

Article 94

The Incidence of Posttraumatic Stress Symptoms Among Adults and Children in the Phang Nga Region of Thailand

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Abstract

Posttraumatic stress disorder is one of the most common occurring results of experiencing disasters. This is no less true in the region of Thailand that suffered the most devastating effects of the 2004 tsunami. Efforts to help survivors in the region diminished dramatically after a short time in the nontourist region of Phang Nga. A project was undertaken to develop the beginning of a school-based PTSD intervention for the region through the Bureau of Educational Innovation Development of the Ministry of Education of Thailand. A focus group study on incidence and frequency of PTSD cases in the region accompanied the project. Results included that children present with different symptoms than do adults, and implications of the study are discussed in this article.

Keywords: chronic PTSD, tsunami, counseling, intervention

Posttraumatic Stress: Features and Diagnosis

Posttraumatic stress disorder has long been known to be a typical psychological outcome of a period of unrelenting and severe traumatic situations that include such events as war (Ehnholt, 2006), physical and sexual assault (Fairbrother & Rachman, 2006), severely repressive governments (Brown, 2006), and natural and human caused disasters (Satapathy & Walla, 2006; See, 2005). According to the *International Classification of Diseases 10 (ICD-10)*; World Health Organization, 1994), the more

universally accepted psychiatric taxonomical system, PTSD symptoms fall into three clusters. The soon to be published *ICD-11* is exploring a more multifaceted diagnosis of PTSD and complex PTSD, with the gateway to the diagnosis of complex PTSD including an interpersonal symptom cluster as well as belief in ongoing threat (Cloitre, Garvert, Brewin, Bryant, & Maercker, 2013).

The earlier version of the *Diagnostic and Statistical Manual of Mental Disorders*, (4th ed., text rev.; *DSM-IV-TR*; American Psychiatric Association [APA], 2000), agreed with the *ICD-10* regarding three symptom clusters but identified more specific symptoms. These clusters include: 1) recurrent and intrusive, distressing recollections of the traumatic event, 2) persistent avoidance of stimuli related to the aftermath of the trauma, and 3) persistent hyperarousal. The newer edition of the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; APA, 2013) reorganized the symptom clusters by adding a cluster, *negative alterations in cognition and mood*, and moving many symptoms from the cluster, *avoidant behaviors*, to the new cluster. Derealization and depersonalization are entirely removed as diagnostic criteria and become added features for identification upon diagnosis.

Disagreements and Similarities

Although there is disagreement between the *ICD* and the *DSM* as to what symptom clusters define PTSD, how the clusters are organized, and how many criteria are required in each cluster to qualify for diagnosis, (APA, 2000; APA, 2013; Department of Veterans Affairs, 2011), there is general agreement on the description of what symptoms occur for those suffering from PTSD. Intrusive experiences that occur since the traumatic event include recurring memories and thoughts about the event, distressing dreams, acting or feeling as if the event is recurring (including flashbacks, hallucinations, illusions, or reliving the experience), anxiety during incidents that resemble the event, or physiological reactions to cues that symbolize aspects of the event. Avoidant behaviors include efforts to avoid places, people, or activities that arouse recollections thoughts, feelings, or conversations regarding the event. Hyperarousal symptoms include difficulty sleeping, irritability, angry outbursts, concentration difficulty, hypervigilance, and an exaggerated startle response.

Even before the advent of the *DSM-5* and the upcoming *ICD-11*, there was some disagreement between the *DSM-IV-TR* and the *ICD*. These divergences between taxonomies included classification of amnesia; diminished interest in significant activities; feeling detached or estranged from others, or presenting restricted affect. The *DSM* also included foreshortened future and numbing as identified symptoms.

Importantly, there is significant disagreement among psychological and medical professionals as to the accuracy or efficacy of either of the major taxonomical systems (Chafee, 2012; Frueh, Elhai, & Acierno, 2010; Kvavilashvili, 2014; Rose, Spitzer, & McHugh, 2008). The debate over the reliability of the nosology for clinical use centers on issues of missing either unclassified features or, importantly, the unmentioned cluster, interpersonal issues (Cloitre et al., 2013; Iverson et al., 2011; Robertson, Rushton, Bartrum, & Ray, 2004). Discussions and research led to the development of interpersonal therapy for PTSD. However, the newly published *DSM-5* continued without acknowledgement of the cluster. Conversely, the World Health Organization has finally

included interpersonal symptoms in their study toward the forthcoming *ICD-11*, due out in 2017 (Cloitre et al., 2013).

Ensuing Clinical Treatment Issues Related to Diagnostic Disagreements

The exclusion of symptoms to taxonomies has presented two major issues. First, treatment is restricted to dealing with overt anxiety-related, personal symptoms; and second, most interventions are designed specific to named clusters and thus do not address human behaviors or interactions outside of the symptoms targeted for treatment.

The outcome of this approach to diagnosis and development of intervention models has been shown to be less than effective in several studies (Briere & Scott, 2006) for numerous reasons. The most obvious is that counselors and psychotherapists tend to espouse and adhere to the principles of only one model (Puterbaugh, 2015). Because articulated models are designed to alleviate a specific symptom cluster, the model applied by a counselor does not address other symptom clusters, and research does not exist to study the effects of these models on other symptom sets. Secondly, because models tend to be developed specific to what the therapists believe are the major underlying symptom set, research has shown that amelioration of symptoms also occurs virtually exclusively inside of the symptom cluster targeted (Bryant et al., 2008; Lovell, Marks, Noshirvani, Thrasher, & Livanou, 2001; Moser, Cahill, & Foa, 2010).

The answer to this lies first in development of a nosological system that recognizes signs and symptoms that are not purely diagnostic criteria. This nosology of PTSD would also recognize the systemic nature of PTSD and the need to address interpersonal issues alongside personal, internal responses. Secondly, effective intervention may lie in one of two pathways, either development of models that address all symptom clusters at once or recognizing the need to diagnose the dominant symptom cluster in each survivor and fit the intervention to the individual rather than the individual to the treatment model the counselor espouses.

Finally, all diagnostic tests and all research are based on diagnostic criteria and usually a diagnostic threshold. No matter how many symptoms are occurring and no matter how severely they affect function, a survivor of a disaster is not considered to have posttraumatic stress disorder unless the victim meets the full, multicluster threshold for diagnosis. This threshold of diagnosis model tends to discount subclinical symptoms that occur in survivors.

Incidence of Posttraumatic Stress After Disasters

Posttraumatic stress disorder is the most frequently reported psychiatric illness among victims of natural disasters (McMillen, North, & Smith, 2000). Post-disaster mental health interventions are particularly crucial for adolescents, as some studies have documented that symptoms in adolescents can persist long after the traumatic event in question and are likely to become chronic (Liu et al., 2011; Zhang, Jiang, Ho, & Wu, 2011).

Though there has been extensive research and interventions conducted on posttraumatic stress disorder (PTSD) in the Western countries, there has been significantly less study or mental health planning done in Southeast Asia in association to trauma (Bromet & Dew, 1995; Wang et al., 2000). Instead, research performed by

Western research groups is largely referred to when dealing with the effects of Asian disasters. This lack of research and mental health planning in Asia brings about great concern (Desjarlais, Eisenberg, Good, & Kleinman, 1995), as an estimated 85% of the people who were affected by natural disasters worldwide live in Asia (Kokai, Fujii, Shinfuku, & Edwards, 2004).

A clear instance of this was the earthquake, followed by a tsunami in 2004, which was recorded as the second largest earthquake in global history (Stein & Okal, 2005). Thailand was one of the key countries affected (World Health Organization, 2005). In the tsunami affected provinces of Krabi, Phang Nga, Phuket, Ranong, Satun, and Trang, 5,385 people died, 8,457 were injured, 2,817 went missing, and 1,215 Thai children became orphans (Piyavhatkul, Pairojkul, & Suphakunpinyo, 2008)

Because many Asian countries do not recognize the urgency to provide mental health care in the immediate aftermath of a disaster, the realization that mental health should be an integral component of disaster preparedness was not quickly recognized (Parameshvara, 2004). A study done of 1,361 Thai adult survivors of the tsunami found significant levels of PTSD symptoms 8 weeks post-disaster (Griensven et al., 2006). This led the researchers to highlight the need for directing, strengthening, and evaluating post-tsunami mental health needs and interventions.

A study of adult survivors of the disaster (n=265) by Tang (2007) identified that 22% reported traumatic stress symptoms at 2 weeks and 30% at 6 months. PTSD was considered the most prevalent post-disaster disorder in Thailand in another study of adult survivors (Thavichachart et al., 2009). The study discovered that 1,054 (33.6%) participants were diagnosed with PTSD. A follow-up study by the authors 6 months later identified that 21.6% of participants continued to be diagnosed with chronic PTSD.

Meanwhile, Kar and Bastia (2006) found that the incidence of PTSD in a study of adolescent Thai survivors was 26.9%. Further evidence of lingering PTSD symptoms months after the disaster was described in the report of a study by Piyavhatkul and colleagues (2008). The study revealed that 31 out of 94 children were diagnosed with PTSD 10 months following the tsunami disaster. A study by Piyasil and colleagues (2011) tracked the incidence of diagnosable PTSD in children over 5 years (n=1615). Six weeks after the disaster, the study identified 573 diagnosable cases. The number steadily dropped over 5 years to 2.7% of study participants.

A higher prevalence of PTSD symptoms was found among children who experienced the most dangerous events or who sustained the most loss (Thienkrua et al., 2006). Among adults, the main risk factor for symptoms of PTSD were the loss of livelihood as a result of the tsunami. The same study identified that the incidence of symptoms in children was different than in adults. The researchers suggested that intervention needs differ for adults versus children.

To this end, a research project was developed to determine, first, whether PTSD symptoms continue to exist in the population that inhabits the Province of Phang Nga, Thailand. To ensure this research question would be answered accurately, the instrument was presented without any attempt at actual diagnosis of PTSD, per se. Secondly, the project wished to determine if that population corroborated evidence from Thienkrua and colleagues' study (2006) that differences of symptoms exist between adults and children within the population.

Methodology

During the summer of 2010, the Bureau of Educational Innovation Development, Office of Basic Education Commission, Ministry of Education of Thailand, engaged a Fulbright Fellow. A project was developed in response to requests by schools in the Phang Nga region of Southern Thailand in the zone affected by the 2004 tsunami, which originated off the coast of Indonesia. The project was developed because not enough counselors exist and not enough expertise exists in the region to respond to the community-reported rampant PTSD that continued to exist in the population and was particularly evident in the schools.

The overarching goal of the project was to present a school-based intervention system for children in the region that was specific to PTSD. The intervention system included training not only the few school counselors that existed, but also teachers and administrators, so as to provide adequate trained personnel to meet the needs of students. However, secondarily, the Bureau of Educational Innovation Development was interested in discovering the most effective interventions, which included discovering which interventions would be the best fit. This would provide an opportunity to address the aforementioned issue of matching intervention to predominant symptom cluster and begin the study of assessment of PTSD victims.

A questionnaire was developed in the Thai language based on the PTSD Checklist (Holliday, Smith, North, & Suris, 2015). The psychometric properties of the original PTSD Checklist (PCL), a self-report instrument, have been determined by comparison with other high-reliability PTSD scales including the Clinician Administered PTSD Scale (CAPS), from which it was originally developed. For the PCL as a whole, the correlation with the CAPS was .929 and diagnostic efficiency was .900 versus the CAPS. Overall internal consistency of the PCL has been reported to be strong (Cronbach's $\alpha = .97$) with symptom groups B, C, and D scores (Cronbach's $\alpha = .92-.93$). The test-retest reliability ($r = .96$) and concurrent validity were also strong ($r = .70$, $r = .81$) compared to the Mississippi Scale for Combat PTSD.

The PCL follows both the nosological principles of the *DSM-IV-TR* and the *ICD-10*, but the questionnaire for this Thai study also identified items that included those in the interpersonal problems symptom cluster, which has been discussed for some time and identified in the research draft of the *ICD-11* (Cloitre et al., 2013) to the taxonomical system of inquiry (Downs, 2011). During formulation of the questionnaire, whenever a symptom that is not considered a criterion for diagnosis by any of the taxonomical systems appeared, it was triangulated with other professional counselors until agreement was reached as to its best fit.

For the weeklong workshop, the Bureau of Educational Innovation Development invited 120 counselors, guidance specialists, teachers, and administrators from the various schools across the Phang Nga region to a resort in Surat Thani. The first day of the workshop was dedicated to lecture and discussion of the nature of posttraumatic stress, foundational information, and presentation and discussion of the symptoms to ensure understanding of any symptoms in question. Then 20 focus groups were formed with the criteria that each group must have representation from administrators, teachers, and guidance personnel, and that members should be from the same district.

A 1-hour time limit was set on the focus groups and they were instructed to discuss and decide how many members of the school community presented with obvious and significant symptoms of PTSD and which symptoms they evidenced. The groups concentrated on identifying only personnel and students inside of the school environment and divided the results into children's symptoms and adults' symptoms. Staff then collected these from the Bureau of Educational Innovation Development.

Incidence counts were then tabulated and analyzed using SPSS Version 20. Because the data were ordinal, nonparametric analysis measures were in order. Further, because the sample was observational data, the analysis was restricted to extreme differences between adults and children as separate groups rather than equal distributions as is required for other nonparametric tests, so a Moses Test of Extreme Reactions was used to analyze the data (Bøgwald, Høglend, & Sørbye, 1999; Siegel, 1956).

Results

The 20 focus groups reported between them that there were identifiable cases in which specific symptoms could be identified, and that these cases presented symptoms of all four of the named symptom clusters, invasive recall, hyperarousal, avoidant behaviors, and interpersonal problems. They also identified that symptoms appeared from all domains across both children and adults within the school community.

Those data revealed that some symptoms of invasive recall were evident in children (n=4), and some avoidant behaviors as well (n=18), but a more numerous presentation of interpersonal problems (n=23) and a remarkable number of hyperarousal symptoms displayed (n=42). In the adult population, comparatively, the fewest visible symptoms were interpersonal in nature (n=14), with invasive recall being more numerous than children (n=15). Hyperarousal symptoms appeared more often than invasive recall but less than half as often as in children (n=20), and there was a dramatic increase over other evident symptoms in avoidant behaviors among adults (n=39).

The Moses Test of Extreme Reactions revealed a significant difference between adult and child populations on observed occurrence of all four symptom clusters, with children showing significantly more symptoms of interpersonal problems ($p<.000$) and hyperarousal ($p<.000$), while adults were observed to present with significantly more symptoms of invasive memories ($p<.000$) and avoidant behaviors ($p<.000$) than children.

Discussion and Conclusions

The strong evidence that children in the Phang Nga region of Thailand exhibit different symptoms of PTSD from adults has potentially important ramifications for any ongoing interventions aimed at ameliorating the disorder in the region. It may also have implications for counseling in general. Although this study cannot be generalized to populations outside the region, there is ample evidence that different populations and different traumatic experiences are associated with different symptom cluster displays (Vuksic-Mihaljevic et al., 2004). Since research suggests that different symptom clusters are best served with different intervention models, adaptation of models can be more easily tailored to the two populations, adults and children, in the Phang Nga school communities, as well as elsewhere should these same symptom differences be identified.

The symptom clusters most affecting children of the region were hyperarousal and interpersonal problems. Standard manuals for use with child survivors of calamities—including the manual used to train administrators, teachers, and counselors in Phang Nga—focus on two symptom clusters, invasive memories and hyperarousal, not on interpersonal issues (Smith, Dyregrov, & Yule, 2002). Hyperarousal was certainly an issue among Phang Nga youth, but nothing in any manual reviewed for use in the 2010 project included children's therapeutic responses to interpersonal problems.

Further, manuals for use with child survivors of disasters rely heavily on parental support and teaching parents to cope and to support their children throughout recovery (Meichenbaum, 1996; Smith et al., 2002). Of the 5,392 fatalities inflicted by the tsunami in Thailand, 4,221 were in Phang Nga. This resulted in 1,109 children who lost parents and 644 orphans. So, the family infrastructure that is assumed in treating the after-effects of disasters in children simply does not exist much of the time. To develop the most effective interventions will require a retooling of developed interventions to either supply alternative forms of support or to internalize the process for child victims of the region. Further, interpersonal skills and emotional sets are generally learned at home, in the presence of concerned and committed parents who are engaged emotionally at the level needed for children to successfully master socialization (Masterson, 1985). This suggests that a model needs to be developed to supplant parental socialization of the children, since interpersonal problems are quite evident.

Resources have been perennially deficient with inadequate numbers of trained counselors to provide intervention. And models for intervention have not been forthcoming. The workshops provided through the efforts of the Bureau of Educational Innovation Development of the Ministry of Education of Thailand in June of 2011 began the process of developing a school-based support and intervention process. But more work needs to be done to develop effective models and adequately train school personnel.

The limitation of this study is that it was not performed directly with children or adults in the school communities of Phang Nga, although many of the school personnel present at the workshop attested to their own symptoms of PTSD during workshop discussions. A more thorough and precise study of symptoms present in school populations is in order before a permanent model of intervention is fully enacted. However, this study did provide evidence that is congruent with the growing number of studies of various populations that consistently show predominance of specific symptom clusters in different populations.

What this study does suggest is that further work needs to be done toward development and implementation of PTSD protocols and interventions for personnel and students within the Phang Nga regional schools and for the residents of the region in general, since the project was developed in response to ongoing requests by Phang Nga regional schools for government assistance for the ongoing community and school issues surrounding PTSD. The project that was developed should be continued to the satisfaction of Phang Nga residents.

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