Age 18-72 (M=45; SD=16.99) 68.1% Female Cross-sectional Design Exploratory Factor analysis (EFA) and two-way between groups ANOVA	Data came from a large sample collected in 2016 of Ukrainian Internally Displaced Persons. Prevalence rates of ICD-11 PTSD and CPTSD were determined. EFA was run on the 14-item brief COPE scale to determine the optimum factor structure of coping in the sample. Coping factors were then compared across diagnostic status and between male and female IDPs.	1. A higher percentage of individuals met the diagnostic criteria for ICD-11 PTSD (13.1%) compared to CPTSD (7.8%) 2. Four distinct coping styles were identified among the IDPs, with three characterized by positive strategies (i.e., emotion-focused, problem-focused, stoic coping) and one characterized by negative strategies (i.e., avoidant coping) 3. Individuals meeting the diagnostic criteria for ICD-11 PTSD and CPTSD were most distinguishable from those without traumatic stress symptoms by exhibiting elevated levels of avoidant coping, 4. Variation in levels of avoidant coping across diagnostic status differed between male and female IDPs.
Chapter 5	Examine: 1. Are there differences in rates of PTSD and CPTSD across age categories (18-24, 25-34, 45-54, 55-64, and 65+) in four general population samples 2. Are there differences in rates of and between the sexes?	Ireland (*N* = 1,020) U.S. (*N* = 1,839) Israel (*N* = 1,003) U.K (*N* = 1,051) See table 5.1 for descriptives Cross-sectional Binary logistic regression	Secondary data analysis was performed using data collected from three nationally representative samples from the Binary logistic regression was used to determine if there were differences in the estimated prevalence rates of PTSD and CPTSD across the sexes, and across six age categories (18-24, 25-34, 35-44, 45-54, 55-64, and 65 and older).	1. In terms of age differences the only statistically significant effect was observed in the US sample, however, there was a clear indication of lower rates of PTSD in the older age groups. Conversely, the findings pertaining to age differences in CPTSD demonstrated varied patterns across the different samples 2. Women were approximately two to two-and-a-half times more likely than men to meet the diagnostic criteria for ICD-11 PTSD. Conversely, In three out of the four samples examined, there were no statistically significant differences in CPTSD prevalence between men and women.

6.2. Overview of Key Findings

6.2.1. Chapter 2

The first empirical chapter (Chapter 2) assessed the psychometric properties of the ITQ in a nationally representative sample of adults living in Ireland (n = 1,100), to determine the prevalence rates of ICD-11 PTSD and CPTSD, and to identity unique correlates of CPTSD symptoms. Key findings were (1) the ITQ demonstrated satisfactory factorial validity and internal reliability, (2) 11.2% of the surveyed individuals met diagnostic criteria for either ICD-11 PTSD or CPTSD, with CPTSD being more prevalent (8.8%) than PTSD (2.4%), (3) specific CPTSD symptom clusters were uniquely associated with a range of previously identified risk factors including more frequent trauma exposure, higher levels of loneliness, and higher levels of insomnia, and (4) negative self-concept symptoms were strongly associated with increased risk of suicide.Considering the lack of research conducted on nationally representative samples, an important first step was to determine the factorial structure of the ITQ in a nationally representative sample. In line with the findings of Redican et al.'s (2021) systematic review, the CFA results indicated that the correlated six-factor model and the two-factor higher-order model of the latent structure of the ITQ fit the sample data well, with the former providing superior fit. Furthermore, each subscale of the ITQ exhibited strong internal reliability. Previous investigations involving nationally representative samples exclusively examined earlier, pre-finalized iterations of the ITQ. Therefore, this study is pioneering in that it offers the first evidence of the factorial validity and internal reliability of the definitive 12-item version of the ITQ within a nationally representative sample of the adult population. An important implication of the current findings is that researchers and clinicians employing the ITQ to assess ICD-11 CPTSD symptoms in the general population can have a high level of confidence in the scores they generate.

Roughly one in nine individuals (11.2%) in the study met the diagnostic criteria for either ICD-11 PTSD or CPTSD, with a higher percentage meeting the criteria for CPTSD (8.8%) compared to PTSD (2.4%). These prevalence rates aligned with our expectation as they were in-line with those reported in a 2019 survey of the adult population in Ireland (12.7%) (Hyland et al. 2021a) and a survey of the general adult population in Israel (11.6%) (Hyland et al. 2020). Notably, the observed rates are slightly higher than those documented in the general adult populations of the United States (7.2%) (Cloitre et al. 2019) and Lithuania (7.6%) (Kvedaraite et al. 2021). While further research is needed to determine the prevalence of ICD-11 PTSD and CPTSD in various countries worldwide, it is reasonable to estimate that approximately 7-12% of the adult population may be affected by either of these trauma-related disorders.

The results from the SEM analysis revealed that several external risk factors were linked to each of the ICD-11 CPTSD symptom clusters. Three particular risk factors showed associations with all of the CPTSD symptom clusters: exposure to trauma, experiences of loneliness, and the presence of sleep-related difficulties. These findings align with existing theories and prior research, as they indicate that a greater number of distinct traumatic life events are linked to elevated levels of each CPTSD symptom cluster, as previously observed in studies by Frost et al. (2019), Hyland et al. (2021a), and Karatzias et al. (2019).

Loneliness was moderately correlated with each symptom cluster, while notably, social support showed only a weak correlation with the three PTSD symptoms. Previous meta-analyses (Brewin et al. 2000; Ozer et al. 2003) indicated a link between lower levels of social support and DSM-based PTSD symptoms, yet few of these earlier studies took loneliness into account as a control variable. Emerging research, such as from Fox et al. (2022), has highlighted a robust association between loneliness and ICD-11 CPTSD, aligning with a broader body of evidence emphasizing loneliness's pivotal role in predicting various mental health challenges (Hyland et al. 2019; McHugh & Lawlor, 2013; Peerenboom et al. 2015). Moreover, our findings concur with previous literature suggesting that loneliness tends to be a more potent predictor of the DSO symptom clusters, such as negative self-concept and relational difficulties, compared to the core PTSD symptom clusters (Fox et al. 2022). Given the subjective nature of loneliness, which pertains to the perception of lacking intimate relationships and the yearning for a sense of belonging within a broader social network, it is reasonable to infer that loneliness may play a more critical role in the development and persistence of the DSO symptoms than the objective availability of social support resources.

Previous research, conducted on a clinical sample of Swedish adults (Bondjers et al. 2019), has demonstrated a correlation between sleep problems and both PTSD and DSO symptoms. Our study extends these findings by confirming that these relationships are also evident in the general adult population. It is worth noting that while both studies employed cross-sectional designs, other longitudinal research has established that sleep problems can predict the subsequent development of DSM-based PTSD symptoms (Davis et al. 2022). Given the common occurrence of sleep problems in the general population (Bjorvatn et al. 2016; Mallon et al. 2014), initiatives aimed at enhancing sleep quality within public mental health efforts could potentially lead to positive outcomes in terms of reducing the overall risk of trauma-related distress (and, indeed, many other mental health disorders).

Regarding the final research objective for Chapter 2 which aimed to explore the connection between ICD-11 CPTSD symptoms and thoughts of suicide, our findings revealed that only the symptom cluster related to negative self-concept was positively associated with suicidality. Prior studies have established a strong link between meeting the

diagnostic criteria for ICD-11 PTSD and CPTSD and experiencing thoughts of suicide and suicidal behaviors (Karatzias et al. 2019; Møller et al. 2021). The current findings emphasize that symptoms associated with a negative self-concept may play a pivotal role in understanding risk of suicide. Karatzias and Cloitre (2019) have recommended a modular treatment approach for CPTSD, where specific symptom clusters are addressed one by one, following an agreement between the therapist and the patient. In situations where there is concern about a high risk of suicide, prioritizing the treatment of negative self-concept symptoms as quickly as possible may be advisable.

Chapter 2 contributes significant and novel insights to the current body of research. Our findings offer compelling evidence of the ITQ's capacity to yield dependable and valid scores when applied to a general population sample. Furthermore, it was established that approximately 11% of adults residing in Ireland fulfill the diagnostic criteria for either ICD-11 PTSD or CPTSD. Notably, the current research underscores the significance of several key risk factors in relation to CPTSD symptoms, including a greater exposure to traumatic life events, heightened levels of loneliness, and increased sleep-related issues. Particularly noteworthy is the central role played by negative self-concept symptoms in comprehending the risk of suicide.

6.2.2 Chapter 3

The primary goal of Chapter 3 was to assess the discriminant validity of the ITQ and to investigate the relationship between ICD-11 PTSD and CPTSD and ADHD symptoms within a general adult population sample. While existing research has consistently shown a strong link between ADHD symptoms and posttraumatic stress symptoms, only one previous study had explored how ADHD symptoms relate to the newly defined constructs of PTSD and CPTSD according to ICD-11 criteria. Given that ICD-11 has become the globally recognized framework for classifying mental health disorders, comprehending the relationship between ADHD symptoms and these constructs is crucial. Chapter 3 revealed further confirmation of the discriminant validity of ICD-11 PTSD and CPTSD, demonstrating that (1) individuals exhibiting symptoms of ICD-11 PTSD and CPTSD exhibit significantly higher levels of ADHD symptoms compared to those without such symptoms, and (2) symptoms of ADHD are notably higher in individuals displaying symptoms of ICD-11 CPTSD in comparison to those with symptoms of ICD-11 PTSD.

In line with numerous studies utilizing mixture-modelling statistical techniques (e.g., Redican et al. 2021), LCA results revealed discrete classes among individuals exposed to trauma, exhibiting symptom profiles that distinguish between ICD-11 PTSD and CPTSD. Additionally, our findings reveal the presence of a subgroup characterized by elevated probabilities of manifesting DSO symptoms but low probabilities of displaying PTSD symptoms within a general adult population sample exposed to trauma. This aligns with

previous LCA studies conducted in community samples (Knefel et al. 2018; Liddell et al. 2019; Perkonigg et al. 2016). It has been suggested that these individuals might be experiencing forms of psychological distress unrelated directly to trauma, such as depression or generalized anxiety. Nonetheless, there remains a scarcity of research aimed at definitively characterizing the nature of psychological distress experienced by this particular subgroup (e.g., are these people experiencing disorders such as major depression, generalized anxiety, or borderline personality?).

Results from Chapter 3 also revealed that ADHD symptoms were meaningfully related to ICD-11 PTSD and CPTSD, and more so to CPTSD than PTSD. Considerable evidence has previously suggested a bidirectional relationship between ADHD and PTSD (Spencer et al. 2016), but what had yet to be determined was how ADHD relates to posttraumatic stress problems when examined through the lens of ICD-11 (i.e., distinguishing between PTSD and CPTSD symptoms). Our findings suggest that individuals with symptoms reflective of ICD-11 PTSD had significantly higher levels of ADHD symptoms than those without any posttraumatic stress symptoms, and those with symptoms reflective of ICD-11 CPTSD had significantly higher levels of ADHD than those with symptoms reflective of ICD-11 PTSD. Facer-Irwin et al. (2022) had previously shown a correlation between meeting diagnostic criteria for ICD-11 CPTSD and ADHD in a sample of male prisoners, and our findings further suggest that the correlation between ICD-11 CPTSD and ADHD is also evident in a general population sample.

These findings hold several clinical implications. To illustrate, addressing ADHD symptoms could potentially enhance the effectiveness of interventions for ICD-11 PTSD and CPTSD, consequently improving patient engagement and treatment outcomes. Likewise, optimizing the treatment of ADHD may involve mitigating the anxiety and stress reactions inherent to PTSD and CPTSD, as these factors can indirectly exacerbate ADHD symptoms by contributing to inattention or impulsivity (Ford & Connor, 2009). The findings from Chapter 3 provide important new information regarding the association between ICD-11 PTSD/CPTSD and ADHD symptoms among traumatized individuals from the general population. Addtionally, the findings provide initial empirical evidence that individuals displaying symptoms of ICD-11 PTSD and CPTSD have significantly higher levels of ADHD than individuals without such symptoms, and that symptoms of ADHD are highest among those with symptoms reflective of ICD-11 CPTSD.

6.2.3 Chapter 4

Research has identified several risk factors associated with developing and maintaining PTSD in IDP populations, however one variable which hasn't received a lot of

attention is coping strategies. To address this gap, the aim of Chapter 4 was to determine rates of ICD-11 PTSD and CPTSD in a nationally representative sample of Ukrainian IDPs from 2016, and to understand what coping strategies differentiate these disorders for males and females. The key findings were (1) a higher percentage of individuals met the diagnostic criteria for ICD-11 PTSD (13.1%) compared to CPTSD (7.8%), (2) four distinct coping styles were identified among the IDPs, with three characterized by positive strategies (i.e., emotion-focused, problem-focused, stoic coping) and one characterized by negative strategies (i.e., avoidant coping), (3) individuals meeting the diagnostic criteria for ICD-11 PTSD and CPTSD were most distinguishable from those without traumatic stress symptoms by exhibiting elevated levels of avoidant coping, and (4) variation in levels of avoidant coping across diagnostic status differed between male and female IDPs.

Roughly one out of every five Ukrainian IDPs met the diagnostic criteria for ICD-11 PTSD or CPTSD, with a larger proportion meeting the criteria for PTSD (13.1%) in comparison to CPTSD (7.8%). Previous research involving refugee and asylum-seeking populations has typically reported higher CPTSD rates than PTSD (Nickerson et al. 2016; Vallieres et al. 2018; Kira et al. 2022). However, our study indicates that in the general population of war-displaced individuals, PTSD appears to be the more prevalent response. These findings carry significant implications for humanitarian planning and responses to the ongoing crisis in Ukraine.

It is highly likely that a considerable portion of the Ukrainian population is experiencing trauma-related distress that reaches clinical thresholds (Karatzias et al. 2023). Core PTSD symptoms, such as reliving past threatening events, avoiding reminders of those events, and heightened arousal linked to a sense of ongoing danger, are expected to be particularly widespread. Therefore, mental health interventions targeting these symptoms, which can potentially be administered to a large number of individuals, possibly without the need for highly specialized professionals, become especially vital. Potential interventions and future directions will be discussed later in the section.

EFA results demonstrated support for a four-factor model of the adapted Brief COPE within our sample. One of the primary objectives of this study was to uncover the underlying structure of this adapted measure, enabling us to compare coping styles between individuals meeting the diagnostic criteria for either ICD-11 PTSD or CPTSD. Among the four identified coping strategies, three aligned with the intended higher-order structure of the Brief COPE: problem-focused coping, emotion-focused coping, and avoidant-focused coping. Our analysis also revealed the presence of a fourth factor, characterized by a propensity to find positives in challenging situations, employ humour, adapt to new

circumstances, and take actions to improve the situation. This coping style was coined "stoic coping."

When examining the descriptive statistics for these distinct coping styles, it became evident that Ukrainian IDPs, on average, exhibited high levels of positive coping styles and low levels of negative coping styles. These results are consistent with previous research conducted on Ukrainian samples which has revealed elevated levels of positive coping when facing adversity (Bohucharova, 2017). This underscores the remarkable resilience of the Ukrainian population in the face of severe hardship.

In line with prior research demonstrating a connection between avoidant coping and increased severity of traumatic symptoms among displaced populations (Matheson et al. 2008; Huijts et al. 2012; Finklestein et al. 2012), our study found that both males and females meeting the criteria for ICD-11 PTSD and CPTSD exhibited significantly higher levels of avoidant coping. Notably, it was primarily the use of avoidant coping strategies that set apart those with PTSD and CPTSD from individuals who did not meet the criteria for either disorder.

Avoidant coping strategies, characterized by efforts to evade reality and suppress emotional distress, are inherently maladaptive. An important implication from a clinical standpoint is that it is likely that reducing reliance on avoidant coping methods, such as self-blame or the use of substances to numb negative emotions, could be more effective in managing and alleviating traumatic distress than solely focusing on developing positive coping skills. Interventions will be discussed later in the section.

Findings also indicated that the relationship between avoidant coping and ICD-11 PTSD and CPTSD was different for men and women. For men, avoidant coping was higher in those with PTSD and CPTSD compared to those not meeting criteria for either disorder, but levels of avoidant coping were not different between those meeting criteria for PTSD and CPTSD. For women, however, levels of avoidant coping increased significantly from those not meeting criteria for a trauma disorder, to those with PTSD, to those with CPTSD. Thus, greater use of avoidant coping styles may be helpful in differentiating women with CPTSD to those with PTSD. Moreover, clinical strategies that target and address avoidant coping styles may be especially beneficial for women with CPTSD.

Overall, the Chapter offers valuable insights that could have implications for the mental health response to the ongoing conflict in Ukraine. The findings reveal that among the approximately one-in-five Ukrainian IDPs meeting the criteria for a trauma-related disorder, a greater proportion met the requirements for PTSD compared to CPTSD. Additionally, the study highlights the significance of avoidant coping strategies, and despite

their generally low prevalence in this sample, these negative styles of coping may be important in relation to ICD-11 PTSD and CPTSD among both male and female Ukrainian IDPs.

These findings suggest that interventions targeting these coping strategies could be instrumental in alleviating the burden of traumatic stress experienced by individuals affected by the war in Ukraine. Such interventions have the potential to enhance the mental well-being and resilience of this population, contributing to more effective mental health support in the context of the ongoing conflict.

6.2.4. Chapter 5

Traditionally PTSD has been understood as a disorder that is more common in women than in men, and with rates that decline in older age (Olff, 2017; Kessler et al. 2005; Reynolds et al. 2016). Taking this into consideration, it is important to determine if these differences remain within the ICD-11 framework. The final empirical Chapter tested sex and age difference in ICD-11 PTSD and CPTSD using data from four independent, general population samples: the United States (US), the Republic of Ireland, Israel, and the United Kingdom (UK). Our findings suggest that ICD-11 PTSD follows the same general sex and age profile as the DSM-based models of PTSD, while CPTSD does not.

The results of Chapter 5 revealed that women exhibited significantly higher rates of ICD-11 PTSD in all four samples. These disparities in prevalence rates correspond with previous research findings derived from DSM-based models of PTSD (Christiansen & Berke, 2020; Christiansen & Elklit, 2012; Kessler et al. 1995; Kilpatrick et al. 2013; Tolin & Foa, 2006). Specifically, women were approximately two to two-and-a-half times more likely than men to meet the diagnostic criteria for ICD-11 PTSD. Notably, these findings align with the well-established 2:1 ratio of PTSD prevalence observed in women compared to men (Christiansen & Elklit, 2012; Frans et al. 2005; Olff, 2017; Tolin & Foa, 2006).

However, a noteworthy departure from this pattern was observed in the context of CPTSD. In three out of the four samples examined, there were no statistically significant differences in CPTSD prevalence between men and women. Only in the US sample did women exhibit a significantly greater likelihood of meeting CPTSD diagnostic criteria, with a nearly two-fold increase compared to men. This observation challenges prior suggestions that the same biopsychosocial factors contributing to sex disparities in PTSD might also be responsible for such differences in ICD-11 CPTSD (Ben-Ezra et al. 2018). This does not appear to be supported by the empirical findings, raising questions about the underlying mechanisms driving these disparities. While it was posited that potential methodological biases might lead to differential symptom endorsement by women compared to men, a

recent comprehensive assessment found no such evidence for the six symptoms defining ICD-11 PTSD (Fox et al. 2020). Hence, the observed sex differences in rates of PTSD but not CPTSD demand further theoretical explanation.

Regarding age differences, the study revealed significant differences primarily in the US sample. In the case of ICD-11 PTSD, prevalence rates revealed a distinctive pattern characterized by lower rates among older age groups, consistent with established trends observed in DSM-based models of PTSD (Kessler et al. 2005; Reynolds et al. 2016). This suggests that ICD-11 PTSD, akin to its DSM counterparts, displays higher prevalence in younger age cohorts. Conversely, the findings pertaining to CPTSD displayed varying patterns across the different samples. The UK and Israeli samples exhibited higher CPTSD rates among younger individuals, with a subsequent decline among older age groups. However, the Irish sample displayed a deviation from this pattern, with the lowest CPTSD rates observed among those aged 25-34 and the highest among those aged 44-54. The US sample indicated similar trends, except for a notable increase in CPTSD rates among men over the age of 65. This observation may be attributed to the fact that the US sample included adults only up to the age of 70.

An intriguing finding emerged when analysing the interaction between sex and age in relation to CPTSD. In some samples, such as Ireland and the US, women exhibited CPTSD prevalence following an N-shaped distribution, peaking in middle-aged groups. For men, CPTSD rates displayed more heterogeneity across age groups. Similar patterns were observed in other samples, further indicating that CPTSD rates at different ages may be contingent on an individual's sex.

In summary, in the final empirical chapter consistent evidence of higher rates of ICD-11 PTSD in women compared to men were demonstrated, aligning with findings from DSM-based PTSD research. Moreover, akin to DSM-based models, ICD-11 PTSD demonstrated a general trend of decreasing prevalence with advancing age, regardless of gender. In contrast, the patterns for CPTSD exhibited variations in sex and age disparities, with indications of an interaction between these demographic variables. Further research is imperative to comprehend the epidemiological nuances of CPTSD, potentially necessitating the re-evaluation of theoretical models explaining sex and age differences in trauma-related psychopathology. These findings underscore the significance of adapting interventions and outreach initiatives to account for these disparities in trauma-related psychological disorders.

6.3. General discussion

The results of this thesis represent a significant and valuable addition to the existing body of knowledge on traumatic stress disorders. In addition, they hold noteworthy implications for future research and clinical practice. Since the commencement of the

current PhD project and the official release of the ICD-11 in 2019, there has been a litany of work testing the factorial validity of the ICD-11 models using the ITQ measure. However, the vast majority of these studies have used the preliminary 23-item version of the ITQ and very few studies have been conducted in nationally representative population samples. The first significant discovery from this thesis is that the finalized 12-item version of the ITQ generates scores that are reliable and valid across a series of nationally representative samples. Current findings are consistent with the vast literature that has been generated from studies that most utilized the pre-finalized version of the ITQ. (Redican et al. 2021). Thus, findings of this study can be said to make a truly distinctive contribution to the existing literature by providing multiple, independent pieces of evidence attesting to the psychometric bona fides of the most widely used measure of ICD-11 PTSD and CPTSD. This is of paramount importance because it substantiates the utility and applicability of the ITQ as a diagnostic tool in diverse populations. This in turn provides support for the WHO's ultimate goal of developing models of PTSD and CPTSD that were internationally appliable. Clinicians, researchers, and mental health practitioners can have greater confidence in its effectiveness as a measure for identifying and evaluating these trauma-related disorders, especially within broader, more representative demographic samples.

Furthermore, the results of the PhD provide further insights into the prevalence and nature of ICD-11 PTSD and CPTSD within the general population. These findings have substantial implications for clinical practice, public health initiatives, and mental health services as they underscore the importance of considering these conditions as potential widespread mental health concerns. This advancement in knowledge is instrumental in guiding evidence-based clinical interventions and public health strategies aimed at addressing these pervasive mental health issues.

A substantial body of research has focused on exploring the various risk factors associated with the ICD-11 PTSD and CPTSD model, as summarized in Table 1.2. Our study extends this body of knowledge by making a unique and valuable contribution. One notable finding from our research is the significant association between sleep problems and CPTSD. While previous studies have investigated multiple risk factors, the connection between sleep problems and CPTSD represents a novel and important contribution. Sleep problems are a pervasive issue affecting a substantial portion of the population, and our findings suggest that sleep problems may play a significant role in the manifestation or exacerbation of CPTSD symptoms. This underscores the importance of addressing sleep disturbances as part of comprehensive treatment strategies for individuals with CPTSD. Clinicians and mental health practitioners should be vigilant in assessing and addressing sleep-related issues when working with individuals who have experienced complex trauma.

Another noteworthy discovery from our study pertains to the predictive value of negative self-concept in relation to suicidal tendencies. While previous research has explored factors associated with suicidality in the context of trauma-related disorders, our findings provide unique insights by highlighting the central role of negative self-concept. This suggests that an individual's self-perception and self-esteem are critical factors in understanding and predicting suicidal thoughts and behaviours among those with ICD-11 CPTSD. Recognizing the significance of negative self-concept as a risk factor emphasizes the importance of incorporating interventions that target self-esteem and self-perception in suicide prevention efforts for individuals affected by CPTSD.

The project offers a distinctive contribution to the existing literature by unveiling previously overlooked associations between sleep problems and CPTSD, as well as the possible predictive power of negative self-concept in relation to suicidality within the context of ICD-11 CPTSD. These findings underscore the complexity of trauma-related disorders and highlight the need for comprehensive assessment and intervention strategies that address these specific risk factors. By incorporating these insights into clinical practice, mental health professionals can enhance their ability to provide effective support and treatment for individuals grappling with the consequences of complex trauma.

The field of traumatic stress disorders has witnessed a substantial body of work aimed at evaluating the discriminant validity of various psychological constructs, including trauma-related disorders such as ICD-11 PTSD and CPTSD. This extensive research has been vital in ensuring that these diagnostic categories accurately represent distinct clinical phenomena, each with its unique set of symptoms and characteristics. The robustness of this body of research has lent credibility to the differentiation between PTSD and CPTSD as delineated by the ICD-11 framework. However, what makes our study particularly noteworthy is its dual contribution in the context of discriminant validity. Not only have findings reaffirmed and supported the discriminant validity of ICD-11 PTSD and CPTSD, aligning with prior research (Redican et al. 2021), but this study has also delved deeper into the issue of psychiatric comorbidity by examining their relationship with ADHD.

This additional analysis is particularly significant because it broadens our understanding of how trauma-related disorders relate to other common mental health conditions. While extensive research has explored the comorbidity and interactions between PTSD and other disorders, such as depression and anxiety, relatively less attention has been paid to their connection with ADHD. Our findings illuminate this lesser-explored relationship, revealing meaningful correlations between symptoms of ADHD and both ICD-11 PTSD and CPTSD. This underscores the intricate nature of mental health and suggests

that individuals dealing with trauma-related disorders may also grapple with symptoms associated with ADHD. This has implications for assessment, diagnosis, and treatment planning. Mental health practitioners should consider the potential presence of ADHD symptoms when working with individuals who have experienced trauma, as addressing both sets of symptoms may be essential for comprehensive care.

In sum, our research not only reaffirms the discriminant validity of ICD-11 PTSD and CPTSD but also extends our understanding by highlighting their meaningful correlations with symptoms of ADHD. This dual perspective enriches our understanding of how these disorders interact with other common mental health conditions, further emphasizing the complexity of psychological health and the importance of comprehensive assessment and person-centred intervention strategies.

The PhD also provides valuable insights into two critical aspects of mental health research, both of which are directly related to the ongoing war in Ukraine. Firstly, the study assessed the prevalence rates of ICD-11 PTSD and CPTSD among individuals who were impacted by the onset of this conflict. The Ukraine conflict has generated a substantial body of research focused on the mental health of those affected. Previous studies have reported varying rates of trauma-related disorders, including PTSD among Ukrainian individuals living in war-affected regions (Ramachandran et al. 2019; Roberts et al. 2019; Shevlin et al. 2017). However, our study significantly contributes to this literature by applying the newly established ICD-11 criteria to assess the prevalence rates of these disorders. This is crucial because the ICD-11 framework provides a more nuanced understanding of traumatic stress disorders, particularly CPTSD, which was not included in earlier diagnostic classifications. By offering up-to-date prevalence rates within this new diagnostic framework, our research aids in aligning mental health assessments with contemporary diagnostic criteria, enhancing the accuracy of clinical evaluations and interventions in war-affected areas.

Secondly, the project investigated the coping styles employed by those affected by the war. Coping styles play a pivotal role in determining an individual's psychological well-being, especially in the context of adversity and trauma. Prior studies have explored coping mechanisms among individuals affected by war and conflict (Seguin & Roberts, 2014). However, our study provides a fresh perspective by specifically examining the key coping styles employed by people enduring the Ukrainian conflict. By identifying and understanding these coping strategies, the project contributes to the existing literature by shedding light on how individuals in this specific war-affected population navigate their psychological distress. This insight is invaluable for tailoring interventions and support services to address the unique coping needs of those living through the Ukrainian conflict.

In summary, our research fills crucial gaps in the literature by offering prevalence rates of ICD-11 PTSD and CPTSD among individuals impacted by the early phase of Russia's war on Ukraine. Additionally, our investigation into coping styles provides context-specific insights into how people in this region manage the psychological challenges posed by the ongoing conflict. These findings not only enrich our understanding of the mental health dynamics in war-affected populations but also provide actionable information for mental health practitioners and policymakers working to support individuals in the midst of this crisis.

Finally, in terms of contribution, the project has revealed evidence of consistent patterns of sex and age differences in ICD-11 PTSD, yet interestingly, the profile of sex differences in CPTSD was less straightforward. The presence of sex and age differences in PTSD has been widely documented in previous research (Olff, 2017; Kessler et al. 2005; Reynolds et al. 2016). It's well-established that women generally report higher levels of PTSD compared to men, and age-related differences often emerge, with younger individuals more susceptible to experiencing such symptoms. As discussed, the findings of the final study align with this established knowledge, reinforcing the robustness of these associations in the context of ICD-11 PTSD.

While sex differences in PTSD have been consistently observed, the profile of sex differences in CPTSD is a more complex and evolving area of study. The ICD-11 introduced CPTSD as a distinct diagnostic entity, and research on sex differences in this construct is still emerging (Ben-Ezra et al. 2018). Our findings of less consistent sex differences in CPTSD could be attributed to the unique symptom clusters and diagnostic criteria of CPTSD, which encompass a broader range of traumatic stress responses, including disturbances in self-concept and interpersonal functioning. As such, the relationships between sex, age, and CPTSD may be more intricate and context dependent.

The study highlights the importance of considering both sex and age differences when assessing and treating individuals with PTSD, as these factors can influence symptom severity and presentation. In the case of CPTSD, the less consistent profile of sex differences suggests a need for further investigation to better understand the interplay of gender, age, and CPTSD symptoms. Clinically, our findings emphasize the significance of tailored interventions that account for the nuanced experiences of individuals based on their sex and age, particularly when addressing PTSD symptoms.

In conclusion, this research underscores the well-established sex and age differences in PTSD symptoms and uniquely highlights the need for continued exploration of sex differences in CPTSD. These findings contribute to the evolving understanding of how

traumatic stress disorders manifest across different demographic groups and have implications for clinical practice and future research in the field of traumatic stress.

6.4. Clinical implications of findings

Findings from Chapter 2 highlight the significance of sleep problems as a factor associated with PTSD/CPTSD symptoms. A substantial body of evidence has amassed supporting the efficacy of CBT-i (i.e., cognitive behavioural therapy for insomnia) in addressing sleep problems (van Straten et al. 2018). A recent review of treatment approaches which address sleep problems in PTSD found that specific interventions such as CBT-i can alleviate sleep-related issues and reduce daytime symptoms associated with PTSD (Miller et al. 2020). The authors highlighted that there is a growing focus on the importance of using a multidisciplinary and integrated approach because effectively addressing sleep problems in individuals with PTSD may demand innovative assessment methods and a combination of therapeutic strategies. Mental health professionals working with individuals who have recently experienced trauma should consider incorporating CBT-i into their treatment plans.

Sleep disturbances are not only a common consequence of trauma but can also exacerbate other symptoms associated with PTSD/CPTSD, such as mood disturbances, anxiety, and irritability. By targeting sleep problems early in the treatment process, clinicians may improve overall treatment outcomes. Therefore, based on our findings specific considerations for clinicians working with individuals diagnosed with ICD-11 PTSD or CPTSD, could be (i) incorporating specific components of CBT-i that focus on improving sleep hygiene, addressing maladaptive sleep behaviors, and promoting healthy sleep patterns and (ii) screening for the presence of sleep problems at assessment stage, as the directionality of the relationship between sleep problems and PTSD remains unclear. By doing so, treatment plans can address sleep problems as both a potential outcome or perpetuating factor of traumatic stress symptoms.

Our research also emphasizes the importance of the negative self-concept symptom cluster in predicting suicide risk within the context of PTSD/CPTSD. Mental health professionals should pay particular attention to this symptom cluster when assessing and treating individuals with ICD-11 PTSD/CPTSD. Karatzias and Cloitre (2019) have proposed a modular treatment approach for CPTSD, emphasizing the targeting of specific symptom clusters in a mutually agreed-upon order between therapist and patient. When CPTSD was first recognized, the initial treatment approach emphasized the importance of an early stabilization phase, aiming to establish a therapeutic alliance, ensure a sense of safety, and address issues like managing suicidal tendencies and aggressive behaviors (Herman et al. 1992; Cloitre et al. 2011).

Recently, experts have argued against the necessity of prior stabilization, believing it may hinder therapeutic progress (de Jongh et al. 2019). More recent perspectives recommend a flexible treatment sequencing based on individual needs and preferences (Cloitre, 2015; Cloitre et al. 2020a). Our finding could extend to clinicians when there is a concern about a high suicide risk, by prioritizing the treatment of negative self-concept symptoms promptly, it may reduce the risk of suicidality. Additionally, recent meta-analysis synthesized evidence from 25 randomized controlled trials (RTCs) and found that psychological interventions for PTSD significantly improve negative self-concept, suggesting the effectiveness of current treatments (Banz et al. 2022).

In cases where suicidal risk is high, it may be beneficial to prioritize interventions that target negative self-concept, such as cognitive restructuring, self-compassion training, and self-esteem enhancement. Addressing negative self-concept early in treatment may help reduce the risk of suicide and improve overall well-being. Furthermore, early success in the treatment of such a key problem is likely to lead to an improved patient-therapist relationship, and the development of belief in the therapeutic process. Further research is warranted to identify if there are any specific moderators or interventions that are better at reducing negative self-concept in PTSD.

The clinical implications of the findings from Chapter 3 are multifaceted and underscore the importance of addressing ADHD symptoms in individuals with ICD-11 PTSD and CPTSD. Firstly, by targeting and treating ADHD symptoms, clinicians may enhance the engagement and overall effectiveness of therapeutic interventions for these trauma-related disorders. Addressing ADHD-related challenges in attention and impulsivity can create a more conducive environment for individuals to actively participate in trauma-focused therapy.

Furthermore, there is likely to be a reciprocal relationship between ADHD and PTSD/CPTSD, wherein the presence of ADHD symptoms can exacerbate the anxiety and stress-reactivity inherent to trauma disorders. Addressing ADHD in these cases can indirectly alleviate some of the inattention and impulsivity that might hinder therapy progress. This suggests that a comprehensive treatment approach should consider both the trauma-related symptoms and co-occurring ADHD symptoms for optimal outcomes.

Given the robust association between ADHD and ICD-11 PTSD and CPTSD, it is imperative for clinicians working with trauma survivors to routinely screen patients for symptoms of ADHD. Early identification and intervention can facilitate a more tailored and effective treatment plan. Additionally, when ADHD symptoms are prominent, it might be necessary to stabilize these symptoms before delving into trauma reprocessing. This sequential approach can ensure that individuals are better equipped to engage in the therapeutic process and derive maximum benefit.

Moreover, treatment strategies used for posttraumatic stress symptoms, such as trauma-focused cognitive-behaviour therapy and eye-movement desensitization and reprocessing, may offer valuable tools for addressing ADHD symptoms as well. Integrating elements of these trauma-focused therapies into the treatment of ADHD could be particularly beneficial, as it may help individuals manage both sets of symptoms simultaneously.

In summary, these findings highlight the interconnectedness of ADHD, ICD-11 PTSD, and CPTSD, emphasizing the need for a comprehensive and integrated approach to treatment. Addressing ADHD symptoms can enhance therapy engagement, improve treatment outcomes, and contribute to the overall well-being of individuals with trauma-related disorders.

Regarding the findings in Chapter 4, among the roughly one-fifth of Ukrainian IDPs who met the criteria for a trauma-related disorder, a higher percentage qualified for PTSD compared to CPTSD. Furthermore, the study emphasizes the importance of avoidant coping strategies, even though they were not very common in this sample. Previous research has demonstrated that interventions focusing on continuous trauma management are the most effective in alleviating symptoms of both PTSD and CPTSD (Cloitre et al. 2021). Narrative exposure therapy (NET) is emerging as the favoured treatment for traumatized refugees and IDPs (Lely, 2019). A recent study that involved 16 randomized controlled trials with 947 participants reported significant, uncontrolled improvements in PTSD symptoms both immediately after treatment ($g = 1.18$, 95% confidence interval [0.87; 1.50]) and during follow-up ($g = 1.37$ [0.96; 1.77]).

Additionally, continuous, cumulative, trauma-focused cognitive-behaviour therapy (CCC-TF-CBT) may prove especially valuable for mental health practitioners who work with clients who have experienced multiple traumas (Kira et al. 2013). Adapting such interventions to the Ukrainian context could be highly beneficial. Interventions rooted in acceptance and commitment therapy, like the World Health Organization's Self-Help Plus program (Acarturk et al. 2022), may also be extremely useful in reducing reliance on negative coping strategies. These interventions can be delivered by non-specialist peer facilitators in large groups and can be tailored to meet the specific needs of the Ukrainian context. Self-Help Plus has demonstrated its effectiveness in reducing mental health problems among Syrian refugees (Acarturk et al. 2022), making it a promising approach for addressing the mental health challenges faced by displaced populations in Ukraine.

Finally, in light of the findings from Chapter 5, clinicians should be aware that, in accordance with ICD-11 criteria, women may be at a higher risk of developing PTSD compared to men. This information can inform assessment and intervention strategies, with a focus on early detection and tailored treatment for women who have experienced trauma.

Addtionally, understanding the age-related trends in PTSD is important for clinicians. The fact that rates of ICD-11 PTSD decrease with age suggests that younger individuals may be more vulnerable to developing PTSD following traumatic experiences. This information can guide prevention efforts and highlight the need for targeted interventions in younger populations.

Furthermore, the indication of potential interactions between sex and age in the context of CPTSD highlights the complexity of trauma-related psychopathology. Clinicians should be cautious when making generalizations about how sex and age interact in trauma-related disorders and consider individualized assessment and treatment approaches. The study's suggestion that theoretical models of sex and age differences in trauma-related psychopathology may need to be reconsidered emphasizes the importance of ongoing research and the need for dynamic, adaptable treatment approaches. Clinicians should stay updated on emerging research findings to provide the most effective care to their patients.

The call for more research to understand the epidemiology of CPTSD underscores the importance of continued investigation into the nature and prevalence of complex trauma-related disorders. Clinicians should stay informed about the latest research developments in this area to inform their practice.

6.5. Limitations and Strengths

The overarching goal of this thesis was to assess the validity of the ICD-11 PTSD and CPTSD model using the finalized ITQ measure and international data. While the research is not without limitations, it undeniably offers several strengths that contribute significantly to our understanding of traumatic stress disorders. First and foremost, this thesis provides invaluable insight into the validity of the ICD-11 PTSD and CPTSD model, utilizing nationally representative samples and the refined ITQ measure. This demonstrates a commitment to upholding the highest standards in research. Moreover, the inclusion of international data from various countries reflects an aspiration for a global perspective on these disorders. Nonetheless, it is essential to acknowledge that comprehensively assessing the overall validity of the ICD-11 PTSD and CPTSD model on a global scale necessitates a more extensive range of countries and a broader evaluation of specific aspects of validity. Nevertheless, this thesis represents a significant stepping stone in this endeavor, providing a foundation upon which future research can build.

In light of its strengths, this thesis does have some limitations that merit attention. One concern is the sampling methods employed. While the use of nationally representative samples enhances the validity of the findings, the reliance on non-probability sampling methods, particularly the quota sample, raises questions about the generalizability of the results to the entire adult population. The thesis's cross-sectional design, while informative,

hinders the establishment of causal relationships. The inability to draw causal inferences limits the depth of our understanding of the complex dynamics between traumatic events, loneliness, sleep problems, and suicidality. Future research must prioritize longitudinal designs to unravel the intricate causal pathways. Furthermore, while the thesis undertakes a comprehensive assessment of risk factors associated with ICD-11 PTSD and CPTSD, it remains possible that some relevant variables were overlooked. The ever-evolving nature of psychiatric research underscores the importance of continuous exploration.

Another limitation pertains to the assessment of ADHD symptoms, wherein a brief screening instrument was used instead of a more comprehensive evaluation. Future investigations should consider employing more extensive tools for assessing the full spectrum of adult ADHD symptoms. Geographical and sampling biases are also evident, as the thesis focuses on samples from high-income countries and excludes certain populations. These limitations impact the applicability of the findings to diverse contexts.

In light of the strengths and limitations of this thesis, there are several promising avenues for future research in the field of traumatic stress disorders. Firstly, future investigations should strive for a more extensive international reach. Expanding the study to include a more diverse range of countries and cultures would further enhance our understanding of the global applicability of the ICD-11 PTSD and CPTSD model. Since the commencement of the current study a substantial effort has been made to formulate translations of the ITQ in accordance with WHO best-practice guidelines (International Trauma Consortium, n.d.). Over 30 translations of the ITQ are now available which can facilitate research all around the world. Secondly, longitudinal research is paramount. Studying the trajectory and development of ICD-11 PTSD and CPTSD symptoms over time, and as they relate to other constructs such as coping styles employed after traumatic exposure, will provide important insights into causality and long-term outcomes.

Additionally, a more comprehensive assessment of risk factors should be considered. Identifying and evaluating additional variables that may contribute to the onset and course of these disorders can lead to a richer understanding of their etiology. Furthermore, future research should prioritize the use of comprehensive assessment tools for ADHD symptoms, ensuring a more nuanced exploration of the relationship between ADHD and traumatic stress disorders. Lastly, efforts to mitigate geographical and sampling biases should be undertaken. Inclusion of harder-to-reach populations and broader geographical representation will foster a more inclusive and holistic understanding of traumatic stress disorders.

In conclusion, while this thesis offers a number of vital contributions to the field, it serves as a stepping stone toward a more comprehensive and globally informed understanding of ICD-11 PTSD and CPTSD, rather than an end point of such a journey. Future research endeavors should build upon its foundation, addressing its limitations and expanding the horizons of knowledge in the realm of traumatic stress disorders.

6.6. Conclusions

This thesis has made significant contributions to the field of traumatic stress research by systematically examining the validity of the ICD-11 PTSD and CPTSD model using the finalized ITQ measure and nationally representative international data. While a comprehensive assessment of the model's overall validity on a global scale requires further exploration across diverse populations and aspects of validity, this work stands as a valuable cornerstone in building that comprehensive picture.

The findings of this research provide a nuanced understanding of (i) paper 2 (ii) the relationship between ADHD and both ICD-11 PTSD and CPTSD, shedding light on the intricate interplay of these conditions. Furthermore, it underscores the importance of considering ADHD symptoms when assessing and treating individuals with trauma-related disorders, highlighting the potential for integrated therapeutic approaches. (iii) and (xi)

As we move forward, future research should aim to replicate and expand upon these findings, encompassing more countries and diverse populations to ensure the generalizability of results. Longitudinal studies examining the dynamic relationships between traumatic events, loneliness, sleep problems, and the onset of ICD-11 CPTSD symptoms should be prioritized to elucidate causal pathways.

Additionally, further investigations into the diverse risk factors associated with ICD-11 PTSD and CPTSD are warranted to provide a comprehensive understanding of these disorders. The identification of moderators and mediators of the relationship between negative self-concept and suicidality can further enhance our ability to predict and intervene in these critical areas.

The results of the PhD contribute valuable information pertaining to the WHO's goal of developing a system of describing traumatic stress response that is valid internationally. Moreover, the results can be used to inform global policymakers on important sex differences in stress-related disorders and can inform clinicians worldwide about factors involved in these disorders so that more effective clinical interventions can be developed.

In conclusion, this thesis serves as a foundational piece in the ongoing exploration of ICD-11 PTSD and CPTSD, offering valuable insights into their validity, risk factors, and relationships with comorbid conditions like ADHD. It not only contributes to the growing body of knowledge in the field but also offers practical clinical implications that can enhance the quality of care for individuals affected by trauma-related disorders.

References

Abdul-Hamid, W. K., & Hughes, J. H. (2014). Nothing new under the sun: post-traumatic stress disorders in the ancient world. *Early Science and Medicine*, *19*(6), 549-557. https://doi.org/10.1163/15733823-00196p02

Acarturk, C., Uygun, E., Ilkkursun, Z., Carswell, K., Tedeschi, F., Batu, M., ... & Barbui, C. (2022). Effectiveness of a WHO self-help psychological intervention for preventing mental disorders among Syrian refugees in Turkey: a randomized controlled trial. *World Psychiatry*, *21*(1), 88-95. https://doi.org/10.1002/wps.20939

Adler, L. A., Spencer, T., Faraone, S. V., Kessler, R. C., Howes, M. J., Biederman, J., & Secnik, K. (2006). Validity of pilot Adult ADHD Self-Report Scale (ASRS) to rate adult ADHD symptoms. *Annals of Clinical Psychiatry*, *18*(3), 145-148. DOI: 10.3109/10401230600801077

Ahmad, F., Othman, N., & Lou, W. (2020). Posttraumatic stress disorder, social support and coping among Afghan refugees in Canada. *Community Mental Health Journal*, *56*(4), 597-605. https://doi.org/10.1007/s10597-019-00518-1

Ahmadi, N., Hajsadeghi, F., Mirshkarlo, H. B., Budoff, M., Yehuda, R., & Ebrahimi, R. (2011). Post-traumatic Stress Disorder, Coronary Atherosclerosis, and Mortality. *The American Journal of Cardiology*, *108*(1), 29-33. https://doi.org/https://doi.org/10.1016/j.amjcard.2011.02.340

Akaike, H. (1987). Factor analysis and AIC. *Psychometrika*, *52*(3), 317–332. https://doi.org/10.1007/BF02294359

American Psychiatric Association. (1952). Diagnostic and Statistical Manual of Mental Disorders. American Psychiatric Publishing.

American Psychiatric Association. (1968). Diagnostic and Statistical Manual of Mental Disorders (2nd ed.). American Psychiatric Publishing.

American Psychiatric Association. (1980). Diagnostic and Statistical Manual of Mental Disorders (3rd ed.). American Psychiatric Publishing. American Psychiatric Association. (1987). Diagnostic and Statistical Manual of Mental Disorders (3rd ed., text rev.).

American Psychiatric Association. (2000). Diagnostic and statistical manual of mental disorders (4th ed., text rev.). American Psychiatric Publishing.

American Psychiatric Association. (2013). Diagnostic and Statistical Manual of Mental Disorders (5th ed.). American Psychiatric Publishing.

American Psychiatric Publishing. American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). American Psychiatric Publishing.

Andersen, S. L., Tomada, A., Vincow, E. S., Valente, E., Polcari, A., & Teicher, M. H. (2008). Preliminary evidence for sensitive periods in the effect of childhood sexual abuse on regional brain development. *The Journal of Neuropsychiatry and Clinical Neurosciences*, *20*(3), 292-301. https://doi:10.1176/jnp.2008.20.3.292.

Archibald, H. C., & Tuddenham, R. D. (1965). Persistent stress reaction after combat: A 20-year follow-up. *Archives of General Psychiatry*, *12*(5), 475-481. doi:10.1001/archpsyc.1965.01720350043006

Babson, K. A., & Feldner, M. T. (2010). Temporal relations between sleep problems and both traumatic event exposure and PTSD: a critical review of the empirical literature. *Journal of Anxiety Disorders*, *24*(1), 1-15. https://doi.org/10.1016/j.janxdis.2009.08.002

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models.

Banz, L., Stefanovic, M., von Boeselager, M., Schäfer, I., Lotzin, A., Kleim, B., & Ehring, T. (2022). Effects of current treatments for trauma survivors with posttraumatic stress disorder on reducing a negative self-concept: a systematic review and meta-analysis. *European Journal of Psychotraumatology*, *13*(2), 2122528. https://doi.org/10.1080/20008066.2022.2122528

Barrett, E. L., Teesson, M., & Mills, K. L. (2014). Associations between substance use, post-traumatic stress disorder and the perpetration of violence: A longitudinal investigation. *Addictive Behaviors*, *39*(6), 1075-1080.

Beltran, R. O., Llewellyn, G. M., & Silove, D. (2008). Clinicians' understanding of International Statistical Classification of Diseases and Related Health Problems, 10th Revision diagnostic criteria: F62. 0 enduring personality change after catastrophic experience. *Comprehensive Psychiatry*, *49*(6), 593-602. https://doi.org/10.1016/j.comppsych.2008.04.006

Ben-Ezra M. (2011). Traumatic reactions from antiquity to the 16th century: Was there a common denominator? *Stress and Health*, *27*(3), 223–240. https://doi.org/10.1002/smi.1338

Ben-Ezra, M., Karatzias, T., Hyland, P., Brewin, C. R., Cloitre, M., Bisson, J. I., ... & Shevlin, M. (2018). Posttraumatic stress disorder (PTSD) and complex PTSD (CPTSD) as per ICD-11 proposals: A population study in Israel. *Depression and anxiety*, *35*(3), 264-274. https://doi.org/10.1002/da.22723

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*(2), 238–246. https://doi.org/10.1037/0033-2909.107.2.238

Bhardwaj, V., Angkaw, A. C., Franceschetti, M., Rao, R., & Baker, D. G. (2019). Direct and indirect relationships among posttraumatic stress disorder, depression, hostility, anger, and verbal and physical aggression in returning veterans. *Aggressive Behavior*, *45*(4), 417-426. https://doi.org/10.1002/ab.21827

Biederman, J., Petty, C., Spencer, T. J., Woodworth, K. Y., Bhide, P., Zhu, J., & Faraone, S. V. (2014). Is ADHD a risk for posttraumatic stress disorder (PTSD)? Results from a large longitudinal study of referred children with and without ADHD. *The World Journal of Biological Psychiatry, 15(1),* 49-55. doi: 10.3109/15622975.2012.75658

Bjorvatn, B., Meland, E., Flo, E., & Mildestvedt, T. (2016). High prevalence of insomnia and hypnotic use in patients visiting their general practitioner. *Family Practice*, *34* (1), 20–24.

Bohucharova, O. I. (2017). Psychological mechanisms of post stress personality development of Ukrainian forced migrants with UIDP status. *Український психологічний журнал*, (4), 17-32.

Bondjers, K., Hyland, P., Roberts, N. P., Bisson, J. I., Willebrand, M., & Arnberg, F. K. (2019). Validation of a clinician-administered diagnostic measure of ICD-11 PTSD and Complex PTSD: the International Trauma Interview in a Swedish sample. *European Journal of Psychotraumatology*, *10*(1), 1665617. https://doi.org/10.1080/20008198.2019.1665617

Boscarino, J. A. (2006). Posttraumatic Stress Disorder and Mortality Among U.S. Army Veterans 30 Years After Military Service. *Annals of Epidemiology*, *16*(4), 248-256. https://doi.org/https://doi.org/10.1016/j.annepidem.2005.03.009

Breh, D. C., & Seidler, G. H. (2007). Is peritraumatic dissociation a risk factor for PTSD? *Journal of Trauma & Dissociation*, *8*(1), 53-69. https://doi.org/10.1300/J229v08n01_04

Breslau, N., & Schultz, L. (2013). Neuroticism and post-traumatic stress disorder: a prospective investigation. *Psychological Medicine*, *43*(8), 1697-1702. http://dx.doi.org/10.1017/S0033291712002632

Breslau, N., Davis, G. C., Andreski, P., Peterson, E. L., & Schultz, L. R. (1997). Sex differences in posttraumatic stress disorder. *Archives of General Psychiatry*, *54*(11), 1044-1048. https://doi.org/1044-1048. 10.1001/archpsyc.1997.01830230082012

Breslau, N., Kessler, R. C., Chilcoat, H. D., Schultz, L. R., Davis, G. C., & Andreski, P. (1998). Trauma and posttraumatic stress disorder in the community: the 1996 Detroit Area Survey of Trauma. *Archives of General Psychiatry*, 55(7), 626-632. https://doi.org/10.1001/archpsyc.55.7.626

Brewin, C. (2020). Complex post-traumatic stress disorder: A new diagnosis in ICD-11. *BJPsych Advances*, 26(3), 145-152. doi:10.1192/bja.2019.48

Brewin, C. R. (2001). A cognitive neuroscience account of posttraumatic stress disorder and its treatment. *Behaviour Research and Therapy*, *39*(4), 373-393. https://doi.org/10.1016/S0005-7967(00)00087-5

Brewin, C. R. (2020). Complex post-traumatic stress disorder: a new diagnosis in ICD-11. *BJPsych Advances*, *26*(3), 145-152.q2

Brewin, C. R., & Holmes, E. A. (2003). Psychological theories of posttraumatic stress disorder. *Clinical Psychology Review*, *23*(3), 339-376. https://doi.org/10.1016/S0272-7358(03)00033-3

Brewin, C. R., Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting and Clinical Psychology*, *68*, 748–766. https://doi.org/10.1037/0022- 006X.68.5.748

Brewin, C. R., Cloitre, M., Hyland, P., Shevlin, M., Maercker, A., Bryant, R. A., ... & Reed, G. M. (2017). A review of current evidence regarding the ICD-11 proposals for diagnosing PTSD and complex PTSD. *Clinical Psychology Review*, *58*, 1-15. https://doi.org/10.1016/j.cpr.2017.09.001

Bryant, R. A. (2010a). Acute stress disorder as a predictor of posttraumatic stress disorder: a systematic review. *The Journal of Clinical Psychiatry*, *71*(2), 381. https://doi.org/10.4088/JCP.09r05072blu

Bryant, R. A., & Guthrie, R. M. (2007). Maladaptive self-appraisals before trauma exposure predict posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology, 75*(5), 812-815. https://doi.org/10.1037/0022-006X.75.5.812

Bryant, R. A., Creamer, M., O'Donnell, M., Silove, D., & McFarlane, A. C. (2010b). Sleep disturbance immediately prior to trauma predicts subsequent psychiatric disorder. *Sleep, 33*(1), 69-74. https://doi.org/10.1093/sleep/33.1.69

Bryant, R. A., O'Donnell, M. L., Creamer, M., McFarlane, A. C., & Silove, D. (2013). A multisite analysis of the fluctuating course of posttraumatic stress disorder. *JAMA Psychiatry, 70*(8), 839-846. doi:10.1001/jamapsychiatry.2013.1137

Cahill, S. P., & Pontoski, K. (2005). Post-traumatic stress disorder and acute stress disorder I: their nature and assessment considerations. *Psychiatry (Edgmont), 2*(4), 14.

Carrion, V. G., & Wong, S. S. (2012). Can traumatic stress alter the brain? Understanding the implications of early trauma on brain development and learning. *Journal of Adolescent Health, 51*(2), S23-S28. https://doi.org/10.1016/j.jadohealth.2012.04.010

Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioural Medicine, 4*(1), 92-100 DOI: 10.1207/s15327558ijbm0401_6

Central Statistics Office. (2017). Census 2016 summary results–Part 1. *The Central Statistics Office Ireland*. Retrieved 31 March 2021, from http://www.cso.ie/en/csolatestnews/pressreleases/2017pressreleases/pressstatementcensus2016summaryresults-part2/

Charuvastra, A., & Cloitre, M. (2008). Social bonds and posttraumatic stress disorder. *Annu. Rev. Psychol., 59*, 301-328. https://doi.org/10.1146/annurev.psych.58.110405.085650

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modelling: a Multidisciplinary Journal, 14*(3), 464-504. https://doi.org/10.1080/10705510701301834

Chen, F., Bollen, K. A., Paxton, P., Curran, P. J., & Kirby, J. B. (2001). Improper solutions in structural equation models: Causes, consequences, and strategies. *Sociological Methods & Research, 29*(4), 468-508. https://doi.org/10.1177/0049124101029004003

Cheung, A., Makhashvili, N., Javakhishvili, J., Karachevsky, A., Kharchenko, N., Shpiker, M., & Roberts, B. (2019). Patterns of somatic distress among internally displaced persons in Ukraine: analysis of a cross-sectional survey. *Social Psychiatry and Psychiatric Epidemiology, 54*(10), 1265-1274. https://doi.org/10.1007/s00127-019-01652-7

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modelling*, *9*(2), 233-255. https://doi.org/10.1207/S15328007SEM0902_5

Christiansen, D. M., & Hansen, M. (2015). Accounting for sex differences in PTSD: A multi-variable mediation model. *European Journal of Psychotraumatology*, *6*(1), 26068. https://doi.org/10.3402/ejpt.v6.26068

Christiansen, D., & Elklit, A. (2012). Sex Differences in PTSD. In. *InTech.* https://doi.org/10.5772/28363

Cloitre, M., Courtois, C.A., Charuvastra, A., Carapezza, R., Stolbach, B.C. and Green, B.L. (2011), Treatment of complex PTSD: Results of the ISTSS expert clinician survey on best practices. *Journal of Traumatic Stress*, *24*: 615-627. https://doi.org/10.1002/jts.20697

Cloitre, M., Hyland, P., Bisson, J. I., Brewin, C. R., Roberts, N. P., Karatzias, T., & Shevlin, M. (2019). ICD-11 Posttraumatic Stress Disorder and Complex Posttraumatic Stress Disorder in the United States: A Population-Based Study. *Journal of Traumatic Stress*, *32*(6), 833-842. https://doi.org/10.1002/jts.22454

Cloitre, M., Hyland, P., Prins, A., & Shevlin, M. (2021). The international trauma questionnaire (ITQ) measures reliable and clinically significant treatment-related change in PTSD and complex PTSD. *European Journal of Psychotraumatology*, *12*(1), 1930961. https://doi.org/10.1080/20008198.2021.1930961

Cloitre, M., Shevlin, M., Brewin, C. R., Bisson, J. I., Roberts, N. P., Maercker, A., Karatzias T., & Hyland, P. (2018). The International Trauma Questionnaire: development of a self-report measure of ICD-11 PTSD and complex PTSD. *Acta Psychiatrica Scandinavica*, 138(6), 536-546. https://doi.org/10.1111/acps.12956

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers. https://doi.org/10.4324/9780203771587

Creamer, M., & Parslow, R. (2008). Trauma Exposure and Posttraumatic Stress Disorder in the Elderly: A Community Prevalence Study. *The American Journal of Geriatric Psychiatry*, *16*(10), 853-856. https://doi.org/https://doi.org/10.1097/01.JGP.0000310785.36837.85

Crocq, M. A., & Crocq, L. (2022). From shell shock and war neurosis to posttraumatic stress disorder: a history of psychotraumatology. *Dialogues in Clinical* Neuroscience. *1*(2), 47-55 https://doi.org/10.31887/DCNS.2000.2.1/macrocq

Cyr, G., Belanger, C., & Godbout, N. (2022). French translation and validation of the international trauma questionnaire in a Canadian community sample. *Child Abuse & Neglect*, *128*, 105627. https://doi:10.1016/j.chiabu.2022.105627

Cyr, G., Belanger, C., & Godbout, N. (2022). French translation and validation of the International Trauma Questionnaire in a Canadian community sample. *Child Abuse & Neglect*, *128*, 105627. https://doi.org/10.1016/j.chiabu.2022.105627

Dagan, Y., & Yager, J. (2019). Addressing loneliness in complex PTSD. *The Journal of Nervous and Mental disease*, *207*(6), 433-439. DOI: 10.1097/NMD.0000000000000992

Davis, J. P., Prindle, J., Saba, S. K., DiGuiseppi, G. T., Hummer, J., Lee, D. S., ... & Pedersen, E. R. (2022). What's sleep got to do with it? Longitudinal associations between insomnia, PTSD, and alcohol use among US Veterans. *Addictive Behaviors*, *132*, 107358. https://doi.org/10.1016/j.addbeh.2022.107358

De Jong, J. T., Komproe, I. H., Spinazzola, J., van der Kolk, B. A., & Van Ommeren, M. H. (2005). DESNOS in three postconflict settings: Assessing cross-cultural construct equivalence. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies*, *18*(1), 13-21. https://doi.org/10.1002/jts.20005

De Jong, J. T., Komproe, I. H., Van Ommeren, M., El Masri, M., Araya, M., Khaled, N., ... & Somasundaram, D. (2001). Lifetime events and posttraumatic stress disorder in 4 postconflict settings. *Jama*, *286*(5), 555-562. doi:10.1001/jama.286.5.555

de Silva, U., Glover, N., & Katona, C. (2021). Prevalence of complex post-traumatic stress disorder in refugees and asylum seekers: systematic review. *BJPsych Open*, *7*(6), e194. https://doi.org/10.1192/bjo.2021.1013

De Soir, E., Zech, E., Versporten, A., Van Oyen, H., Kleber, R., Mylle, J., & van der Hart, O. (2015). Degree of exposure and peritraumatic dissociation as determinants of

PTSD symptoms in the aftermath of the Ghislenghien gas explosion. *Archives of Public Health*, *73*(1), 21. https://doi.org/10.1186/s13690- 015-0069-9

DeJong, M., & Wilkinson, S. (2019). Assessment of mental health problems in children following early maltreatment: What will the new diagnosis of complex PTSD add?. *Developmental Child Welfare*, *1*(4), 360-373. https://doi.org/10.1177/2516103219892636

DiGangi, J. A., Gomez, D., Mendoza, L., Jason, L. A., Keys, C. B., & Koenen, K. C. (2013). Pretrauma risk factors for posttraumatic stress disorder: A systematic review of the literature. *Clinical Psychology Review*, *33*(6), 728-744. https://doi.org/10.1016/j.cpr.2013.05.002

Dokkedahl, S., Oboke, H., Ovuga, E., & Elklit, A. (2015). ICD-11 trauma questionnaires for PTSD and complex PTSD: Validation among civilians and former abducted children in Northern Uganda. *Journal of Psychiartry*, *18*(6), 335. DOI: 10.4172/2378-5756.1000335

Elklit, A., & Shevlin, M. (2007). The structure of PTSD symptoms: A test of alternative models using confirmatory factor analysis. *British Journal of Clinical Psychology*, *46*(3), 299-313. https://doi.org/10.1348/014466506X171540

Elklit, A., Lasgaard, M., & Palic, S. (2012). Social support, coping and posttraumatic stress symptoms in young refugees. *Torture: Quarterly Journal on Rehabilitation of Torture Victims and Prevention of Torture*, *22*(1), 11-23.

Ellis P. S. (1984). The origins of the war neuroses. *Journal of the Royal Naval Medical Service*, *70*(3),

Engelbrecht, A., Burdett, H., Silva, M. J., Bhui, K., & Jones, E. (2018). The symptomatology of psychological trauma in the aftermath of war (1945–1980): UK army veterans, civilians and emergency responders. *Psychological Medicine*, *49*(5), 1–8. https://doi.org/10.1017/S0033291718001460

Erichsen, J. E. (1867). *On railway and other injuries of the nervous system*. Henry C. Lea.

Espie, C. A., Farias Machado, P., Carl, J. R., Kyle, S. D., Cape, J., Siriwardena, A. N., & Luik, A. I. (2018). The Sleep Condition Indicator: reference values derived from a sample of 200 000 adults. *Journal of Sleep Research*, *27*(3), e12643. https://doi.org/10.1111/jsr.12643

Espie, C. A., Kyle, S. D., Hames, P., Gardani, M., Fleming, L., & Cape, J. (2014). The Sleep Condition Indicator: a clinical screening tool to evaluate insomnia disorder. *BMJ Open*, *4*(3), e004183. https://doi.org/10.1136/bmjopen-2013-004183

Fabrega Jr, H. (1989). Cultural relativism and psychiatric illness. *The Journal of Nervous and Mental Disease*, *177*(7), 415-425.

Facer-Irwin, E., Karatzias, T., Bird, A., Blackwood, N., & MacManus, D. (2022). PTSD and complex PTSD in sentenced male prisoners in the UK: Prevalence, trauma antecedents, and psychiatric comorbidities. *Psychological Medicine*, *52*(13), 2794-2804. https://doi.org/10.1017/S0033291720004936

Fayyad, J., Sampson, N. A., Hwang, I., Adamowski, T., Aguilar-Gaxiola, S., Al-Hamzawi, A., Andrade, L. H., Borges, G., de Girolamo, G., Florescu, S., Gureje, O., Haro, J. M., Hu, C., Karam, E. G., Lee, S., Navarro-Mateu, F., O'Neill, S., Pennell, B. E., Piazza, M., Posada-Villa, J., … WHO World Mental Health Survey Collaborators (2017). The descriptive epidemiology of DSM-IV Adult ADHD in the World Health Organization World Mental Health Surveys. *Attention Deficit and Hyperactivity Disorders*, *9*(1), 47–65. https://doi.org/10.1007/s12402-016-0208-3

Fazel, M., Wheeler, J., & Danesh, J. (2005). Prevalence of serious mental disorder in 7000 refugees resettled in western countries: a systematic review. *The Lancet*, *365*(9467), 1309-1314. https://doi.org/10.1016/S0140-6736(05)61027-6

Finklestein, M., Laufer, A., & Solomon, Z. (2012). Coping strategies of Ethiopian immigrants in Israel: Association with PTSD and dissociation. *Scandinavian journal of Psychology*, *53*(6), 490-498. https://doi.org/10.1111/j.1467-9450.2012.00972.x

Flora, D. B., & Curran, P. J. (2004). An empirical evaluation of alternative methods of estimation for confirmatory factor analysis with ordinal data. *Psychological Methods*, *9*(4), 466. https://doi.org/10.1037/1082-989X.9.4.466

Fodor, K. E., Unterhitzenberger, J., Chou, C. Y., Kartal, D., Leistner, S., Milosavljevic, M., ... & Alisic, E. (2014). Is traumatic stress research global? A bibliometric analysis. *European Journal of Psychotraumatology*, *5*(1), 23269. https://doi.org/10.3402/ejpt.v5.23269

Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior*, 219-239. https://doi.org/10.2307/2136617

Fontaine, J. (2011). A fourfold conceptual framework for cultural and cross-cultural psychology: Relativism, construct universalism, repertoire universalism and absolutism. In F. Van de Vijver, A. Chasiotis, & S. Breugelmans (Eds.), *Fundamental Questions in Cross-Cultural Psychology* (pp. 165-189). Cambridge: Cambridge University Press. https://doi:10.1017/CBO9780511974090.008

Ford, J. D., & Connor, D. F. (2009). ADHD and posttraumatic stress disorder. *Current Attention Disorders Reports*, *1*(2), 60-66. https://doi.org/10.1007/s12618-009-0009-0

Fox, R., Hyland, P., Coogan, A. N., Cloitre, M., & McHugh Power, J. (2022). Posttraumatic stress disorder, complex PTSD and subtypes of loneliness among older adults. *Journal of Clinical Psychology*, *78*(2), 321–342. https://doi.org/10.1002/jclp.23225

Fox, R., Power, J. M., Coogan, A. N., Beekman, A. T., van Tilburg, T. G., & Hyland, P. (2021). Posttraumatic stress disorder and loneliness are associated over time: A longitudinal study on PTSD symptoms and loneliness, among older adults. *Psychiatry Research*, *299*, 113846. https://doi.org/10.1016/j.psychres.2021.113846

Foy, D. W., Sipprelle, R. C., Rueger, D. B., & Carroll, E. M. (1984). Etiology of posttraumatic stress disorder in Vietnam veterans: analysis of premilitary, military, and combat exposure influences. *Journal of Consulting and Clinical Psychology*, *52*(1), 79. https://doi.org/10.1037/0022-006X.52.1.79

Frans, Ö., Rimmö, P. A., Åberg, L., & Fredrikson, M. (2005). Trauma exposure and post-traumatic stress disorder in the general population. *Acta Psychiatrica Scandinavica*, *111*(4), 291-290. https://doi.org/10.1111/j.1600-0447.2004.00463.x

Frans, Ö., Rimmö, P. A., Åberg, L., & Fredrikson, M. (2005). Trauma exposure and post-traumatic stress disorder in the general population. *Acta Psychiatrica Scandinavica*, *111*(4), 291-290. https://doi.org/10.1111/j.1600-0447.2004.00463.x

Frans, Ö., Rimmö, P. A., Åberg, L., & Fredrikson, M. (2005). Trauma exposure and post-traumatic stress disorder in the general. *Acta Psychiatrica Scandinavica*, *111*(4), 291-290. https://doi.org/https://doi.org/10.1111/j.1600-0447.2004.00463.x

Freud, S. (1896). The aetiology of hysteria (J. Strachey, Trans.). *The standard edition of the complete psychological works of Sigmund Freud*, *3*, 187-221.

Frewen, P., Wong, S., Bailey, T., Courtois, C., & Lanius, R. (2023). As simple as possible, but not simpler: Revisiting the International Trauma Questionnaire (ITQ) complex PTSD items omitted in the shortened version. *Child Abuse & Neglect*, *141*, 106207. https://doi.org/10.1016/j.chiabu.2023.106207

Friedman, M. J. (2013). Finalizing PTSD in DSM-5: Getting here from there and where to go next. *Journal of Traumatic Stress*, *26*(5), 548-556. https://doi.org/10.1002/jts.21840

Frost, R., Hyland, P., McCarthy, A., Halpin, R., Shevlin, M., & Murphy, J. (2019). The complexity of trauma exposure and response: Profiling PTSD and CPTSD among a refugee sample. *Psychological Trauma: Theory, Research, Practice, and Policy*, *11*(2), 165-175. https://doi.org/10.1037/tra0000408

Gersons, B. P. R., & Carlier, I. V. E. (1992). Post-traumatic stress disorder: A history of a recent concept. *British Journal of Psychiatry*, *161*(6), 742–748. https://doi.org/10.1192/bjp.161.6.7

Gorst-Unsworth, C., & Goldenberg, E. (1998). Psychological sequelae of torture and organised violence suffered by refugees from Iraq. Trauma-related factors compared with social factors in exile. *British Journal of Psychiatry*, *172*, 90–94. DOI: 10.1192/bjp.172.1.90

Graham, J. M. (2006). Congeneric and (essentially) tau-equivalent estimates of score.

Gum, A. M., King-Kallimanis, B., & Kohn, R. (2009). Prevalence of Mood, Anxiety, and Substance-Abuse Disorders for Older Americans in the National Comorbidity Survey-Replication. The American Journal of Geriatric Psychiatry, *17*(9), 769-781. https://doi.org/https://doi.org/10.1097/JGP.0b013e3181ad4f5a

Hansen, M., Armour, C., McGlinchey, E., Ross, J., Ravn, S. L., Andersen, T. E., ... & Fried, E. (2023). Investigating the DSM–5 and the ICD-11 PTSD symptoms using network analysis across two distinct samples. *Psychological Trauma: Theory, Research, Practice, and Policy*, *15*(5), 757. https://doi.org/10.1037/tra0001281

Herman, J. L. (1992). *Trauma and recovery: The aftermath of violence from domestic violence to political terrorism*. Guilford Press

Heron-Delaney, M., Kenardy, J., Charlton, E., & Matsuoka, Y. (2013). A systematic review of predictors of posttraumatic stress disorder (PTSD) for adult road traffic crash survivors. *Injury*, *44*(11), 1413-1422. https://doi.org/10.1016/j.injury.2013.07.011

Herzog, J. I., & Schmahl, C. (2018). Adverse childhood experiences and the consequences on neurobiological, psychosocial, and somatic conditions across the lifespan. *Frontiers in Psychiatry*, *9*, 420. https://doi.org/10.3389/fpsyt.2018.00420

Ho, G. W., Karatzias, T., Cloitre, M., Chan, A. C., Bressington, D., Chien, W. T., ... & Shevlin, M. (2019). Translation and validation of the Chinese ICD-11 international trauma questionnaire (ITQ) for the assessment of posttraumatic stress disorder (PTSD) and complex PTSD (CPTSD). *European Journal of Psychotraumatology*, *10*(1), 1608718. https://doi.org/10.1080/20008198.2019.1608718

Ho, G. W., Vang, M. L., Martsenkovskyi, D., Karatzias, T., Ben-Ezra, M., McElroy, E., ... & Shevlin, M. (2023). Investigating the latent structure of the International Trauma Questionnaire to assess ICD-11 posttraumatic stress disorder (PTSD) and complex PTSD in an adult civilian sample during the Ukraine war. *Journal of Traumatic Stress*. https://doi.org/10.1002/jts.22943

Holdorff, B., & Dening, D. T. (2011). The fight for 'traumatic neurosis', 1889–1916: Hermann Oppenheim and his opponents in Berlin. *History of Psychiatry*, 22(4), 465–476. https://doi.org/10.1177/0957154X10390495

Horowitz, M. J. (1976). Stress response syndromes. New York: Jason Aronson Inc. Howell, A., & Conway, M.(1992). Mood and the suppression of positive and negative self-referent thoughts. *Cognitive Therapy and Research*, *16*, 535-555.

https://doi.org/10.1007/BF02723327

Hu, L. T., & Bentler, P. M. (1999). Cut-off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modelling: a Multidisciplinary Journal*, 6(1), 1 55. https://doi.org/10.1080/10705519909540118

Hughes, M. E., Waite, L. J., Hawkley, L. C., & Cacioppo, J. T. (2004). A short scale for measuring loneliness in large surveys: Results from two population-based studies. *Research on Aging*, *26*(6), 655-672. https://doi.org/10.1177/0164027504268574

Huijts, I., Kleijn, W. C., van Emmerik, A. A., Noordhof, A., & Smith, A. J. (2012). Dealing with man-made trauma: The relationship between coping style, posttraumatic stress, and quality of life in resettled, traumatized refugees in the Netherlands. *Journal of Traumatic stress*, *25*(1), 71-78. https://doi.org/10.1002/jts.21665

Hyland, P., Brewin, C. R., & Maercker, A. (2017b). Predictive validity of ICD-11 PTSD as measured by the Impact of Event Scale-Revised: A 15-year prospective study of political prisoners. *Journal of Traumatic Stress*, *30*(2), 125-132. https://doi.org/10.1002/jts.22171

Hyland, P., Karatzias, T., Shevlin, M., Cloitre, M., & Ben-Ezra, M. (2020). A longitudinal study of ICD-11 PTSD and complex PTSD in the general population of Israel. *Psychiatry Research*, *286*, 112871. https://doi.org/10.1016/j.psychres.2020.112871

Hyland, P., Karatzias, T., Shevlin, M., McElroy, E., Ben-Ezra, M., Cloitre, M., & Brewin, C. R. (2021b). Does requiring trauma exposure affect rates of ICD-11 PTSD and complex PTSD? Implications for DSM–5. *Psychological Trauma: Theory, Research, Practice, and Policy*, *13*(2), 133–141. https://doi.org/10.1037/tra0000908

Hyland, P., Murphy, J., Shevlin, M., Vallières, F., McElroy, E., Elklit, A., ... & Cloitre, M. (2017c). Variation in post-traumatic response: The role of trauma type in predicting ICD-11 PTSD and CPTSD symptoms. *Social Psychiatry and Psychiatric Epidemiology*, *52*, 727-736. https://doi.org/10.1007/s00127-017-1350-8

Hyland, P., Karatzias, T., Shevlin, M., & Cloitre, M. (2019). Examining the discriminant validity of complex posttraumatic stress disorder and borderline personality disorder symptoms: Results from a United Kingdom population sample. *Journal of Traumatic Stress*, *32(*6), 855–863. https://doi.org/10.1002/jts.22444

Hyland, P., Shevlin, M., Brewin, C. R., Cloitre, M., Downes, A. J., Jumbe, S., ... & Roberts, N. P. (2017a). Validation of post-traumatic stress disorder (PTSD) and complex PTSD using the International Trauma Questionnaire. *Acta Psychiatrica Scandinavica*, *136*(3), 313-322. https://doi.org/10.1111/acps.12771

Hyland, P., Shevlin, M., McBride, O., Murphy, J., Karatzias, T., Bentall, R. P., Martinez, A., & Vallières, F. (2020). Anxiety and depression in the Republic of Ireland during the COVID-19 pandemic. *Acta Psychiatrica Scandinavica*, *142*(3), 249–256. https://doi.org/10.1111/acps.13219

Hyland, P., Vallières, F., Cloitre, M., Ben-Ezra, M., Karatzias, T., Olff, M., ... & Shevlin, M. (2021a). Trauma, PTSD, and complex PTSD in the Republic of Ireland: prevalence, service use, comorbidity, and risk factors. *Social Psychiatry and Psychiatric Epidemiology*, *56*(4), 649-658. https://doi.org/10.1007/s00127-020-01912-x

International Classification of Diseases, Eleventh Revision (ICD-11), World Health Organization (WHO) 2019/202. https://icd.who.int/browse11. Licensed under Creative Commons Attribution-No Derivatives 3.0 IGO licence (CC BY-ND 3.0 IGO).

International Organization for Migration, (2022, May 3). *Ukraine International Displacement Report, Round 4*. Retrieved from: https://displacement.iom.int/reports/ukraine-internal-displacement-report-general-population-survey-round-4-29-april-3-may-2022

International Trauma Consortium. (n.d.). *International Trauma Questionare*. Retrieved October 23, 2023, from https://www.traumameasuresglobal.com/

Jeon, H. J., Suh, T., Lee, H. J., Hahm, B. J., Lee, J. Y., Cho, S. J., ... & Cho, M. J. (2007). Partial versus full PTSD in the Korean community: prevalence, duration, correlates, comorbidity, and dysfunctions. *Depression and Anxiety*, *24*(8), 577-585. https://doi.org/10.1002/da.20270

Jones, E., Fear D Phil, N. T., & Wessely, S. (2007). Shell shock and mild traumatic brain injury: a historical review. *American Journal of Psychiatry*, *164*(11), 1641-1645. https://doi.org/10.1176/appi.ajp.2007.07071180

Jongedijk, R. A., Boelen, P. A., Knipscheer, J. W., & Kleber, R. J. (2023). Unity or Anarchy? A Historical Search for the Psychological Consequences of Psychotrauma. *Review of General Psychology*. https://doi.org/10.1177/10892680231153096

Karatzias, T., & Cloitre, M. (2019). Treating Adults With Complex Posttraumatic Stress Disorder Using a Modular Approach to Treatment: Rationale, Evidence, and Directions for Future Research. *Journal of Traumatic Stress*, *32*(6), 870–876. https://doi.org/10.1002/jts.22457

Karatzias, T., Hyland, P., Ben-Ezra, M., & Shevlin, M. (2018). Hyper and hypo-activation affective dysregulation symptoms are integral in complex PTSD (CPTSD): Results from a non-clinical Israeli sample. *International Journal of Methods in Psychiatric Research*, *27*(4). https://doi.org/10.1002/mpr.1745

Karatzias, T., Hyland, P., Bradley, A., Cloitre, M., Roberts, N. P., Bisson, J. I., & Shevlin, M. (2019). Risk factors and comorbidity of ICD-11 PTSD and complex PTSD: Findings from a trauma-exposed population based sample of adults in the United

Kingdom. *Depression and Anxiety*, *36*(9), 887–894. https://doi.org/10.1002/da.22934

Karatzias, T., Hyland, P., Bradley, A., Cloitre, M., Roberts, N. P., Bisson, J. I., & Shevlin, M. (2019). Risk factors and comorbidity of ICD-11 PTSD and complex PTSD: Findings from a trauma-exposed population based sample of adults in the United Kingdom. Depression and anxiety, 36(9), 887–894. https://doi.org/10.1002/da.22934

Karatzias, T., Shevlin, M., Ben-Ezra, M., McElroy, E., Redican, E., Vang, M. L., Cloitre, M., Ho, G. W. K., Lorberg, B., Martsenkovskyi, D., & Hyland, P. (2023). War exposure, posttraumatic stress disorder, and complex posttraumatic stress disorder among parents living in Ukraine during the Russian war. *Acta Psychiatrica Scandinavica*, *147*(3), 276–285. https://doi.org/10.1111/acps.13529

Karatzias, T., Shevlin, M., Fyvie, C., Grandison, G., Garozi, M., Latham, E., ... & Hyland, P. (2020). Adverse and benevolent childhood experiences in Posttraumatic Stress Disorder (PTSD) and Complex PTSD (CPTSD): implications for trauma-focused therapies. *European Journal of Psychotraumatology*, *11*(1), 1793599. https://doi.org/10.1080/20008198.2020.1793599

Karatzias, T., Shevlin, M., Fyvie, C., Hyland, P., Efthymiadou, E., Wilson, D., ... & Cloitre, M. (2016). An initial psychometric assessment of an ICD-11 based measure of PTSD and complex PTSD (ICD-TQ): Evidence of construct validity. *Journal of Anxiety Disorders*, *44*, 73-79. https://doi.org/10.1016/j.janxdis.2016.10.009

Kawakami, N., Tsuchiya, M., Umeda, M., Koenen, K. C., Kessler, R. C., & Japan, T. W. M. H. S. (2014). Trauma and posttraumatic stress disorder in Japan: results from the World Mental Health Japan Survey. *Journal of Psychiatric Research, 53*, 157-165. https://doi.org/10.1016/j.jpsychires.2014.01.015

Kerker, B. D., Storfer-Isser, A., Szilagyi, M., Stein, R. E., Garner, A. S., O'Connor, K. G., Hoagwood, K. E., & Horwitz, S. M. (2016). Do Paediatricians Ask About Adverse Childhood Experiences in Paediatric Primary Care? *Academic Paediatrics*, *16*(2), 154–160. https://doi.org/10.1016/j.acap.2015.08.002

Kessler, R. C., Adler, L. A., Gruber, M. J., Sarawate, C. A., Spencer, T., & Van Brunt, D. L. (2007). Validity of the World Health Organization Adult ADHD Self-Report Scale (ASRS) Screener in a representative sample of health plan members. *International Journal of Methods in Psychiatric Research*, *16*(2), 52-65. https://doi.org/10.1002/mpr.208

Kessler, R. C., Adler, L., Ames, M., Demler, O., Faraone, S., Hiripi, E. V. A., ... & Walters, E. E. (2005). The World Health Organization Adult ADHD Self-Report Scale (ASRS): a short screening scale for use in the general population. *Psychological Medicine*, *35*(2), 245-256. https://doi.org/10.1017/S0033291704002892

Kessler, R. C., Adler, L., Barkley, R., Biederman, J., Conners, C. K., Demler, O., ... & Zaslavsky, A. M. (2006). The prevalence and correlates of adult ADHD in the United States: results from the National Comorbidity Survey Replication. *American Journal of Psychiatry*, *163*(4), 716-723. https://doi/full/10.1176/ajp.2006.163.4.716

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime Prevalence and Age-of-Onset Distributions of DSM-IV Disorders in the National Comorbidity Survey Replication. Archives of General Psychiatry, *62*(6), 593-602. https://doi.org/10.1001/archpsyc.62.6.593

Kessler, R. C., Rose, S., Koenen, K. C., Karam, E. G., Stang, P. E., Stein, D. J., Heeringa, S. G., Hill, E. D., Liberzon, I., McLaughlin, K. A., McLean, S. A., Pennell, B. E., Petukhova, M., Rosellini, A. J., Ruscio, A. M., Shahly, V., Shalev, A. Y., Silove, D., Zaslavsky, A. M., … Carmen Viana, M. (2014). How well can post-traumatic stress disorder be predicted from pre-trauma risk factors? An exploratory study in the WHO World Mental Health surveys. *World Psychiatry*, *13*(3), 265-274. https://doi.org/10.1002/wps.20150

Kessler, R. C., Sonnega, A., Bromet, E., Hughes, M., & Nelson, C. B. (1995). Posttraumatic Stress Disorder in the National Comorbidity Survey. *Archives of General Psychiatry*, *52*(12), 1048-1060. https://doi.org/10.1001/archpsyc.1995.03950240066012

Kilpatrick, D. G., Resnick, H. S., Milanak, M. E., Miller, M. W., Keyes, K. M., & Friedman, M. J. (2013). National Estimates of Exposure to Traumatic Events and PTSD Prevalence Using DSM-IV and DSM-5 Criteria. *Journal of Traumatic Stress*, *26*(5), 537-547. https://doi.org/https://doi.org/10.1002/jts.21848

Kinzie, J. D., & Goetz, R. R. (1996). A century of controversy surrounding posttraumatic stress stress-spectrum syndromes: the impact on DSM-III and DSM-IV. *Journal of Traumatic Stress*, *9*(2), 159–179. https://doi.org/10.1007/BF0211065

Kira, I.; Ashby, J.S.; Omidy, A.Z. & Lewandowski, L. (2015). Current, Continuous, and Cumulative Trauma-Focused Cognitive Behavior Therapy: A new model for trauma counseling. *Journal of Mental Health Counselling, 37:* 323-340. https://doi.org/10.17744/mehc.37.4.04

Kira, I.; Ashby J. S.; Lewandowski, L.; Alawneh, A.N.; Mohanesh, J. & Odenat, L. (2013). Advances in Continuous Traumatic Stress Theory: Traumatogenic Dynamics and Consequences of Intergroup Conflict: The Palestinian Adolescents case. *Psychology*, *4*, 396-409. https://doi.org/10.4236/psych.2013.44057

Kira, I.A.; Aljakoub, J.; Al Ibraheem, B.; Shuwiekh, H.; Ashby, J.S.(2022): The etiology of Complex PTSD in the COVID-19 and continuous traumatic stressors era: A test of competing and allied models. *Journal of Loss and Trauma: International Perspectives on Stress & Coping*, *27*(7),. 608-628. https://doi.org/10.1080/15325024.2022.2028094

Kirkby, R. J. (2015). Dramatic protests, creative communities: VVAW and the expressive politics of the sixties counterculture. *Peace & Change*, *40*(1), 33-62. https://doi.org/10.1111/pech.12114

Knefel, M., & Lueger-Schuster, B. (2013). An evaluation of ICD-11 PTSD and complex PTSD criteria in a sample of adult survivors of childhood institutional abuse. *European Journal of Psychotraumatology*, *4*(1), 22608. https://doi.org/10.3402/ejpt.v4i0.22608

Koenen, K. C., Ratanatharathorn, A., Ng, L., McLaughlin, K. A., Bromet, E. J., Stein, D. J., ... & Kessler, R. (2017). Posttraumatic stress disorder in the world mental health surveys. *Psychological Medicine*, *47*(13), 2260-2274. https://doi.org/10.1017/S0033291717000708

Koffel, E., Khawaja, I. S., & Germain, A. (2016). Sleep Disturbances in Posttraumatic Stress Disorder: Updated Review and Implications for Treatment. *Psychiatric annals*, *46*(3), 173–176. https://doi.org/10.3928/00485713-20160125-01

Kotov, R., Krueger, R. F., & Watson, D. (2018). A paradigm shift in psychiatric classification: the Hierarchical Taxonomy Of Psychopathology (HiTOP). *World Psychiatry*, *17*(1), 24**.** https://doi.org/10.1002/wps.20478

Krysinska, K., & Lester, D. (2010). Post-traumatic stress disorder and suicide risk: a systematic review. *Archives of Suicide Research: Official Journal of the International Academy for Suicide Research*, *14*(1), 1–23. https://doi.org/10.1080/13811110903478997

Kuhn, E., van der Meer, C., Owen, J. E., Hoffman, J. E., Cash, R., Carrese, P., ... & Iversen, T. (2018). PTSD Coach around the world. *Mhealth*, *4*. doi:10.21037/mhealth.2018.05.01

Kvedaraite, M., Gelezelyte, O., Kairyte, A., Roberts, N. P., & Kazlauskas, E. (2021). Trauma exposure and factors associated with ICD-11 PTSD and complex PTSD in the Lithuanian general population. *The International Journal of Social Psychiatry*. *68*(8), 1727-1736. https://doi.org/10.1177/00207640211057720

Kvedaraite, M., Gelezelyte, O., Kairyte, A., Roberts, N. P., & Kazlauskas, E. (2022). Trauma exposure and factors associated with ICD-11 PTSD and complex PTSD in the Lithuanian general population. *International Journal of Social Psychiatry*, *68*(8), 1727-1736. https://doi.org/10.1177/00207640211057720

Saxon, L., Makhashvili, N., Chikovani, I., Seguin, M., McKee, M., Patel, V., ... & Roberts, B. (2017). Coping strategies and mental health outcomes of conflict-affected persons in the Republic of Georgia. Epidemiology and psychiatric sciences, *26*(3), 276-286.

Lenart, E. K., Bee, T. K., Seger, C. P., Lewis Jr, R. H., Filiberto, D. M., Huang, D. D., ... & Magnotti, L. J. (2021). Youth, poverty, and interpersonal violence: a recipe for PTSD. *Trauma Surgery & Acute Care Open*, *6*(1), e000710. http://dx.doi.org/10.1136/tsaco-2021-000710

Lensvelt-Mulders, G., van Der Hart, O., van Ochten, J. M., van Son, M. J., Steele, K., & Breeman, L. (2008). Relations among peritraumatic dissociation and posttraumatic stress: A meta-analysis. *Clinical Psychology Review*, *28*(7), 1138-1151. https://doi.org/10.1016/j.cpr.2008.03.006

Lerner, P. F. (2003). *Hysterical men: War, psychiatry, and the politics of trauma in Germany*, 1890-1930. Cornell University Press.

Li, S., Guo, C., & Chan, S. S. (2022). ICD-11 posttraumatic stress disorder and complex PTSD among hospital medical workers in China: impacts of Wenchuan Earthquake exposure, workplaces, and sociodemographic factors. *Frontiers in Psychiatry*, *12*, 735861. https://doi.org/10.3389/fpsyt.2021.735861

Liang, X., & Yang, Y. (2014). An evaluation of WLSMV and Bayesian methods for confirmatory factor analysis with categorical indicators. *International Journal of Quantitative Research in Education*, 2(1), 17-38. https://doi.org/10.1504/IJQRE.2014.060972

Liddell, B. J., Nickerson, A., Felmingham, K. L., Malhi, G. S., Cheung, J., Den, M., ... & Bryant, R. A. (2019). Complex posttraumatic stress disorder symptom profiles in traumatized refugees. *Journal of Traumatic Stress*, *32*(6), 822-832. https://doi.org/10.1002/jts.22453

Lo, Y., Mendell, N. R., & Rubin, D. B. (2001). Testing the number of components in a normal mixture. *Biometrika*, *88*(3), 767–778. https://doi.org/10.1093/biomet/88.3.767

Maercker, A. (2021). Development of the new CPTSD diagnosis for ICD-11. Borderline personality disorder and emotion dysregulation, *8*(1), 1−4. 10. https://1186/s40479-021- 00148-8

Maercker, A., Brewin, C. R., Bryant, R. A., Cloitre, M., Reed, G. M., Van Ommeren, M., ... & Saxena, S. (2013). Proposals for mental disorders specifically associated with stress in the International Classification of Diseases-11. *The Lancet*, *381*(9878), 1683-1685. https://doi.org/10.1016/S0140-6736(12)62191-6

Mallon, L., Broman, J. E., Akerstedt, T., & Hetta, J. (2014). Insomnia in Sweden: A population-based survey. *Sleep Disorders*, 843126. https://doi.org/10.1155/2014/843126

Matheson, K., Jorden, S., & Anisman, H. (2008). Relations between trauma experiences and psychological, physical and neuroendocrine functioning among Somali refugees: Mediating role of coping with acculturation stressors. *Journal of Immigrant and Minority Health*, *10*(4), 291-304. https://doi.org/10.1007/s10903-007-9086-2

McGregor, L. S., Melvin, G. A., & Newman, L. K. (2015). Familial separations, coping styles, and PTSD symptomatology in resettled refugee youth. *The Journal of Nervous and Mental Disease*, *203*(6), 431-438. https://doi: 10.1097/NMD.0000000000000312

McHugh, J. E., & Lawlor, B. A. (2013). Perceived stress mediates the relationship between emotional loneliness and sleep quality over time in older adults. *British Journal of Health Psychology*, 18(3), 546-555. https://doi.org/10.1111/j.2044-8287.2012.02101.x

McLaughlin, K. A., Colich, N. L., Rodman, A. M., & Weissman, D. G. (2020). Mechanisms linking childhood trauma exposure and psychopathology: a transdiagnostic model of risk and resilience. *BMC Medicine*, *18*(1), 1-11. https://doi.org/10.1186/s12916-020-01561-6

McManus, S., Bebbington, P., Jenkins, R., & Brugha T. (eds.) (2016) *Mental health and wellbeing in England: Adult Psychiatric Morbidity Survey 2014*. Leeds: NHS Digital. *Measurement*, *66*(6), 930-944. https://doi.org/10.1177%2F0013164406288165

Mellor, R., Werner, A., Moussa, B., Mohsin, M., Jayasuriya, R., & Tay, A. K. (2021). Prevalence, predictors and associations of complex post-traumatic stress disorder with common mental disorders in refugees and forcibly displaced populations: a systematic review. *European Journal of Pychotraumatology*, *12*(1), 1863579. https://doi.org/10.1080/20008198.2020.1863579

Micale, M. S. (1989). Hysteria and its historiography: a review of past and present writings (I). *History of Science*, *27*(3), 223-261. https://doi.org/10.1177/007327538902700301

Micale, M. S. (1990). Hysteria and its historiography: the future perspective. *History of Psychiatry*, *1*(1), 33-124. https://doi.org/10.1177/0957154X9000100103

Miller, K. E., Brownlow, J. A., & Gehrman, P. R. (2020). Sleep in PTSD: treatment approaches and outcomes. *Current Opinion in Psychology*, *34*, 12-17. https://doi.org/10.1016/j.copsyc.2019.08.017

Møller, L., Søgaard, U., Elklit, A., & Simonsen, E. (2021). Differences between ICD-11 PTSD and complex PTSD on DSM-5 section III personality traits. *European Journal of Psychotraumatology*, *12*(1), 1894805. https://doi.org/10.1080/20008198.2021.1894805

Morina, N., Akhtar, A., Barth, J., & Schnyder, U. (2018). Psychiatric disorders in refugees and internally displaced persons after forced displacement: a systematic review. *Frontiers in Psychiatry*, 9, 433. doi: 10.3389/fpsyt.2018.00433

Moser, A., Stuck, A. E., Silliman, R. A., Ganz, P. A., & Clough-Gorr, K. M. (2012). The eight-item modified Medical Outcomes Study Social Support Survey: psychometric evaluation showed excellent performance. *Journal of Clinical Epidemiology*, *65*(10), 1107-1116. https://doi.org/10.1016/j.jclinepi.2012.04.007

Murphy, S., Elklit, A., Dokkedahl, S., & Shevlin, M. (2018). Testing competing factor models of the latent structure of post-traumatic stress disorder and complex posttraumatic stress disorder according to ICD-11. *European Journal of Psychotraumatology*, *9*(1), 1457393. https://doi:10.1080/20008198.2018.1457393

Muthén, L. K., & Muthén, B. O. (2018). *Mplus user's guide* (8th ed.). Muthén & Muthén

Myers, C. (1915). A contribution to the study of shell shock.: Being an account of three cases of loss of memory, vision, smell, and taste, admitted into the Duchess of Westminster's War Hospital, Le Touquet. *The Lancet*, *185*(4772), 316-320. https://doi.org/10.1016/S0140-6736(00)52916-X

Nickerson, A., Cloitre, M., Bryant, R. A., Schnyder, U., Morina, N., & Schick, M. (2016). The factor structure of complex posttraumatic stress disorder in traumatized refugees. *European Journal of Psychotraumatology*, *7*(1), 33253. https://doi.org/10.3402/ejpt.v7.33253

Niederland, W. G. (1968). Clinical observations on the survivor syndrome. *International Journal of Psychoanalysis*, *49*(2), 313–315.

Niederland, W. G. (1981). The survivor syndrome: Further observations and dimensions. *Journal of the American Psychoanalytic Association*, *29*(2), 413–425. https://doi.org/10.1177/000306518102900207

Nielsen, T., Elklit, A., Vang, M. L., Nielsen, S. B., Auning-Hansen, M., & Palic, S. (2023). Cross-cultural validity and psychometric properties of the International Trauma Questionnaire in a clinical refugee sample. *European Journal of Psychotraumatology*, *14*(1), 2172256. https://doi.org/10.1080/20008066.2023.2172256

Norris, F. H., Murphy, A. D., Baker, C. K., Perilla, J. L., Rodriguez, F. G., & Rodriguez, J. D. J. G. (2003). Epidemiology of trauma and posttraumatic stress disorder in Mexico. *Journal of Abnormal Psychology*, *112*(4), 646. https://doi.org/10.1037/0021-843X.112.4.646

Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. Structural Equation Modeling: *A Multidisciplinary Journal*, *14*(4), 535–569. https://doi.org/10.1080/10705510701575396

O'Donnell, M., Alkemade, N., Nickerson, A., Creamer, M., McFarlane, A., Silove, D., . . . Forbes, D. (2014). Impact of the diagnostic changes to post-traumatic stress disorder for DSM-5 and the proposed changes to ICD-11. *The British Journal of Psychiatry, 205*(3), 230-235. doi:10.1192/bjp.bp.113.135285

Olff, M. (2017). Sex and gender differences in post-traumatic stress disorder: an update. European Journal of Psychotraumatology, 8(sup4), 1351204. https://doi.org/10.1080/20008198.2017.1351204

Ozer, E. J., Best, S. R., Lipsey, T. L., & Weiss, D. S. (2003). Predictors of posttraumatic stress disorder and symptoms in adults: a meta-analysis. *Psychological Bulletin, 129*(1), 52-73. https://doi.org/10.1037/0033-2909.129.1.52

Panagioti, M., Angelakis, I., Tarrier, N., & Gooding, P. (2017). A prospective investigation of the impact of distinct posttraumatic (PTSD) symptom clusters on suicidal ideation. *Cognitive Therapy and Research*, *41*(4), 645-653. https://doi.org/10.1007/s10608-016-9829-2

Panagioti, M., Gooding, P., & Tarrier, N. (2009). Post-traumatic stress disorder and suicidal behavior: A narrative review. *Clinical Psychology Review*, *29*(6), 471–482. https://doi.org/10.1016/j.cpr.2009.05.001

Peerenboom, L., Collard, R. M., Naarding, P., & Comijs, H. C. (2015). The association between depression and emotional and social loneliness in older persons and the influence of social support, cognitive functioning and personality: A cross-sectional study. *Journal of Affective Disorders*, *182*, 26–31. https://doi.org/10.1016/j.jad.2015.04.033

Peraud, W., Hebrard, L., Lavandier, A., Brockbanck-Chasey, S., Brennstuhl, M. J., & Quintard, B. (2022). French cross-cultural adaptation and validation of the International Trauma Questionnaire (ITQ) in a French community sample. *European Journal of Psychotraumatology*, *13*(2), 2152109. https://doi.org/10.1080/20008066.2022.2152109

Perkonigg, A., Höfler, M., Cloitre, M., Wittchen, H. U., Trautmann, S., & Maercker, A. (2016). Evidence for two different ICD-11 posttraumatic stress disorders in a community sample of adolescents and young adults. *European Archives of Psychiatry and Clinical Neuroscience*, *266*(4), 317-328 https://doi.org/10.1007/s00406-015-0639-4

Perrin, M., Vandeleur, C. L., Castelao, E., Rothen, S., Glaus, J., Vollenweider, P., & Preisig, M. (2014). Determinants of the development of post-traumatic stress disorder, in the general population. *Social Psychiatry and Psychiatric Epidemiology*, *49*, 447-457. https://doi.org/10.1007/s00127-013-0762-3

Pham, P. N., Weinstein, H. M., & Longman, T. (2004). Trauma and PTSD symptoms in Rwanda: implications for attitudes toward justice and reconciliation. *Jama*, *292*(5), 602-612. doi:10.1001/jama.292.5.602

Portney, L. G., & Watkins, M. P. (2009). Chapter 4: Principles of Measurement. *Foundations of Clinical Research: Applications to Practice* 892, pp. 11-15. Upper Saddle River, NJ: Pearson/Prentice Hall.

Possemato, K., Kuhn, E., Johnson, E., Hoffman, J. E., Owen, J. E., Kanuri, N., ... & Brooks, E. (2016). Using PTSD Coach in primary care with and without clinician support: a pilot randomized controlled trial. *General Hospital Psychiatry*, *38*, 94-98. https://doi.org/10.1016/j.genhosppsych.2015.09.005

Putnick, D. L., & Bornstein, M. H. (2016). Measurement invariance conventions and reporting: The state of the art and future directions for psychological research. *Developmental Review*, *41*, 71-90. https://doi.org/10.1016/j.dr.2016.06.004

Raykov, T. (1997). Scale reliability, Cronbach's coefficient alpha, and violations of essential tau-equivalence with fixed congeneric components. *Multivariate Behavioral Research*, *32*(4), 329-353. https://doi.org/10.1177/01466216970212006

Raykov, T., Dimitrov, D. M., & Asparouhov, T. (2010). Evaluation of scale reliability with binary measures using latent variable modelling. *Structural Equation Modelling: A Multidisciplinary Journal*, *17*(2), 265-279. https://doi.org/10.1080/10705511003659417

Redican, E., Hyland, P., Cloitre, M., McBride, O., Karatzias, T., Murphy, J., ... & Shevlin, M. (2022). Prevalence and predictors of ICD-11 posttraumatic stress disorder and complex PTSD in young people. *Acta Psychiatrica Scandinavica*, *146*(2), 110-125. https://doi.org/10.1111/acps.13442

Redican, E., Nolan, E., Hyland, P., Cloitre, M., McBride, O., Karatzias, T., ... & Shevlin, M. (2021). A systematic literature review of factor analytic and mixture models of ICD-11 PTSD and CPTSD using the International Trauma Questionnaire. *Journal of Anxiety Disorders*, *79*, 102381. https://doi.org/10.1016/j.janxdis.2021.102381

Resick, P. A., Bovin, M. J., Calloway, A. L., Dick, A. M., King, M. W., Mitchell, K. S., ... & Wolf, E. J. (2012). A critical evaluation of the complex PTSD literature: Implications for DSM-5. *Journal of Traumatic Stress*, *25*(3), 241-251.

Reynolds, K., Pietrzak, R. H., Mackenzie, C. S., Chou, K. L., & Sareen, J. (2016). Posttraumatic stress disorder across the adult lifespan: Findings from a nationally representative survey. *The American Journal of Geriatric Psychiatry*, *24*(1), 81-93. https://doi.org/10.1016/j.jagp.2015.11.001

Reynolds, K., Pietrzak, R. H., Mackenzie, C. S., Chou, K. L., & Sareen, J. (2016). Post-Traumatic Stress Disorder Across the Adult Lifespan: Findings From a Nationally Representative Survey. *The American Journal of Geriatric Psychiatry*, 24(1), 81-93. https://doi.org/https://doi.org/10.1016/j.jagp.2015.11.001

Rieder, H., & Elbert, T. (2013). Rwanda–lasting imprints of a genocide: trauma, mental health and psychosocial conditions in survivors, former prisoners and their children. *Conflict and Health*, *7*(1), 1-13. https://doi.org/10.1186/1752-1505-7-6

Rink, J., & Lipinska, G. (2020). Evidence of distinct profiles of ICD-11 post-traumatic stress disorder (PTSD) and complex PTSD in a South African sample. *European Journal of Psychotraumatology*, *11*(1), 1818965. https://doi.org/10.1080/20008198.2020.1818965

Roberts, B., Makhashvili, N., Javakhishvili, J., Karachevskyy, A., Kharchenko, N., Shpiker, M., & Richardson, E. (2019). Mental health care utilisation among internally displaced persons in Ukraine: results from a nation-wide survey. *Epidemiology and Psychiatric Sciences*, *28*(1), 100-111. https://doi.org/10.1017/S2045796017000385

Roger, D., Jarvis, G., & Najarian, B. (1993). Detachment and coping: The construction and validation of a new scale for measuring coping strategies. *Personality and Individual Differences*, 15(6), 619-626. https://doi.org/10.1016/0191-8869(93)90003-L

Rollin, H. (1990). "Traumatic neuroses". *The British Journal of Psychiatry*, 157(6), 939-939. https://doi.org/10.1192/S0007125000047711

Saxon, L., Makhashvili, N., Chikovani, I., Seguin, M., McKee, M., Patel, V., ... & Roberts, B. (2017). Coping strategies and mental health outcomes of conflict-affected persons in the Republic of Georgia. *Epidemiology and Psychiatric Sciences*, 26(3), 276-286. https://doi.org/10.1017/S2045796016000019

Schilpzand, E. J., Sciberras, E., Alisic, E., Efron, D., Hazell, P., Jongeling, B., ... & Nicholson, J. M. (2018). Trauma exposure in children with and without ADHD: prevalence and functional impairment in a community-based study of 6–8-year-old Australian children. *European Child & Adolescent Psychiatry*, *27*, 811-819. https://doi.org/10.1007/s00787-017-1067-y

Schnyder, U. (2023). Longitudinal development of symptoms and staging in psychiatry and clinical psychology: a tribute to Giovanni Fava. *Psychotherapy and Psychosomatics*, *92*(1), 4-8. https://doi.org/10.1159/000527462

Schwarz, G. (1978). Estimating the dimension of a model. *The Annals of Statistics*, *6*(2), 461–464. https://doi.org/10.1214/aos/1176344136

Sclove, S. L. (1987). Application of model-selection criteria to some problems in multivariate analysis. *Psychometrika*, *52*(3), 333–343. https://doi.org/10.1007/BF02294360

Scott, W. J. (1990). PTSD in DSM-III: A case in the politics of diagnosis and disease. *Social Problems, 37*(3), 294–310. https://doi.org/10.2307/800744

Seguin, M., & Roberts, B. (2017). Coping strategies among conflict-affected adults in low- and middle-income countries: A systematic literature review. *Global Public Health, 12*(7), 811-829. https://doi.org/10.1080/17441692.2015.1107117

Sele, P., Hoffart, A., Bækkelund, H., & Øktedalen, T. (2020). Psychometric properties of the International Trauma Questionnaire (ITQ) examined in a Norwegian trauma-exposed clinical sample. *European Journal of Psychotraumatology*, *11*(1), 1796187. https://doi.org/10.1080/20008198.2020.1796187

Shevlin, M., Hyland, P., & Karatzias, T. (2022). The psychological consequences of the Ukraine war: What we know, and what we have to learn. *Acta Psychiatrica Scandinavica, 146*(2). https://doi.org/10.1111/acps.13466

Shevlin, M., Hyland, P., Vallières, F., Bisson, J., Makhashvili, N., Javakhishvili, J., ... & Roberts, B. (2018). A comparison of DSM-5 and ICD-11 PTSD prevalence, comorbidity and disability: An analysis of the Ukrainian Internally Displaced Person's Mental Health Survey. *Acta Psychiatrica Scandinavica, 137*(2), 138-147. doi: 10.1111/acps.12840.

Shevlin, M., McElroy, E., & Murphy, J. (2015). Loneliness mediates the relationship between childhood trauma and adult psychopathology: evidence from the adult psychiatric morbidity survey. *Social Psychiatry and Psychiatric Epidemiology*, *50*(4), 591–601. https://doi.org/10.1007/s00127-014-0951-8

Shiraev, E. B., & Levy, D. A. (2020). *Cross-cultural psychology: Critical thinking and contemporary applications*. Routledge.

Silove, D., Tay, A. K., Kareth, M., & Rees, S. (2017). The relationship of complex post-traumatic stress disorder and post-traumatic stress disorder in a culturally distinct, conflict-affected population: A study among West Papuan refugees displaced to Papua New Guinea. *Frontiers in Psychiatry*, *8*, 73. https://doi.org/10.3389/fpsyt.2017.00073

Solberg, M. A., Gridley, M. K., & Peters, R. M. (2022). The factor structure of the Brief Cope: a systematic review. *Western Journal of Nursing Research, 44*(6), 612-627. https://doi.org/10.1177/01939459211012044

Somma, A., Maffei, C., Borroni, S., Gialdi, G., & Fossati, A. (2019). Post traumatic reactions as individual differences: Latent structure analysis of the international

trauma questionnaire in Italian trauma-exposed and non-trauma exposed adults. *Mediterranean Journal of Clinical* Psychology, *7*(1). https://doi.org/10.6092/2282-1619/2019.7.2058

Spencer, A. E., Faraone, S. V., Bogucki, O. E., Pope, A. L., Uchida, M., Milad, M. R., ... & Biederman, J. (2016). Examining the association between posttraumatic stress disorder and attention-deficit/hyperactivity disorder: a systematic review and meta-analysis. *The Journal of Clinical Psychiatry*, *77*(1), 6862. DOI: 10.4088/jcp.14r09479

Spikol, E., McBride, O., Vallières, F., Butter, S., & Hyland, P. (2021). Tracking the Irish adult population during the first year of the COVID-19 pandemic: A methodological report of the COVID-19 psychological research consortium (C19PRC) study in Ireland. *Acta Psychologica*, *220*, 103416. https://doi.org/10.1016/j.actpsy.2021.103416

Stammel, N., Abbing, E. M., Heeke, C., & Knaevelsrud, C. (2015). Applicability of the ICD-11 proposal for PTSD: a comparison of prevalence and comorbidity rates with the DSM-IV PTSD classification in two post-conflict samples. *European Journal of Psychotraumatology*, *6*(1), 27070. https://doi.org/10.3402/ejpt.v6.27070

Stanley, I. H., Rogers, M. L., Hanson, J. E., Gutierrez, P. M., & Joiner, T. E. (2019). PTSD symptom clusters and suicide attempts among high-risk military service members: A three-month prospective investigation. *Journal of Consulting and Clinical Psychology*, *87*(1), 67-78. https://doi.org/10.1037/ccp0000350

Steiger, J. H. (1980). Statistically based tests for the number of common factors. In *Paper presented at the Annual Meeting of the Psychometric Society*, Iowa Cyty, 1980.

Steine, I. M., Winje, D., Krystal, J. H., Bjorvatn, B., Milde, A. M., Grønli, J., ... & Pallesen, S. (2017). Cumulative childhood maltreatment and its dose-response relation with adult symptomatology: Findings in a sample of adult survivors of sexual abuse. *Child Abuse & Neglect*, *65*, 99-111. https://doi.org/10.1016/j.chiabu.2017.01.008

Strelau, J., & Zawadzki, B. (2005). Trauma and temperament as predictors of intensity of posttraumatic stress disorder symptoms after disaster. *European Psychologist*, *10*(2), 124-135. https://doi.org/10.1027/1016-9040.10.2.124

Tabb, L. P., Rich, J. A., Waite, D., Alberto, C., Harris, E., Gardner, J., ... & Corbin, T. J. (2022). Examining associations between adverse childhood experiences and

posttraumatic stress disorder symptoms among young survivors of urban violence. *Journal of Urban Health, 99*(4), 669-679. https://doi.org/10.1007/s11524-022-00628-4

Tasca, C., Rapetti, M., Carta, M. G., & Fadda, B. (2012). Women and hysteria in the history of mental health. *Clinical Practice and Epidemiology in Mental health: CP & EMH, 8*, 110-119. https://doi.org/10.2174/1745017901208010110

Teicher, M. H., & Samson, J. A. (2016). Annual research review: enduring neurobiological effects of childhood abuse and neglect. *Journal of Child Psychology and Psychiatry, 57*(3), 241-266. https://doi.org/10.1111/jcpp.12507

Tolin, D. F., & Foa, E. B. (2006). Sex differences in trauma and posttraumatic stress disorder: A quantitative review of 25 years of research. Psychological Bulletin, *132*(6), 959-992. https://doi.org/10.1037/0033-2909.132.6.959

Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika, 38*(1), 1-10. https://doi.org/10.1007/BF02291170

Vallières, F., Ceannt, R., Daccache, F., Abou Daher, R., Sleiman, J., Gilmore, B., Byrne, S., Shevlin, M., Murphy, J., & Hyland, P. (2018). ICD-11 PTSD and complex PTSD amongst Syrian refugees in Lebanon: the factor structure and the clinical utility of the International Trauma Questionnaire. *Acta Psychiatrica Scandinavica, 138*(6), 547–557. https://doi.org/10.1111/acps.12973

Van Ameringen, M., Mancini, C., Patterson, B., & Boyle, M. H. (2008). Post-traumatic stress disorder in Canada. *CNS Neuroscience & Therapeutics, 14*(3), 171-181. https://doi.org/10.1111/j.1755-5949.2008.00049.x

Van der Kolk, B. (2022). Posttraumatic stress disorder and the nature of trauma. *Dialogues in Clinical Neuroscience*. 2(1), 7-22. https://doi.org/10.31887/DCNS.2000.2.1/bvdkolk

van der Kolk, B. A. (2007). *The history of trauma in psychiatry*. In M. J. Friedman, T. M. Keane, & P. A. Resick (Eds.), *Handbook of PTSD: Science and practice* (pp. 19–36). The Guilford Press.

van der Kolk, B. A., & van der Hart, O. (1989). Pierre Janet and the breakdown of adaptation in psychological trauma. *The American Journal of Psychiatry, 146*(12), 1530–1540. https://doi.org/10.1176/ajp.146.12.1530

Van der Kolk, B. A., McFarlane, A. C., & Weisaeth, L. (Eds.). (2012). *Traumatic stress: The effects of overwhelming experience on mind, body, and society*. Guilford Press.

van der Kolk, B.A., Roth, S., Pelcovitz, D., Sunday, S. and Spinazzola, J. (2005), Disorders of extreme stress: The empirical foundation of a complex adaptation to trauma. *Journal of Traumatic Stress*, *18*: 389-399. https://doi.org/10.1002/jts.20047

Van der Velden, P. G., Pijnappel, B., & van der Meulen, E. (2018). Potentially traumatic events have negative and positive effects on loneliness, depending on PTSD-symptom levels: evidence from a population-based prospective comparative study. *Social Psychiatry and Psychiatric Epidemiology*, *53*, 195-206. https://doi.org/10.1007/s00127-017-1476-8

van Straten, A., van der Zweerde, T., Kleiboer, A., Cuijpers, P., Morin, C. M., & Lancee, J. (2018). Cognitive and behavioral therapies in the treatment of insomnia: A meta-analysis. *Sleep Medicine Reviews*, *38*, 3–16. https://doi.org/10.1016/j.smrv.2017.02.001

Vang, M. L., Dokkedahl, S. B., Løkkegaard, S. S., Jakobsen,A. V., Møller, L., Auning-Hansen, M. A., & Elklit, A.(2021). Validation of ICD-11 PTSD and DSO using the International Trauma Questionnaire in five clinical samples recruited in Denmark. *European Journal of Psychotraumatology* ,*12*(1), 1894806. https://doi.org/10.1080/20008198.2021.1894806

Weathers, F. W., Blake, D. D., Schnurr, P. P., Kaloupek, D. G., Marx, B. P., & Keane, T. M. (2013). *The life events checklist for DSM-5 (LEC-5)*. Instrument available from the National Center for PTSD at http://www.ptsd.va.gov

Weisaeth, L. (2002). The European history of psychotraumatology. *Journal of Traumatic Stress*, *15*(6), 443–452. https://doi.org/10.1023/A:1020909620364

World Health Organisation (2022). ICD-11 for mortality and morbidity statistics, (version: 02/2022)

World Health Organization. (2018). International statistical classification of diseases and related health problems (11th Revision). https://icd.who.int/browse11/l-m/en

World Health Organization. (2019). *International statistical classification of diseases and related health problems* (11th ed.). https://icd.who.int/

Xue, C., Ge, Y., Tang, B., Liu, Y., Kang, P., Wang, M., & Zhang, L. (2015). A meta-analysis of risk factors for combat-related PTSD among military personnel and veterans. *PloS One*, *10*(3), e0120270. https://doi.org/10.1371/journal.pone.0120270

Yuan, K. H., & Bentler, P. M. (2000). 5. Three likelihood-based methods for mean and covariance structure analysis with nonnormal missing data. *Sociological Methodology*, *30*(1), 165-200. https://doi.org/10.1111/0081-1750.000

Zhang, N., Gao, M., Yu, J., Zhang, Q., Wang, W., Zhou, C., ... & Wang, J. (2022). Understanding the association between adverse childhood experiences and subsequent attention deficit hyperactivity disorder: A systematic review and meta-analysis of observational studies. *Brain and Behaviour*, *12*(10), e32748. https://doi.org/10.1002/brb3.2748

Zlotnick, C., Johnson, J., Kohn, R., Vicente, B., Rioseco, P., & Saldivia, S. (2006). Epidemiology of trauma, post-traumatic stress disorder (PTSD) and co-morbid disorders in Chile. *Psychological medicine*, *36*(11), 1523-1533. https://doi.org/10.1017/S0033291706008282

Supplementary table 2.1

Distribution of responses across the individual items of the ITQ. (N =1100)

	Not at all	A little bit	Moderately	Quite a bit	Extremely
ITQ					
1. Having upsetting dreams that replay part of the experience or are clearly related to the experience?	62.5%	19.1%	10.1%	5.8%	2.5%
2. Having powerful images or memories that sometimes come into your mind in which you feel the experience is happening again in the here and now?	60.6%	19.2%	11.5%	6.8%	1.9%
3. Avoiding internal reminders of the experience (for example, thoughts, feelings, or physical sensations)?	61.0%	18.3%	11.6%	6.4%	2.7%
4. Avoiding external reminders of the experience (for example, people, places, conversations, objects, activities, or situations)?	62.2%	17.3%	10.5%	6.8%	3.2%
5. Being “super-alert”, watchful, or on guard?	58.2%	19.2%	11.9%	7.7%	3.1%
6. Feeling jumpy or easily startled?	62.5%	17.3%	10.4%	7.0%	2.8%
7. When I am upset, it takes me a long time to calm down	37.8%	36.0%	14.0%	8.8%	3.3%
8. I feel numb or emotionally shut down	54.2%	22.1%	12.0%	8.2%	3.5%
9. I feel like a failure.	56.3%	20.3%	10.7%	7.8%	4.9%
10. I feel worthless.	60.7%	17.0%	10.7%	6.4%	5.1%
11. I feel distant or cut off from people.	50.4%	23.7%	11.6%	9.7%	4.6%
12. I find it hard to stay emotionally close to people.	53.5%	21.3%	13.3%	7.3%	4.6%

Supplementary table 2.2

Standardized factor loadings (and standard errors) for the MLR estimated higher-order model.

	RE	AV	TH	AD	NSC	DR
Factor loadings						
Nightmares	.84 (.02)					
Flashbacks	.91 (.01)					
Internal avoidance		.93 (.07)				
External avoidance		.89 (.01)				
Hypervigilance			.89 (.02)			
Startle response			.88 (.02)			
Difficulty calming down				.74 (.02)		
Feeling numb				.90 (.02)		
Failure					.94 (.01)	
Worthless					.95 (.01)	
Distant from others						.90 (.01)
Difficult to stay close to others						.85 (.02)
Second-order factor loadings	PTSD	DSO				
Re-experiencing	.95 (.01)					
Avoidance	.96 (.01)					
Sense of current threat	.90 (.02)					
Affective dysregulation		95 (.02)				

Negative self-concept	.92 (.01)
Disturbances in relationships	.97 (.01)

Note: All factor loadings are statistically significant ($p < .001$); RE = Re-experiencing in the here and now; AV = Avoidance; TH = Sense of current threat; AD = Affective dysregulation; NSC = Negative self-concept; DR = Disturbed relationships.

Supplementary table 2.3

Distribution of responses across the individual items of the ITEM. (N =1100)

	Yes	No
ITEM		
1. You were diagnosed with a life-threatening illness.	11.9%	88.1%
2. Someone close to you died in an awful manner.	75.7%	24.3%
3. Someone close to you was diagnosed with a life-threatening illness or experienced a life-threatening accident.	34.4%	65.6%
4. Someone threatened your life with a weapon (knife, gun, bomb etc.)	11.2%	88.8%
5. You were physically assaulted (punched, kicked, slapped, mugged, robbed etc.)	20.5%	79.5%
6. You were exposed to war or combat (as a soldier or as a civilian).	5.1%	94.9%
7. You were held captive and/or tortured.	5.0%	95.0%
8. You witnessed another person experiencing extreme suffering or death.	19.4%	80.6%
9. You were involved in an accident (e.g., transportation, work, home, leisure) where your life was in danger.	12.5%	87.5%
10. You were exposed to a natural disaster (e.g., hurricane, tsunami, earthquake) where your life was in danger.	4.2%	95.8%
11. You were exposed to a human-made disaster (e.g., terrorist attack, chemical spill, public shooting) where your life was in danger.	4.9%	95.1%
12. Another person stalked you	9.7%	90.3%
13. You were repeatedly bullied (online or offline)	20%	80%
14. You were humiliated, put down, or insulted by another person.	34.4%	65.6%
15. You were made to feel unloved, unwelcome, or worthless.	29.6%	70.4%
16. You were neglected, ignored, rejected, or isolated	26.4%	73.6%

Appendix A

INTERNATIONAL TRAUMA EXPOSURE MEASURE (ITEM)

OVERVIEW:

The ITEM is a checklist developed to measure exposure to traumatic life events in a manner consistent with the definition of trauma exposure in the 11th version of the International Classification of Diseases. The ITEM measures exposure to 21 different traumatic life events across different developmental periods: childhood, adolescence, and adulthood. The ITEM is freely available to all interested parties and may be used without permission.

Please note that the ITEM uses educational descriptors to aid respondents in accurately identifying the period of their life in which their trauma occurred. The educational descriptors used in this example are appropriate for the Irish context in which the scale was developed. *These descriptors should be amended for the context in which you wish to use the ITEM*. Additionally, user may wish to simply measure lifetime exposure, and in which case the developmental periods can be replaced with a lifetime measure.

THE REFERENCE for the measure is:

Hyland, P., Karatzias, T., Shevlin, M., McElroy, E., Ben-Ezra, M., Cloitre, M., & Brewin, C. R. (2021). Does requiring trauma exposure affect rates of ICD-11 PTSD and complex PTSD? Implications for *DSM–5*. *Psychological Trauma: Theory, Research, Practice, and Policy, 13*(2), 133–141. https://doi.org/10.1037/tra0000908

International Trauma Exposure Measure

Instructions: We are interested in knowing if you experienced any of the following traumatic life events during different periods of your life. Please read each description and indicate if it occurred during childhood, adolescence, and/or adulthood.

	Did this event happen…		
	before or during your time in primary school (up to age 12)	**during your time in secondary school** (between ages 13-18)	**after your time in secondary school** (after the age of 18)
1. You were diagnosed with a life-threatening illness.			
2. Someone close to you died in an awful manner.			
3. Someone close to you was diagnosed with a life-threatening illness or experienced a life-threatening accident.			
4. Someone threatened your life with a weapon (knife, gun, bomb etc.)			
5. You were physically assaulted (punched, kicked, slapped, mugged, robbed etc.) **by a parent or guardian**.			
6. You were physically assaulted (punched, kicked, slapped, mugged, robbed etc.) **by someone other than a parent or guardian**.			
7. You were sexually assaulted (rape, attempted rape, or forced sex acts) **by a parent or guardian**.			
8. You were sexually assaulted (rape, attempted rape, or forced sex acts) **by someone other than a parent or guardian**.			
9. You were sexually harassed (received other types of unwanted sexualized comments or behaviours).			
10. You were exposed to war or combat (as a soldier or as a civilian).			
11. You were held captive and/or tortured.			
12. You caused extreme suffering or death to another person.			

13. You witnessed another person experiencing extreme suffering or death.			
14. You were involved in an accident (e.g., transportation, work, home, leisure) where your life was in danger.			
15. You were exposed to a natural disaster (e.g., hurricane, tsunami, earthquake) where your life was in danger.			
16. You were exposed to a human-made disaster (e.g., terrorist attack, chemical spill, public shooting) where your life was in danger.			
17. Another person stalked you.			
18. You were repeatedly bullied (online or offline).			
19. You were repeatedly humiliated, put down, or insulted by another person.			
20. You were repeatedly made to feel unloved, unwelcome, or worthless.			
21. You were repeatedly neglected, ignored, rejected, or isolated.			
22. Any other event not listed (please specify). ----------			

1. Please tell us which event you found the most distressing by entering the number that corresponds to that event from the list above: _____

2. If you experienced this event more than once, please tell us approximately how many times you experienced this event? _____

3. How long ago did this event occur?
    - Less than one month ago □
    - 1-6 months ago □
    - 6-12 months ago □
    - 1-5 years ago □
    - 6-10 years ago □
    - More than 10 years ago □

Scoring instructions: The ITEM can be scored in multiple ways depending on one's goals.

- ✓ A total score for the number of different childhood traumatic events can be computed by summing all events that occurred 'up to the age of 12'.
- ✓ A total score for the number of different adolescent traumatic events can be computed by summing all events that occurred 'between ages 13-18'.
- ✓ A total score for the number of different adulthood traumatic events can be computed by summing all events that occurred 'after the age of 18'.

- ✓ Lifetime exposure to an event is indicated if a person experienced that event in any developmental period.
- ✓ A total score for the number of different lifetime trauma events can be computed by summing all events that occurred during any developmental period.

- ✓ Lifetime traumatic exposure is indicated if any event (ITEM1 – ITEM21) at any developmental is endorsed.

Appendix B

THE INTERNATIONAL TRAUMA QUESTIONNAIRE (ITQ)

OVERVIEW:
The attached instrument is a brief, simply worded measure, focusing only on the core features of PTSD and CPTSD, and employs straightforward diagnostic rules. The ITQ was developed to be consistent with the organizing principles of the ICD-11, as set forth by the World Health Organization, which are to maximize clinical utility and ensure international applicability through a focus on the core symptoms of a given disorder. The ITQ is freely available in the public domain to all interested parties. Evaluation of the measure continues particularly as it relates to the definition of functional impairment for both PTSD and CPTSD and possibly the content of the items as they might relate to being predictive of differential treatment outcome.

DIAGNOSTIC ALGORITHMS are as follows:
PTSD. A diagnosis of PTSD requires the endorsement of one of two symptoms from the symptom clusters of (1) re-experiencing in the here and now, (2) avoidance, and (3) sense of current threat, plus endorsement of at least one indicator of functional impairment associated with these symptoms. Endorsement of a symptom or functional impairment item is defined as a score $\geq$ 2.

CPTSD. A diagnosis of CPTSD requires the endorsement of one of two symptoms from each of the three PTSD symptoms clusters (re-experiencing in the here and now, avoidance, and sense of current threat) and one of two symptoms from each of the three Disturbances in Self-Organization (DSO) clusters: (1) affective dysregulation, (2) negative self-concept, and (3) disturbances in relationships. Functional impairment must be identified where at least one indicator of functional impairment is endorsed related to the PTSD symptoms and one indicator of functional impairment is endorsed related to the DSO symptoms. Endorsement of a symptom or functional impairment item is defined as a score $\geq$ 2.

An individual can receive either a diagnosis of PTSD or CPTSD, not both. If a person meets the criteria for CPTSD, that person does not also receive a PTSD diagnosis.

Scoring instructions are available at the end of this document.

THE REFERENCE for the measure is:
Cloitre, M., Shevlin M., Brewin, C.R., Bisson, J.I., Roberts, N.P., Maercker, A., Karatzias, T., Hyland, P. (2018). The International Trauma Questionnaire: Development of a self-report measure of ICD-11 PTSD and Complex PTSD. *Acta Psychiatrica Scandinavica. 138*(6), 536–546. https://doi.org/10.1111/acps.12956

BACKGROUND PUBLICATIONS:
Redican, E., Nolan, E., Hyland, P., Cloitre, M., McBride, O., Karatzias, T., Murphy, J., & Shevlin, M. (2021). A systematic literature review of factor analytic and mixture models of ICD-11 PTSD and CPTSD using the International Trauma Questionnaire. *Journal of Anxiety Disorders*, *79*, 102381. https://doi.org/10.1016/j.janxdis.2021.102381

Cloitre, M., Hyland, P., Prins, A., & Shevlin, M. (2021). The international trauma questionnaire (ITQ) measures reliable and clinically significant treatment-related change in PTSD and complex PTSD. *European Journal of Psychotraumatology, 12*(1), Article 1930961. https://doi.org/10.1080/20008198.2021.1930961

Brewin, C. R., Cloitre, M., Hyland, P., Shevlin, M., Maercker, A., Bryant, R. A., Humayun, A., Jones, L. M., Kagee, A., Rousseau, C., Somasundaram, D., Suzuki, Y., Wessely, S., van Ommeren, M., & Reed, G. M. (2017). A review of current evidence regarding the ICD-11 proposals for diagnosing PTSD and complex PTSD. *Clinical Psychology Review*, *58*, 1–15. https://doi.org/10.1016/j.cpr.2017.09.001

Shevlin, M., Hyland, P., Roberts, N. P., Bisson, J. I., Brewin, C.R. & Cloitre M. (2018). A psychometric assessment of Disturbances in Self-Organization symptom indicators for ICD-11 Complex PTSD using the International Trauma Questionnaire, *European Journal of Psychotraumatology*, 9:1, DOI: 10.1080/20008198.2017.1419749

International Trauma Questionnaire

Instructions: Please identify the experience that troubles you most and answer the questions in relation to this experience.

Brief description of the experience _____

When did the experience occur? (circle one)

a. less than 6 months ago
b. 6 to 12 months ago
c. 1 to 5 years ago
d. 5 to 10 years ago
e. 10 to 20 years ago
f. more than 20 years ago

Below are a number of problems that people sometimes report in response to traumatic or stressful life events. Please read each item carefully, then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

	Not at all	*A little bit*	*Moderately*	*Quite a bit*	*Extremely*
P1. Having upsetting dreams that replay part of the experience or are clearly related to the experience?	0	1	2	3	4
P2. Having powerful images or memories that sometimes come into your mind in which you feel the experience is happening again in the here and now?	0	1	2	3	4
P3. Avoiding internal reminders of the experience (for example, thoughts, feelings, or physical sensations)?	0	1	2	3	4
P4. Avoiding external reminders of the experience (for example, people, places, conversations, objects, activities, or situations)?	0	1	2	3	4
P5. Being "super-alert", watchful, or on guard?	0	1	2	3	4
P6. Feeling jumpy or easily startled?	0	1	2	3	4

In the past month have the above problems:

P7. Affected your relationships or social life?	0	1	2	3	4
P8. Affected your work or ability to work?	0	1	2	3	4
P9. Affected any other important part of your life such as parenting, or school or college work, or other important activities?	0	1	2	3	4

Below are problems that people who have had stressful or traumatic events sometimes experience. The questions refer to ways you typically feel, ways you typically think about yourself and ways you typically relate to others. Answer the following thinking about how true each statement is of you.

How true is this of you?	***Not at all***	***A little bit***	***Moderately***	***Quit a bit***	***Extremely***
C1. When I am upset, it takes me a long time to calm down.	0	1	2	3	4
C2. I feel numb or emotionally shut down.	0	1	2	3	4
C3. I feel like a failure.	0	1	2	3	4
C4. I feel worthless.	0	1	2	3	4
C5. I feel distant or cut off from people.	0	1	2	3	4
C6. I find it hard to stay emotionally close to people.	0	1	2	3	4
In the past month, have the above problems in emotions, in beliefs about yourself and in relationships:					
C7. Created concern or distress about your relationships or social life?	0	1	2	3	4
C8. Affected your work or ability to work?	0	1	2	3	4
C9. Affected any other important parts of your life such as parenting, or school or college work, or other important activities?	0	1	2	3	4

Appendix C

UCLA 3-Item Loneliness Scale

When answering the questions, you could take account of the following:

• There are no right or wrong answers

• We would like you to be completely honest

• In answering the questions it is best to think of your life as it generally is now (we all have some good or bad days)

Questions

1. How often do you feel that you lack companionship?

Hardly ever		1
Some of the time		2
Often		3

2. How often do you feel left out?

Hardly ever		1
Some of the time		2
Often		3

3. How often do you feel isolated from others?

Hardly ever		1
Some of the time		2
Often		3

The scores for each individual question can be added together to give you a possible range of scores from 3 to 9. Researchers in the past have grouped people who score 3 – 5 as "not lonely" and people with the score 6 – 9 as "lonely".

Appendix D

The eight-item modified Medical Outcomes Study Social Support Survey (mMOS-SS) of the MOS-SS [13,27]. The mMOS-SS has two subscales covering two domains (emotional and instrumental [tangible] social support) composed of four items each designed to maintain the theoretical structure of the MOS-SS and identify potentially modifiable social support deficits. Participants answer using five possible responses according to a five-point Likert scale: 0 (“never”); 1 (“seldom”);2 (“sometimes”); 3 (“almost always”) and 4(“always”). It is assumed that higher indices for the total score forthe respective factors indicate greater perceived support. It should be stressed that, for the sum of the total score, it is not necessary to invert any of the items (Zanini et al., 2009)

Individual items	*If you needed it, how often is someone available...*
Item 1	to help you if you were confined to bed?
Item 2	to take you to the doctor if you need it?
Item 3	to prepare your meals if you are unable to do it yourself?
Item 4	to help with daily chores if you were sick?
Item 5	to have a good time with?
Item 6	to turn to for suggestions about how to deal with a personal problem?
Item 7	who understands your problems?
Item 8	to love and make you feel wanted?

Appendix E

Appendix: The Sleep Condition Indicator

Item	Score 4	3	2	1	0
Thinking about a typical night in the last month ... 1. ... how long does it take you to fall asleep?	0 – 15 min	16 – 30 min	31 – 45 min	46 – 60 min	≥ 61 min
2. ... if you then wake up during the night ... how long are you awake for in total? (add all the wakenings up)	0 – 15 min	16 – 30 min	31 – 45 min	46 – 60 min	≥ 61 min
3. ... how many nights a week do you have a problem with your sleep?	0 - 1	2	3	4	5 - 7
4. ... how would you rate your sleep quality?	Very good	Good	Average	Poor	Very poor
Thinking about the past month, to what extent has poor sleep ... 5. ... affected your mood, energy, or relationships?	Not at all	A little	Somewhat	Much	Very much
6. ... affected your concentration, productivity, or ability to stay awake	Not at all	A little	Somewhat	Much	Very much
7. ... troubled you in general	Not at all	A little	Somewhat	Much	Very much
Finally ... 8. ... how long have you had a problem with your sleep?	I don't have a problem / < 1 mo	1 – 2 mo	3 – 6 mo	7 – 12 mo	> 1 yr

Scoring instructions:

a. Add the item scores to obtain the SCI total (minimum 0, maximum 32)
b. A higher score means better sleep
c. Scores can be converted to 0 – 10 format (minimum 0, maximum 10) by dividing total by 3.
d. Item scores in grey area represent threshold criteria for Insomnia Disorder

Appendix F

Adult ADHD Self-Report Scale (ASRS-v1.1) Symptom Checklist Instructions

The questions on the back page are designed to stimulate dialogue between you and your patients and to help confirm if they may be suffering from the symptoms of attention-deficit/hyperactivity disorder (ADHD).

Description: The Symptom Checklist is an instrument consisting of the eighteen DSM-IV-TR criteria.
Six of the eighteen questions were found to be the most predictive of symptoms consistent with ADHD. These six questions are the basis for the ASRS v1.1 Screener and are also Part A of the Symptom Checklist. Part B of the Symptom Checklist contains the remaining twelve questions.

Instructions:

Symptoms

1. Ask the patient to complete both Part A and Part B of the Symptom Checklist by marking an X in the box that most closely represents the frequency of occurrence of each of the symptoms.

2. Score Part A. If four or more marks appear in the darkly shaded boxes within Part A then the patient has symptoms highly consistent with ADHD in adults and further investigation is warranted.

3. The frequency scores on Part B provide additional cues and can serve as further probes into the patient's symptoms. Pay particular attention to marks appearing in the dark shaded boxes. The frequency-based response is more sensitive with certain questions. No total score or diagnostic likelihood is utilized for the twelve questions. It has been found that the six questions in Part A are the most predictive of the disorder and are best for use as a screening instrument.

Impairments

1. Review the entire Symptom Checklist with your patients and evaluate the level of impairment associated with the symptom.

2. Consider work/school, social and family settings.

3. Symptom frequency is often associated with symptom severity, therefore the Symptom Checklist may also aid in the assessment of impairments. If your patients have frequent symptoms, you may want to ask them to describe how these problems have affected the ability to work, take care of things at home, or get along with other people such as their spouse/significant other.

History

1. Assess the presence of these symptoms or similar symptoms in childhood. Adults who have ADHD need not have been formally diagnosed in childhood. In evaluating a patient's history, look for evidence of early-appearing and long-standing problems with attention or self-control. Some significant symptoms should have been present in childhood, but full symptomology is not necessary.

scale on the right side of the page. As you answer each question, place an X in the box that

Patient Name		Today's Date					
Please answer the questions below, rating yourself on each of the criteria shown using the best describes how you have felt and conducted yourself over the past 6 months. Please give this completed checklist to your healthcare professional to discuss during today's appointment.			Never	Rarely	Sometimes	Often	Very Often
1. How often do you have trouble wrapping up the final details of a project, once the challenging parts have been done?							
2. How often do you have difficulty getting things in order when you have to do a task that requires organization?							
3. How often do you have problems remembering appointments or obligations?							
4. When you have a task that requires a lot of thought, how often do you avoid or delay getting started?							
5. How often do you fidget or squirm with your hands or feet when you have to sit down for a long time?							
6. How often do you feel overly active and compelled to do things, like you were driven by a motor?							
							Part A
7. How often do you make careless mistakes when you have to work on a boring or difficult project?							
8. How often do you have difficulty keeping your attention when you are doing boring or repetitive work?							
9. How often do you have difficulty concentrating on what people say to you, even when they are speaking to you directly?							
10. How often do you misplace or have difficulty finding things at home or at work?							
11. How often are you distracted by activity or noise around you?							
12. How often do you leave your seat in meetings or other situations in which you are expected to remain seated?							
13. How often do you feel restless or fidgety?							
14. How often do you have difficulty unwinding and relaxing when you have time to yourself?							
15. How often do you find yourself talking too much when you are in social situations?							
16. When you're in a conversation, how often do you find yourself finishing the sentences of the people you are talking to, before they can finish them themselves?							
17. How often do you have difficulty waiting your turn in situations when turn taking is required?							
18. How often do you interrupt others when they are busy?							
							Part B

Adult ADHD Self-Report Scale (ASRS-v1.1) Symptom Checklist

The Value of Screening for Adults With ADHD

Research suggests that the symptoms of ADHD can persist into adulthood, having a significant impact on the relationships, careers, and even the personal safety of your patients who may suffer from it.[1-4] Because this disorder is often misunderstood, many people who have it do not receive appropriate treatment and, as a result, may never reach their full potential. Part of the problem is that it can be difficult to diagnose, particularly in adults.

The Adult ADHD Self-Report Scale (ASRS-v1.1) Symptom Checklist was developed in conjunction with the World Health Organization (WHO), and the Workgroup on Adult ADHD that included the following team of psychiatrists and researchers:

- **Lenard Adler, MD**
  Associate Professor of Psychiatry and Neurology
  New York University Medical School

- **Ronald C. Kessler, PhD**
  Professor, Department of Health Care Policy
  Harvard Medical School

- **Thomas Spencer, MD**
  Associate Professor of Psychiatry
  Harvard Medical School

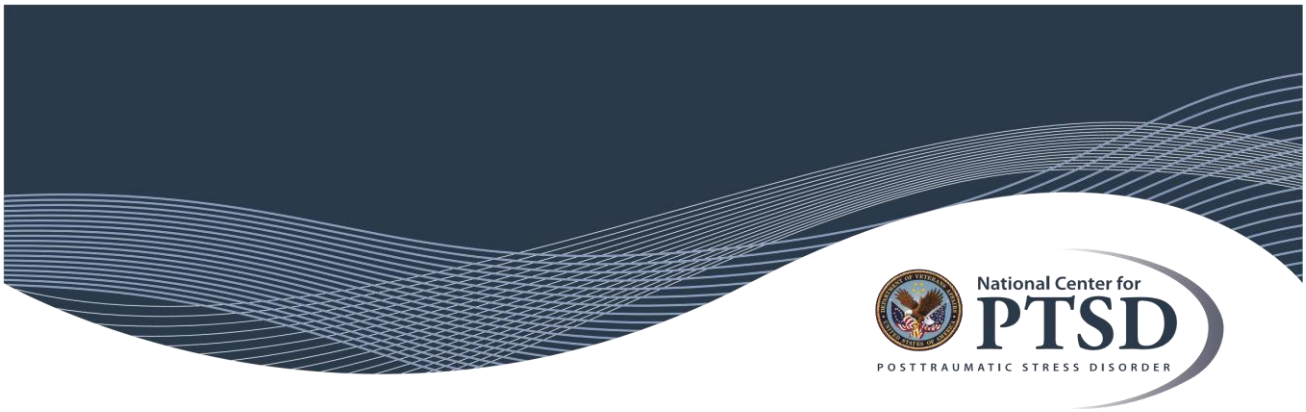
As a healthcare professional, you can use the ASRS v1.1 as a tool to help screen for ADHD in adult patients. Insights gained through this screening may suggest the need for a more in-depth clinician interview. The questions in the ASRS v1.1 are consistent with DSM-IV criteria and address the manifestations of ADHD symptoms in adults. Content of the questionnaire also reflects the importance that DSM-IV places on symptoms, impairments, and history for a correct diagnosis.[4]

The checklist takes about 5 minutes to complete and can provide information that is critical to supplement the diagnostic process.

References:

1. Schweitzer JB, et al. Med Clin North Am. 2001;85(3):10-11, 757-777.
2. Barkley RA. Attention Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment. 2nd ed. 1998.
3. Biederman J, et al. Am J Psychiatry.1993;150:1792-1798.
4. American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision. Washington, DC, American Psychiatric Association. 2000: 85-93.

Appendix G



Life Events Checklist for *DSM-5* (LEC-5)

Standard Version

Version date: 12 April 2018

Reference: Weathers, F. W., Blake, D. D., Schnurr, P. P., Kaloupek, D. G., Marx, B. P., &

Keane, T. M. (2013). *The Life Events Checklist for DSM-5 (LEC-5) – Standard.* [Measurement instrument].
Available from https://www.ptsd.va.gov/

URL: https://www.ptsd.va.gov/professional/assessment/te-measures/life_events_checklist.asp

LEC-5 Standard

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

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

Event	Happened to me	Witnessed it	Learned about it	Part of my job	Not sure	Doesn't apply
1. Natural disaster (for example, flood, hurricane, tornado, earthquake)						
2. Fire or explosion						
3. Transportation accident (for example, car accident, boat accident, train wreck, plane crash)						
4. Serious accident at work, home, or during recreational activity						
5. Exposure to toxic substance (for example, dangerous chemicals, radiation)						
6. Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)						
7. Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)						
8. Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)						
9. Other unwanted or uncomfortable sexual experience						

10. Combat or exposure to a war-zone (in the military or as a civilian)						
11. Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)						
12. Life-threatening illness or injury						
13. Severe human suffering						
14. Sudden violent death (for example, homicide, suicide)						
15. Sudden accidental death						
16. Serious injury, harm, or death you caused to someone else						
17. Any other very stressful event or experience						

Appendix H

Brief - Coping Orientation to Problems Experienced Inventory (Brief-COPE)

Instructions:

The following questions ask how you have sought to cope with a hardship in your life. Read the statements and indicate how much you have been using each coping style.

		I haven't been doing this at all	A little bit	A medium amount	I've been doing this a lot
1	I've been turning to work or other activities to take my mind off things.	**1**	**2**	**3**	**4**
2	I've been concentrating my efforts on doing something about the situation I'm in.	**1**	**2**	**3**	**4**
3	I've been saying to myself "this isn't real".	**1**	**2**	**3**	**4**
4	I've been using alcohol or other drugs to make myself feel better	**1**	**2**	**3**	**4**
5	I've been getting emotional support from others.	**1**	**2**	**3**	**4**
6	I've been giving up trying to deal with it.	**1**	**2**	**3**	**4**
7	I've been taking action to try to make the situation better.	**1**	**2**	**3**	**4**
8	I've been refusing to believe that it has happened.	**1**	**2**	**3**	**4**
9	I've been saying things to let my unpleasant feelings escape.	**1**	**2**	**3**	**4**
10	I've been getting help and advice from other people.	**1**	**2**	**3**	**4**
11	I've been using alcohol or other drugs to help me get through it.	**1**	**2**	**3**	**4**
12	I've been trying to see it in a different light, to make it seem more positive.	**1**	**2**	**3**	**4**
13					
14					

15	I've been criticizing myself.	**1**	**2**	**3**	**4**
16	I've been trying to come up with a strategy about what to do.	**1**	**2**	**3**	**4**
	I've been getting comfort and understanding from someone.	**1**	**2**	**3**	**4**
	I've been giving up the attempt to cope.	**1**	**2**	**3**	**4**
		I haven't been doing this at all	A little bit	A medium amount	I've been doing. this a lot
	I've been looking for something good in what is happening.	**1**	**2**	**3**	**4**
17	I've been making jokes about it.	**1**	**2**	**3**	**4**
18	I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	**1**	**2**	**3**	**4**
19	I've been accepting the reality of the fact that it has happened.	**1**	**2**	**3**	**4**
20	I've been expressing my negative feelings.	**1**	**2**	**3**	**4**
21	I've been trying to find comfort in my religion or spiritual beliefs.	**1**	**2**	**3**	**4**
22	I've been trying to get advice or help from other people about what to do.	**1**	**2**	**3**	**4**
23	I've been learning to live with it.	**1**	**2**	**3**	**4**
24	I've been thinking hard about what steps to take.	**1**	**2**	**3**	**4**
25	I've been blaming myself for things that happened	**1**	**2**	**3**	**4**
26	I've been praying or meditating	**1**	**2**	**3**	**4**
27	I've been making fun of the situation.	**1**	**2**	**3**	**4**
28					

Developer Reference:

Carver, C. S. (1997). You want to measure coping but your protocol is too long: Consider the brief cope. International journal of behavioral medicine, 4(1), 92-100.