

Epidemiologic Studies on the Development of PTSD, PTSD Measures and Future Directions



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Introduction

The exposure to physical and emotional trauma has long been associated with psychiatric injury [1,2]. Posttraumatic stress disorder (PTSD) occurs following some form of trauma and was first defined in the DSM-III (APA, 1980) used to describe a specific pattern of symptomatic distress characteristics by intrusive distressing recollections of the traumatic event. According to the National Institute of Mental Health (2016), PTSD is a mental disorder that develops as a response from the traumatic event. The American Psychiatric Association (1994) defines PTSD using three symptom clusters: arousal, avoidance and numbing, and experiencing.

However, not every person who is exposed to trauma or a traumatic event develops chronic or acute forms of PTSD. Epidemiologic research on PTSD finds that although a large proportion of Americans will be exposed to a traumatic event in their lives, only a fraction of those exposed will develop PTSD [3]. With a general population lifetime prevalence rate of 8% and costing Americans over \$3 billion USD per year [4], PTSD continues to be an important public health crisis. Furthermore, the ethnic/racial disparity between the prevalence of exposure to a traumatic event and the prevalence of PTSD has lead researchers to search for the true risk factors for PTSD among those exposed.

Typology of epidemiologic studies

Currently, there are roughly five different types of epidemiological studies that have been conducted in search of the effects of true trauma risk factors: specific traumatic events, specific occupational groups, victims of specific events, stratified population samples, and prospective population samples [5]. A specific traumatic event focuses on explicit disasters like fires, earthquakes, and hurricanes. These studies provide an insight into the impact of the gradients of exposure and socio-psychological factors as critical determinants of prevalence of PTSD. Specific occupational studies focus on the occupational hazards individuals face and the resultant prevalence of psychiatric morbidity that emerges from jobs like emergency responders and military

service members [5]. The third body of research that has played a continuing role in pursuing the PTSD from specific or isolated events. These studies focus on small-scale traumatic events like vehicle accidents and sexual or physical abuse. These studies contribute insight to the role of culture and social dislocation in the onset of a disorder [6].

The fourth types of studies focus on stratified population sample studies used to examine the prevalence of psychiatric morbidity and psychopathology. Finally, prospective population studies attempt to try and clarify the role of traumatic events with other risk factors like substance abuse. Epidemiological research has tried to illuminate the controversy about the impact of a traumatic event [5]. According to the DSM-V (2013), PTSD follows a traumatic experience that is, "outside the range of normal human experience" [7]. This assumption raises from the idea that trauma at the community level, extreme violence are isolated experiences within the community.

Furthermore, there has been no systematic attempt to define the prevalence of 'trauma' in the broader sense. However, according to the National Comorbidity Study, their compiled list of events that may precipitate PTSD found that 41.2% of women and 61% of men had been exposed to traumatic events [4]. Similarly, Creamer & colleagues [8] found that 49.5% of women and 64.6% of men having experienced at least one event. However, as indicated before, experiencing trauma is not fully indicative of developing PTSD. Moreover, the probability of developing PTSD has been shown to depend on the nature of the trauma experienced. According to the NCS, high prevalence of PTSD was associated with rape victims and individuals experiencing combat or physical abuse [9]. Their report found that approximately 65% of men and 46% of women, who have been raped, fit the criteria clusters for a PTSD diagnosis. Furthermore, 40% of men experiencing combat and 22% experiencing physical abuse qualified for a diagnosis of PTSD.

In addition, 50% of women experiencing physical abuse or being threatened also fit the qualifications for a diagnosis [9].

In terms of the prevalence of PTSD, the NCS replication study, conducted between 2001 and 2003, and using the DSM-IV criteria, Kessler and colleagues [9] found that lifetime prevalence of PTSD to be 6.8%. These are similar to the previous NCS study which showed that lifetime prevalence of PTSD was 7.8%. Furthermore, women (10.4%) were more than twice as likely as men (5%) to have PTSD at some point in their lives [9].

In contrast to adult PTSD, to date, there is no population-based epidemiologic study examining the prevalence rate of PTSD amongst children. However, there are studies examining the prevalence of PTSD amongst children who have experienced a traumatic event [10]. Prevalence rates greatly vary; however, the majority of these studies show that children exposed to traumatic events may have higher prevalence to PTSD than adults (5). Furthermore, using DSM-IV criteria for PTSD, Kilpatrick and colleagues [10] examined the six month prevalence rate amongst children, 3.7% for young boys and 6.3% for girls [10].

Current measures of posttraumatic stress disorder (PTSD)

Apart from the difficulties of defining what constitutes a 'traumatic' event and the supposition that not every person who is exposed to trauma develops chronic or acute forms of PTSD, making it difficult to understand the true risk factors for PTSD among those exposed, and the ambiguity of not being able to composite a general population-based prevalence rate derives from the tools and or concepts used to measure and identify PTSD. This issue arises primarily because of two reasons: first, the subjective nature of trauma response and second, the variability in post-concussive symptom expression due to psychological factors that reflect overlapping conditions, i.e. PTSD and depression. Currently, there are 28 measures for adults recognized by the National Center for PTSD and 2 measures for children assessing trauma and PTSD. Furthermore, there are 26 measures for adults authored by various organizations and 13 measures for children. Overall there is great variety when measuring PTSD.

Adult measures

The 54 measures that assess and screen for PTSD are as follow: Deployment Risk and Resiliency Inventory-2 (DRRI-2) Sections A-P (Including K-1 and K-2), the Brief Trauma Questionnaire (BTQ), the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5), Combat Exposure Scale (CES), the Dissociative Subtype of PTSD Scale (DSPTS), Life Events Checklist for DSM-5 (LEC-5), Life Stressor Checklist (LSC-R), Mississippi Scale for Combat Related PTSD (M-PTSD), Primary Care PTSD Screen (PC-PTSD), PTSD Checklist for DSM-5 (PCL-5), Trauma History Screen (THS).

The following measures were created by other organizations: Beck Anxiety Inventory-Primary Care, Davidson Trauma Scale, Distressing Events Questionnaire, Evaluation of Lifetime Stressors, Impact of Event Scale-Revised, Los Angeles Symptom Checklist, Modified PTSD Symptom Scale, Penn Inventory for Posttraumatic Stress Disorder, Posttraumatic Diagnostic Scale, Potential Stressful Events Interview, PTSD Symptom Scale-Interview, Screen for PTSD

Symptoms, Short Form of the PTSD Checklist-Civilian Version, Short Screening Scale for PTSD, SPAN, SPRINT, Stressful Life Events Screening Questionnaire, Structured Clinical Interview for the DSM-IV Axis I Disorders, Structured Interview for PTSD, Trauma Assessment for Adults Self-Report, Trauma History Questionnaire, Trauma Screening Questionnaire, Trauma Symptom Checklist-40, Trauma Symptom Inventory, Traumatic Events Questionnaire, and Traumatic Life Events Questionnaire.

The following measures and their brief descriptions are authored by the National Center for PTSD only. The DRRI-2 is a suite of seventeen individual scales that assess specific deployment-related risk and resiliency factors developed by Vogt and colleagues [11]. This collection of measures examines pre-deployment factors (i.e. prior stress and childhood), deployment factors, and post-deployment factors such as family functions and social support [11]. The BTQ is a 10-item self-report questionnaire derived from the work of Schnurr and colleagues [12]. The BTQ assess traumatic exposure according the guidelines in the DSM-IV [13]. The CAPS-5 is considered the 'golden standard' in PTSD assessment [12]. It uses a 30-item structured interview to assess the 20 DSM-5 PTSD symptoms targeting the duration of symptoms, distress, the impact of the symptoms on functioning, and overall severity of PTSD.

In contrast to the previous CAPS which used the DSM-IV, the CAPS-5 requires the identification of single index trauma to serve as the basis of symptom inquiry, thus allowing the possible tackling of single traumatic experiences and associated symptoms at a time [12]. Also, the current CAPS-5 items are rated with singular severity scores In contrast; the previous CAPS-4 required separate frequency and intensity scores [12]. The CES is a 7-item self-report measure created by the Veterans Affairs National Center for PTSD that assesses combat stressors which classify into one of five categories of combat exposure [14]. The DSPTS is a semi-structured interview using 15-item measures that uses the DSM-5 dissociative subtype of PTSD to measure PTSD symptoms [15]. LEC-5 is a live event checklist that uses the DSM-5 as a self-reporting measure to screen for traumatic events during a respondent's lifetime [12]. The M-PTSD is an older scale composed of 35-item self report measure that assesses combat related PTSD wing DSM-3. The M-PTSD also has a civilian version to assess PTSD resulting from other types of trauma [16]. The PC-PTSD is a 4-item screen used in medical settings using DSM-5. The PC-PTSD is usually followed with a structured interview for PTSD [17]. The PCL-5 is a 30-item self-reporting measure that assesses the 20 DSM-5 symptoms of PTSD. The PCL-5, along with CAPS-5 is the preferred tool used to diagnose PTSD [18]. The THS screen is a brief measure used to assess the general dimensions of traumatic history in a population. THS screens work well for research purposes because it is simple in context, language, and low reading level [19].

Children and adolescent measures

The 15 measures that assess and screen for PTSD in children and adolescents are as follow: Clinical-Administered PTSD Scale

for DSM-5 Child/Adolescent Version (CAPS-CA-5), Traumatic Events Screening Inventory for Children (TESI-C), Diagnostic Interview for Children and Adolescents-Revised (DICA-R), Kiddie Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS-PL), Trauma Symptom Checklist for Children (TSCC). The following measures are not used as often and consistent as the previous, they include, the Child PTSD Reaction Index, Child PTSD Symptom Scale, Children's Impact of Traumatic Events Scale, Children's PTSD Inventory, Dimensions of Stressful Events Rating Scale, My Worst Experiences Survey, Parent Report of Child's Reaction to Stress, Trauma Symptom Checklist for Young Children, UCLA Child/Adolescent PTSD Reaction Index for DSM-5, and When Bad Things Happen Scale.

The following measures are frequently used; The CAPS-CA-5, strictly uses the DSM-5 scale made up of 30-items for children ages seven and above to compile an index of traumatic events; The CAPS-CA-5 assess the 20 DSM-5 PTSD symptoms targeting the duration of symptoms, distress, the impact of the symptoms on functioning, and overall severity of PTSD [20]. The TESI-C focuses on assessing a child's previous and current traumatic experiences [21]. The DICA-R is a semi-structured interview designed to assess present and lifetime diagnosis developed in the late 60's for clinical and epidemiological research [22]. K-SADS-PL was designed as a comprehensive measure to assess psychopathology of children. This assessment examines a full and partial diagnosis of PTSD [23]. The TSCC is a self-reporting measure developed to assess many symptoms and not a tool for diagnosis. The TSCC assess exposure to a variety of trauma [24].

Conclusion

Current epidemiological research suggests that the exposure to traumatic events increase the risk of psychopathological agents including PTSD. Furthermore, epidemiological research has made foremost contributions to the understanding of the consequences of PTSD. Furthermore, this literature implies that the impact of traumatic events have a major role in the etiology of mental health disorders other than PTSD that needs more detailed studies to determine the full burden of PTSD from such events. Moreover, researchers need to focus more on the policy implications of such findings given the longevity of the effect of traumatic events and the significant health benefits arising through the assessment of potential treatment and interventions.

After reviewing the research surrounding childhood measures of PTSD, there are challenges to PTSD measures for children as the current measures assess only specific traumatic references and are not holistically designed to screen and understand the implication for chronic and or multiple experiences for children [25]. Therefore, in the context of children PTSD measures, I cannot confer what the possible "best" measure for PTSD.

An examination of the current measures of adult PTSD points to two measures that can be used together to confirm appropriate PTSD diagnosis, they are the CAPS-5 and PCL-5. The PCL- 5 is a great measure with high validity that examines the symptom

severity level. The PCL-5 is a quick self-reporting instrument that has been validated to use within civilian and military populations, with the ability to target specific traumas [26,19]. Furthermore, in conjunction with PCL-5 the clinically administered CAPS-5 differs by allow the examination of the intensity and frequency of symptoms [12]. The PCL-5 does not have this ability as it joins both concepts to assess severity of symptoms [19]. The benefit of using both scales lies in the idea that data collected from these assessments allows for the examination of intensity, frequency, and severity of PTSD. Ideally, the used of both scales offers clinicians the opportunity to tailor treatment options based on multiple assessments [27-31].

Overall, studies and scales have not confirmed an absolute measure of PTSD as there are still issues surrounding what constitutes a 'traumatic' event and the conclusion that not every person who is exposed to trauma develops chronic or acute forms of PTSD. This makes it difficult when using the scales as they try to expose the true risk factors for PTSD.

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