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Etiology and treatment of PTSD symptoms with American Indian adolescents:

A summary of five years of research

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Trauma symptoms and prevalence In the 1960s, Post Traumatic Stress Disorder (PTSD) was identified as a psychological disorder unique to male combat veterans who had near-death experiences in Viet Nam. About a decade later, psychologists identified PTSD in adult women who survived sexual assault and other forms of interpersonal violence. Within a few additional years PTSD was confirmed to afflict children as well (see Davis & Siegel, 2000). People with PTSD symptoms can experience intrusive thoughts, panic attacks, flashbacks, “fight or flight” responses, sleep and eating disturbances, and sometimes depression. Often children with trauma will behaviorally avoid situations that remind them of the event, such as refusing to ever again ride an automobile after surviving a serious accident. Avoidance also can be psychological – such as using alcohol or drugs to numb traumatic memories. Some adolescents may engage in highly risky physical activity (e.g., “the choking game”), or physical violence as a means of temporarily covering up trauma symptoms. This manuscript summarizes three studies of Post Traumatic Stress Disorder in Indian Country that were conducted by clinicians and evaluators in the National Native Children’s Trauma Center at the University of Montana, and were overseen by local authorities including Tribal Councils and School Boards.

According to the American Psychiatric Association (2000) there are six diagnostic criteria for Posttraumatic Stress Disorder (PTSD). But since the terrorist attacks of 9-11 mental health experts have been urging treatment for children and youth who have been exposed to an event that threatened death or severe injury, or who witnessed such an event, especially if they experienced feelings of horror and helplessness. Once thought to be a generally low incidence diagnosis, some researchers indicate that there are widely different prevalence rates of PTSD symptoms among ethnic minority groups, particularly Native Americans (Lonigan, Phillips & Richey, 2003; Sue & Sue, 2003; Yellow Horse Brave Heart, 2003).

Yellow Horse Brave Heart (2003) makes a powerful logical case for the connection between elevated trauma prevalence and horrific traumatic historical events affecting Indian people. As early as 1996 Robin, Chester and Goldman reported PTSD symptom rates as high as 22% in American Indians. A more recent study by Deters, Novins, Fickenscher and Beals (2006) reports similar prevalence rates: full-syndrome PTSD among American Indian adolescents were 10%, and another 13% demonstrated some of the six PTSD symptoms, for a total prevalence of 23%. These data suggest that there is a great need for effective PTSD treatment in American Indian communities.

PTSD treatment and treatment research American Indians often have limited access to health care, including mental health services. One recent comprehensive literature review concludes that there are few empirically supported behavioral health treatment programs for American Indians (Gone & Alcantra, 2007). In rural communities lack of privacy may contribute to stigma in accessing mental health services in public clinic-based settings (Stamm et al., 2003), if those services exist. Providing mental health services in school settings represents a promising alternative delivery strategy (Stein et al., 2003). This may afford school-age Native children and youth with trauma the opportunity to receive care they would not otherwise obtain (Geiger, 2003; Jaycox, Zoellner, & Foa, 2002; Kovacs & Kohr, 1995; Yule, 2001). One empirically validated school based treatment is Cognitive Behavioral Intervention for Trauma in Schools (CBITS) (Jaycox, 2004).

Evidence based trauma treatment in Los Angeles: Cognitive Behavioral Intervention for Trauma in Schools The Cognitive Behavioral Intervention for Trauma in Schools (CBITS) program was designed for implementation in inner-city schools with diverse populations (Jaycox, 2004; Stein et al., 2003). It is a 10 week (50 minutes per session) treatment program conducted primarily in a group format. The CBITS model follows the theoretical framework of Cognitive Behavioral Therapy (CBT). It is reported to decrease symptoms of PTSD, depression and anxiety related to trauma. In a randomized controlled trial Stein and colleagues (2003) collected baseline data on the Child Posttraumatic Stress Symptom Scale (CPSS) and Life Events (exposure to violence) Scale (LES). Students were randomly assigned to a treatment group or a delayed treatment control group. Qualification for participation was based upon scores from the LES and CPSS. Data assessing psychosocial dysfunction were obtained on the Pediatric Symptom Checklist (PSC), a parent report measure, and the Teacher-Child Rating Scale (Stein et al., 2003). Students in the delayed treatment control group and the treatment group were then reassessed after three months.

At posttest, the mean treatment group's scores (8.9) on the CPSS were significantly lower than the delayed intervention control group scores (15.5; Stein et al., 2003). The adjusted baseline scores indicated that 86% of those in the treatment group exhibited significant decreases of PTSD symptoms at the three month point. The CDI adjusted baseline scores indicated that 67% of those in the treatment group exhibited fewer depressive symptoms. After the delayed intervention control group received treatment, data were again collected on both groups and there were no significant group differences on either the CPSS and CDI. This suggests that after treatment ends, children's improvements continue. The findings suggest that CBITS may be an effective therapy in schools for students exhibiting significant PTSD and depressive symptomatology.

Montana Study #1: CBITS pilot with American Indian students In the Fall of 2004 CBITS was adapted and used for the first time with a rural Native

American population (Morsette et al., 2008). Similar to the research conducted by Stein, children were administered multiple pretests and a posttests assessing violence exposure, using the LES, and PTSD symptoms using the CPSS. Students with clinically significant levels of violence exposure and PTSD symptoms participated in a clinical interview. Clinical significance was defined as including those students who scored above the measure's cutoff scores. Thus, the symptom levels were higher than what would be expected in the general population and warranted further clinical inquiry. Forty-eight students were assessed, and all 48 students reported that they had been exposed to at least one violent event, and 75% of those students had clinically significant PTSD symptoms. However, only 7 (14%) of the students qualified for treatment based upon a screening interview by the school counselors, as well as parent consent and child assent. Of note, those students who were selected and assented to treatment had a higher number of clinically significant PTSD symptoms at screening; treatment participants had a CPSS mean of 8.57, compared to the overall mean of non-participants of 6.33 (Morsette et al., 2008).

Prior to treatment implementation students were again administered the LES, the CPSS, as well as the Children's Depression Inventory (CDI). At that time children had a LES mean score of 6.25, and a CPSS mean score of 8.43. On the CDI students had a mean score of 14.29. All those selected to participate still had clinically significant violence exposure, as well as PTSD and depressive symptoms. Following the completion of the treatment program, the LES mean score was 1.5, the mean score on the CPSS was 3.5, and the CDI mean score was 4.5 (Morsette et al., 2008). While statistical significance was not evaluated due to the small *N*, the reductions seemed important and worthy of replication with a larger sample.

Montana Study #2: CBITS on three reservations Data from a multi-reservation CBITS implementation from the fall of 2004 through spring of 2006 also support the effectiveness of the program. The results from all children from 4 different reservation communities completing the surveys indicated that on the CPSS there was significant improvement from screening to pretest to posttest ($F[2, 30] = 17.70, p < .0005$; partial $\eta^2 = .541$). On the CDI from pretest to posttest there was a significant reduction of depressive symptoms ($F[1, 30] = 5.86, p = .011$ and partial $\eta^2 = .163$). There was also statistically significant change from screening to pretest on the CPSS ($F[1, 31] = 7.61, p = .01$) and from pre to post ($F[1, 31] = 15.37, p < .0005$). The effect was larger over the course of the group (partial $\eta^2 = .332$) than from screening to pre-group (partial $\eta^2 = .197$; Morsette, Schuldberg, Stolle, & van den Pol, 2006).

The results from both studies indicate that CBITS is an effective school-based method of treatment for reducing clinically significant PTSD and depressive symptoms in American Indian adolescent populations residing in reservation communities. This research has a number of strengths. First, it was implemented in multiple reservations representing distinct cultural groups. Thus,

the data suggests that it may be generalizable to diverse tribal groups. Second, it is one of the few treatment studies conducted in American Indian populations. Third, it was implemented in the schools by counselors, which makes it likely to be a sustainable program. Finally, the treatments and the data collection were approved by, and reported back to, Tribal Councils and School Boards in accordance with local laws and policies.

This research was not without its weaknesses. Despite the large number of students who exhibited clinically significant PTSD symptoms, less than 20% participated in the program. In the first study there was a significant drop out rate of 43%. However, the second study showed a lower level of attrition, with only 29% of the sample population leaving the CBITS treatment program before completion.

It was not clear whether violence exposure was the primary contributing factor to the PTSD symptoms. Many children reported that the loss of loved ones was the cause of their PTSD symptoms rather than violence exposure. It is plausible that children and parents refused participation because the program was not addressing American Indian children's trauma in accordance with local meanings of trauma.

Childhood Traumatic Grief Childhood Traumatic Grief (CTG) is defined as the loss of a loved one through traumatic circumstances (Cohen, Mannarino, Greenberg, Padlos, & Shipley, 2002; Cohen, Mannarino, & Knudsen, 2004; Cohen, Mannarino, & Deblinger, 2006; Pynoos, 1992). It is believed that CTG results when traumatic stress reactions related to the loss of a significant person encroach upon an adaptive grieving process (Layne et al., 2007). According to one model, a common grieving process consists of (a) acceptance of the death, (b) coping with emotions related to the loss, (c) enhancing the social support network to help with coping, (d) developing new relationships, (e) experiencing pleasant memories of the loved one, (f) creating meaning and understanding of the loss, and (g) continued development (Brown & Goodman, 2005). Of course, there are those who would argue that there is no commonly defined sequence of grieving that applies across cultures (Akhtar, 2001; Layne et al., 2007).

Standard PTSD screening instruments focus on violence exposure rather than loss, yet CTG also results in PTSD symptoms (Cohen, Mannarino, Greenberg, Padlos, & Shipley, 2002; Cohen, Mannarino, & Knudsen, 2004; Cohen, Mannarino, & Deblinger, 2006). Unless a clinician specifically inquires about loss, such issues may never be addressed in assessment or treatment, and this may lead to disqualification for treatment, or to treatment drop-out. Additional research is needed to provide a better conceptual understanding of CTG in order to differentiate it from PTSD (Cohen et al., 2004). No research has been conducted of CTG with American Indian youth. In order to better understand this phenomenon in American Indian adolescents, a large assessment was conducted in a rural reservation school system.

Montana Study #3: Examining CTG of American Indian adolescents In the Fall of 2007 a survey of middle school students on one reservation was conducted to examine the relationship between PTSD symptoms and CTG (Morsette, 2008). A permission form was mailed via the United States Postal Service (USPS) to all students' parents in the 7th and 8th grades. The permission slip outlined the purpose of the research and described the data that would be collected for students who participated in the study. Parents who did not want their child to participate were requested to return the permission slip to the school counselors. Five children's parents returned the permission slips and their children did not participate. This research was approved by the tribal Institutional Review Board (IRB), The University of Montana's IRB, and the local school board (Morsette, 2008).

Students in this study completed the Child PTSD Symptoms Scale (CPSS), Life Events Scale (LES), Expanded Grief Inventory (EGI), Children's Depression Inventory, and a measure of loss. Participants were primarily American Indian adolescents in grades 7 and 8, ranging in age from 11-14. Additionally, data on Grade Point Average (GPA) and absenteeism were collected. Students who completed the survey were monitored by the school counselor for discomfort. Five children expressed some discomfort regarding recent losses while taking the survey. These students were provided with a brief session to discuss their loss and reduce anxiety and sadness associated with the loss. At the end of the first academic quarter in which students completed the survey instruments, the school counselors collected students' GPA and absenteeism data

Results The results demonstrated that violence exposure was a significant predictor of PTSD symptoms, accounting for 16% of the variance in the symptoms. However, grief symptoms were also a significant predictor of PTSD symptoms and accounted for 18.5% of the variance above and beyond what was explained by violence exposure alone, for a total of 35.5% of the variance. Grief was a major finding for many students. But, after statistically removing effects of depression, which accounts for 45% of the variance in PTSD scores, both the violence and the grief measure were still significant contributors to predicting PTSD symptoms

Gender Differences Following the analyses of the entire sample involved in this study, additional analyses were conducted to examine gender differences. These analyses confirmed that for males violence exposure was a significant predictor of PTSD symptoms and explained 12% of the variance in these symptoms. Again, grief symptoms were also a significant predictor of PTSD symptoms and explained 13% additional variance, for a total of 24% of the variance. Thus, similar to the overall sample, grief predicted slightly more of the variance in symptoms than violence exposure did, although they predict about equal amounts of the variance. Violence exposure was also a significant

predictor of PTSD symptoms for females, explaining 26% of the variance, while grief symptoms explained an additional 17% of the variance in symptoms, for a total of 42% of the variance. Thus, both violence exposure and grief were significant predictors in males and females. However, in females violence exposure and grief accounted for more of the overall variance in PTSD symptoms than was the case for the males.

Correlational analyses looked at GPA and absentee data in relation to mental health functioning and revealed that only the relationship between GPA and depressive symptoms was statistically significant. Structural Equation Modeling (SEM) showed that a model composed of three of the variables of interest, grief, violence exposure, and PTSD symptoms, provided a good fit for the data (Morsette, 2008).

This study was the first to examine the relationships among violence exposure grief, PTSD, and depressive symptoms, and their relationships to GPA and absenteeism in an American Indian adolescent population. The regression analyses revealed that CTG symptoms accounted for PTSD symptoms to a degree above and beyond what was accounted for by violence exposure alone, even when the effects of depression were removed. This finding indicates that CTG symptoms are a strong predictor of PTSD symptoms in this population. This suggests differing and distinct etiological factors in the development of PTSD symptoms and supports previous research in these populations, particularly when it is considered that the losses experienced by the participants ranged from natural circumstances to unexpected deaths (Morsette et al., 2007).

It is also possible that there are historical factors that should be considered in terms of these losses. As noted, *Yellow Horse Brave Heart* (2003) postulates that historical trauma is prevalent in American Indian communities and results from historical governmental policies that decimated American Indian populations. Loss may have special meaning in the case of loss of elders, who are considered repositories of ancestral and cultural knowledge (Morsette, 2006). They are responsible for sharing and passing this knowledge down through the generations, and thus young children who lose a grandparent or an elder, particularly those who represent a significant figure in their life, may not have the opportunity to learn traditional ways of life, thereby exacerbating loss effects and potentially putting these individuals at risk for developing historical trauma.

Of note, 94% of the children in this sample had lost someone in their lifetimes, and 74.6% had lost someone “close” to them in the last three years. It has been found that two key resiliency factors that counter the effects of trauma and depression for Indian youth are social support and hope (Belcourt-Ditloff, 2006; Wallace & Swaney, 2007). These protective factors may be reduced or compromised by number of losses and the person’s relationship to the individuals that they lost. More specifically, a loss of loved one affects a large number of people, often the entire community; thus, the strength of the social

support network is diminished. Furthermore, many of the children reported multiple losses, and being inundated with these experiences may decrease hope for the future, placing the children at risk of developing PTSD and depressive symptoms. This is supported in part by the fact that CTG symptoms predicted depressive symptoms over and above the amount predicted by CTSS symptoms. Thus, this may help account for the sense of the loss of meaning and purpose of life in some American Indian adolescents. In summary, this research suggests that the use of the culturally embedded concepts within the DSM may interfere with a complete and accurate case conceptualization (Morsette, 2008). Data from this study showed that only depression was associated with lower GPA, while all other symptoms demonstrated non-significant correlations with PTSD and school absenteeism.

Summary American Indian adolescents experience a higher rate of PTSD compared to the general population (Deters et al., 2008; Lonigan, Phillips, & Richey, 2003; Robins et al., 1996; Sue & Sue, 2003; Yellow Horse Brave Heart, 2003). In spite of the high rates of PTSD among these populations there is a dearth of research examining treatment outcomes and predictive factors associated with PTSD. One recent literature review revealed that there are few if any well conducted empirical treatment studies for any type of mental health disorders among American Indians (Gone & Alcantra, 2007).

Future research should examine treatment models for traumatic grief, and it should further explore the relationship between academics and mental health. Additionally, a qualitative understanding needs to be developed to better grasp the relationship between CTG and PTSD symptoms.

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