The University of California at Los Angeles Post-traumatic Stress Disorder Reaction Index

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Over the past decade, the University of California at Los Angeles Post-traumatic Stress Disorder Reaction Index has been one of the most widely used instruments for the assessment of traumatized children and adolescents. This paper reviews its development and modifications that have been made as the diagnostic criteria for post-traumatic stress disorder have evolved. The paper also provides a description of standard methods of administration, procedures for scoring, and psychometric properties. The Reaction Index has been extensively used across a variety of trauma types, age ranges, settings, and cultures. It has been broadly used across the US and around the world after major disasters and catastrophic violence as an integral component of public mental health response and recovery programs. The Reaction Index forms part of a battery that can be efficiently used to conduct needs assessment, surveillance, screening, clinical evaluation, and treatment outcome evaluation after mass casualty events.

Introduction

As diagnostic criteria for post-traumatic stress disorder (PTSD) have evolved over the past two decades, the University of California at Los Angeles (UCLA) PTSD Reaction Index has gone through a number of iterations. In 1985, the UCLA Trauma Psychiatry Program, in collaboration with Calvin Frederick, developed a screening questionnaire based on *Diagnostic and Statistical Manual of Mental Disorders* (DSM) diagnostic criteria for PTSD to assess post-traumatic stress reactions among children and adolescents, the UCLA PTSD Reaction Index [1]. This instrument included 16 items, each rated as no=0 or yes=1. Cutoffs for this instrument were established as follows: 0 to 6=none; 7 to 9=mild; 10 to 12=moderate; and greater than 12=severe. Although a precursor to this instrument was used among children after the Three Mile Island Nuclear Accident [2], the first major use was to assess post-traumatic stress reactions among elementary school children after a fatal sniper attack on their school playground [3,4]. Subsequently, a DSM-III-R version was developed to take account of modifications to the diagnostic criteria [5,6]. This DSM-III-R version included 20 items, and used a Likert scale to rate the frequency of symptom occurrence over the past month as follows: none of the time=0; a little of the time=1; some of the time=2; much of the time=3; and most of the time=4. During this time period of DSM-III and DSM-III-R, these versions of the UCLA scale were the most widely used clinical and research tools for the assessment of traumatized children, especially in studies of children after disasters.

The UCLA PTSD Reaction Index for DSM-IV (Revision 1) [7] is a revised version of the DSM-III-R scale that is geared closely to DSM-IV criteria for PTSD. The DSM-IV version has child, adolescent, and parent forms, along with accompanying score sheets for each form. Subsequently, the child and adolescent forms were collapsed, using the simpler language of the child form in order to have one instrument for use among children and adolescents. Most recently, an abbreviated version of the symptom scale of this instrument was developed for conducting efficient needs assessment and screening of students in New York City after September 11, 2001. This abbreviated scale, with good sensitivity and specificity for detecting cases of PTSD, was useful in screening populations of children for needs assessment and surveillance in public schools across New York City [8] and in algorithms for clinical assessment and referral for enhanced services within Project Liberty. The full PTSD Reaction Index is currently being used by the Child and Adolescent Trauma Treatment Service Program administered by the New York State Office of Mental Health to provide services to children and adolescents severely affected by the September 11, 2001 terrorist attacks in New York City.

University of California at Los Angeles Post-traumatic Stress Disorder Reaction Index for *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (Revision 1)

Description

The UCLA PTSD Reaction Index for DSM IV (Revision 1) is a paper and pencil screening instrument for the assessment of trauma exposure and post-traumatic stress symptoms among children and adolescents. Considerable effort was devoted to creating clear and succinct questions that would be easy for respondents to understand. Part I constitutes a brief lifetime trauma screen, allowing for categorization of traumatic exposures, including exposure to community violence, natural disaster, medical trauma, and abuse. These exposure items are scored as present or absent. If more than one event is endorsed, the youth is asked to identify the one currently most bothersome, and a brief summary of the event is recorded. The brief review of the traumatic experience sets the stage for the subsequent questions, helps the child recall details of the traumatic event, and contributes to documenting satisfaction of criterion A1. Part II allows for a systematic evaluation of A1 and A2 DSM-IV criteria that encompass objective and subjective features of the traumatic exposure. These items also are scored as present or absent. Part III provides for a thorough evaluation of the frequency of occurrence of post-traumatic stress symptoms during the past month (rated from 0=none of the time to 4=most of the time). These items map directly onto the DSM-IV criterion B (intrusion), criterion C (avoidance), and criterion D (arousal) for PTSD. Twenty of the items assess PTSD symptoms, whereas two additional items assess associated features—fear of recurrence and trauma-related guilt. These associated features were included in the symptom section because the authors' studies over the past two decades have indicated their public mental health and clinical salience. Fears of recurrence are often pervasive, shared across dimensions of exposure, and represent children's perception of the seriousness of the danger. Trauma-related guilt for perceived commission or omission of actions has been found to increase overall severity of post-traumatic stress reactions within categories of exposure and can serve as an important indicator for triage. The instrument is accompanied by a frequency rating sheet to visually assist children in providing accurate responses about how often the reaction has occurred over the past month. There also is a score sheet with instructions for tabulation of total score, and B, C and D symptom subscale scores. Although the instrument was not designed to be diagnostic, it can provide preliminary diagnostic information.

The continuous scale, however, allows for finer discrimination across exposure groups and is especially useful in informing clinical treatment and public mental health planning. Continuous scale instruments have important use in treatment outcome studies and public health monitoring of course of recovery after catastrophic events.

Administration and scoring

The UCLA Reaction Index for DSM-IV (Revision 1) can be administered, scored, and interpreted by a graduate student under the supervision of a licensed Master's level clinician with experience in the area of assessment of trauma exposure and PTSD in children. The measure may be administered in the following three ways: 1) as a self-administered paper and pencil measure; 2) by one-on-one verbal administration, in which the instructions and questions are read to the child; and 3) by group administration, for example, in a classroom setting in which the instrument can be self-administered or read aloud to the group. To increase reliability, it is helpful to repeat the time frame being asked about (over the past month) for each item and to insert reference to the specific traumatic event within items that ask about symptoms in regard to "what happened" or "the bad thing that happened." The instrument was designed for use with youth from 7 to 18 years of age. It is recommended that the instructions and questions be read aloud to children under the age of 12 or to youth with known reading comprehension difficulties. Time for completion of the instrument varies with age, reading ability of the child, and method of administration, but typically can be completed in 20 to 30 minutes.

The score sheet provides for coding endorsement of exposure to a traumatic event in Part I and criteria A1 and A2 in Part II. Although the symptom scale contains 20 PTSD symptom–related items, only 17 scores (corresponding to the 17 DSM-IV PTSD symptom criteria) make up the total symptom scale score in Part III. Three of the symptom criteria have two alternative formulations, with the highest frequency score used to calculate the total score. The score sheet provides instructions for calculating a total PTSD severity score and severity scores for each of the DSM-IV B, C, and D subcategories. When criterion A is met, children who meet criteria B, C, and D (using endorsements of "much of the time" and "most of the time" as indicating symptom presence) are scored as having a likely diagnosis of DSM-IV "full" PTSD. When criterion A is met, children meeting criteria for only two symptom subcategories are scored as "partial" PTSD likely. A cutoff of 38 or greater for a single incident traumatic event has the greatest sensitivity and specificity for detecting PTSD [9,10]. Scoring of the instrument takes approximately 5 to 10 minutes.

Populations studied

Over the past two decades, versions of the UCLA PTSD Reaction Index have been translated and broadly used in clinical evaluation, trauma research, and post-disaster screening and recovery programs across the US and around the world. As a result, the Reaction Index has been widely translated for use across various settings and cultures. For example, with regard to natural disasters, the Reaction Index was used for over a decade in the largest post-disaster public mental health recovery program that followed the 1988 Spitak earthquake in Armenia [6,11–15]. In this

work, its use has been demonstrated for needs assessment, surveillance, and clinical studies and also in the study of neurohormonal and developmental alterations [13,15]. The Reaction Index was used after the 1994 Northridge Earthquake in California [16], and has been recently translated into Turkish for use after the 1999 Marmara earthquake in Turkey [17] and into Cantonese and Greek for use after the 1999 earthquakes in Taiwan [18] and Greece, respectively [19•]. It also has been used after the two most studied hurricanes, Hurricane Hugo [20,21] and Hurricane Andrew [22–25]. It also was used more recently in Nicaragua after Hurricane Mitch [26•]. Modified versions were used in Hawaii after Hurricane Iniki [27] and after an industrial fire [28].

The Reaction Index has been used among children and adolescents after large-scale political violence, for example, in Bosnia and Herzegovina [29,30], Mozambique [31], Kuwait [32], Israel [33–35], Palestine [36,37], and Lebanon [38]. In the US, it has been used among Cambodian adolescents exposed to atrocities [39], children exposed to the bombing of the Federal Building in Oklahoma City [40], and after the 2001 terrorist attack on the World Trade Center in New York City [41,42].

The Reaction Index has been used in research and treatment outcome studies among children exposed to community violence [43,44], catastrophic school violence after a sniper attack [3], a school shooting [45], among children who witnessed the sexual assault of their mother [5], and adolescents who witnessed the suicide of a peer [46]. Additionally, it has been used among children after severe dog bites [47], children with life-threatening medical illness [48–55], children with severe burn injuries [53], and among children and adolescents after traffic accidents [54,55].

Psychometric properties

Over the years, successive versions of the UCLA PTSD Reaction Index have been psychometrically studied. Validity across all the versions is suggested by numerous studies that have found consistently higher Reaction Index scores among traumatized samples compared with control subjects, and a clear "dose of exposure" relationship of Reaction Index scores across exposure groups. Convergent validity has been supported by the agreement of cutoff scores with a diagnosis of PTSD. For example, in studies after the 1988 earthquake in Armenia, Pynoos *et al.* [6] reported a significant association between the severity categories of the DSM-III-R version and a DSM-III-R diagnosis of PTSD, with a cutoff of 40 or higher correctly identifying 78% of subjects who met DSM-III-R criteria, and 79% of those who did not. Of those subjects who scored 40 or higher, 90% met the DSM-III-R criteria for PTSD. The DSM-IV version has good convergent validity, 0.70 in comparison with the PTSD Module of the Schedule for Affective Disorders and Schizophrenia for School-Age Children, Epidemiologic version (0.82 in comparison with the Child and Adolescent Version of the Clinician-administered PTSD Scale), with a cutoff of 38 having a sensitivity of 0.93 and specificity of 0.87 in detecting PTSD [9,10].

With regard to internal consistency across versions, several reports have found Chronbach's alpha to fall in the range of 0.90 [9,10,19•,29]. Again, over the different versions, test-retest reliability has ranged from good to excellent, with Pynoos *et al.* [3] reporting a test-retest inter-item agreement of 94% for the DSM-III version. Subsequently, Goenjian *et al.* [26•] reported an intra-class correlation coefficient of 0.93 for adolescents evaluated with the DSM-II-R version initially and again after 7 days, whereas Rousos *et al.* [19•] recently reported a test-retest reliability coefficient of 0.84 for the DSM-IV version. With regard to the seven- and nine-item abbreviated UCLA PTSD Reaction Index scales, the Cronbach's alpha was 0.85 for the seven-item scale and 0.87 for the nine-item scale. The receiver operator characteristic curves indicated that corresponding cutoffs to the full scale are 16 for the seven-item scale and 20 for the nine-item scale.

Conclusions

Part II items of the DSM-IV version of the UCLA PTSD Reaction Index (those assessing objective and subjective features of exposure) are currently rated using a "yes-no" format. As suggested by Goenjian *et al.* [26•], having these items rated on a Likert scale would render them more sensitive to detecting differences across exposure groups. There also is a need to add items that assess related functional impairment as reflected in DSM-IV criterion F (interference with important areas of functioning, including peer, school, and family).

Over the years, the UCLA PTSD Reaction Index has proven to be an extremely useful part of an assessment battery (along with specific exposure questions, questions about post-event stresses and adversities, and measures of comorbid depression, grief, and anxiety) that has been used effectively to conduct needs assessment, surveillance, screening, clinical evaluation, and treatment outcome evaluation after traumatic events. Most recently, several new scales have been developed, including the UCLA Trauma Reminder Inventory [56] and the UCLA/Brigham Young Expanded Grief Inventory [57]. The National Center for Child Traumatic Stress Traumatic Loss Reminder Inventory [58] provides a clinically useful tool to identify the types and frequency of exposure to loss reminders, the frequency and intensity of reactivity to them, and the extent to which exposure to such reminders interferes with academic, peer, and family functioning. The Measures and Data Operations Committees of the National Child Traumatic Stress Network have selected the UCLA PTSD Reaction Index for DSM-IV to be a core data instrument for Network-wide use. In doing so, they will be developing Internet-based tools that allow for data entry and software that can provide information for clinicians about symptom profile and algorithms for strategies of intervention and monitoring

course of recovery. Past work examining the pattern of accrual of symptoms across dose of exposure [3] suggests that the Reaction Index will be useful for developing algorithms to guide intervention decision-making. Symptom cluster analyses also have indicated its use in identifying risks of associated functional impairment [59] that may guide algorithms for intervention.

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