

**A STUDY OF THE LINKS BETWEEN TRAUMA EXPOSURE, RISK-TAKING
BEHAVIORS, MENTAL HEALTH SERVICE UTILIZATION AND SYMPTOMS:
COMPARISONS AMONG NATIVE AMERICAN, AFRICAN AMERICAN, AND
CAUCASIAN ADOLESCENTS.**

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Abstract

Objectives: To undertake a comparison of the links between trauma exposure, risk-taking behaviors, presenting problems/symptoms and mental health service utilization patterns among Native American, African American, and White adolescents.

Methodology: Quantitative data from children and families across 56 sites within the National Child Traumatic Stress Network (NCTSN), collected over a period of five years, 2004-2008 and analyzed using SAS statistical software. The sample size of this study, (n= 2909) was limited to adolescents aged 12-18 who identified as Native American (126), African American (1,250) and White (1,533) at baseline. Multiple measures of psychology and traumatic stress including the Child Behavior Checklist (CBCL), and risk-taking behaviors (e.g., substance use, suicidality, depression, illness, serious injury) were evaluated; analyses adjusted for age, number of trauma types, gender and clinical center.

Results: Native American adolescents experienced a significantly higher mean number of trauma types (4.7) as compared to White adolescents (4.1) and African American (3.4) adolescents. Specifically, Native American adolescents were more likely to experience sexual abuse, sexual assault/rape, serious injury, bereavement/loss/separation, and physical assault when compared to the other groups of adolescents. Native American adolescents also demonstrated disproportionately high rates of risk behaviors (e.g., substance abuse) and mental health problems (e.g., PTSD) compared with African American and White adolescents. Interestingly, among this group of trauma exposed youth, White adolescents had the highest rates of suicidality, but they were not significantly different from Native American and African American adolescents.

Conclusion: Given the high rates of trauma exposure, risk behaviors, and mental health problems in this sample of ethnically diverse youth, and ethnic/cultural variations across these domains, future research should explore potential differences in trauma related symptoms and problems, as well as, other health related disparities across these three groups of youth. Moreover, the findings underscore the need to develop practices and policies that can be used to prevent, identify early, and/or treat

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adolescents at risk to ensure accessibility across ethnic/cultural groups and minimize trauma-related sequela and disparities.

Keywords: Native American, American Indian, Alaskan Native, African American, trauma, risk behaviors, adolescents, mental health, and health disparities

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CHAPTER ONE: Introduction

The burden of mental illness in the United States is among the highest of all diseases and it affects children, adolescents and adults at alarmingly high rates (U.S. Department of Health and Human Services (2014), 2014). In 2010, approximately 1 in 5 adolescents in the United States had a diagnosable mental health disorder such as depression and/or anxiety (Costello, He, Sampson, Kessler, & Merikangas, 2014). Moreover, the World Health Organization (WHO) report on the health listed depression as the leading cause of illness among adolescents and suicide as the third leading cause of death among adolescents (World Health Organization, 2014). Trends in mental health that include higher rates of substance abuse, suicide, and depression among adolescents of various races and ethnicities and are associated with glaring racial and ethnic health disparities (Clayton, Brindis, Hamor, Raiden-Wright H., & Fong, 2000).

Racial disparities in health in the United States (US) are large, pervasive, and exist across the life-course (Williams & Mohammed, 2009). Research also reveals that pathogenic factors linked to race continue to affect health in many minority groups, even when critical factors such as poverty and socioeconomic status are accounted for (Kilbourne, Switzer, Hyman, Crowley-Matoka, & Fine, 2006). In comparison to other racial/ethnic groups in the US, Native Americans (NA) and African Americans (AA) are two minority groups that continue to experience considerable health disparities when compared to groups of Caucasians or Whites (Centers for Disease Control and Prevention (CDC), 2011). These health disparities include higher rates of substance abuse disorders and mental health disorders, particularly depression (Beals et al., 1997), higher rates of suicide and violent deaths, and higher re-victimization rates for sexual abuse, physical abuse, and neglect (Stevens et al., 2005).

Although trauma cuts across all races, ethnicities, and classes, research suggests that youth from low-income families are disproportionately affected by trauma, with Native American adolescents having approximately 2.5 times greater risk for exposure (Indian Health Service, 2003). Another factor that may account for the

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disparities among NA and AA populations, albeit in differential ways, is the historical trauma experienced secondary to racism. Racism as defined by Williams and Mohammed is a power dynamic that restricts individuals or groups based on skin color or other phenotypic characteristics that have been assigned social meaning. Thus racial differences are often manifested in people's self-perceptions and their health (Williams & Mohammed, 2009). It often leads to development of negative attitudes and beliefs towards "racial out-groups" (i.e., minority groups) and differential treatment of these minority groups by individuals and social institutions. Moreover, empirical studies have suggested that the various health disparities across NA and AA compared to White populations are the result of the complex interplay between stressful environmental conditions and the heightened risk for trauma given their historical backgrounds (e.g., removal from homelands, forced relocations, massacres, sexual abuse, bereavement, separations, and other losses). As a result, many NA and AA youth and adults have to contend with the consequences associated with high rates of exposure to domestic violence and community violence, homicide, suicide, victimization, and other adversities (BigFoot & Center, Indian Country Child Trauma, 2007). These factors are further compounded by disproportionate access to health care and mental health services (Indian Health Service, 2014). Thus, a combination of racism, chronic environmental assaults, and trauma may account for many of the health disparities observed in NA and AA populations.

Relevant Background

The NA racial group includes people having ancestors in any of the original peoples of North, South, and Central America, who maintain tribal affiliation or community attachment (U.S. Census Bureau (2010), 2011). Projections from the 2010 census estimate that 5.2 million people were classified as Native American/Alaskan Native/American Indian constituting 2% of the total population of the United States. Available research indicates that NA adolescents experience disproportionately higher rates of risk taking behaviors (e.g., alcohol and substance use, self-injurious behavior) (BigFoot & Center, Indian Country Child Trauma, 2007) and mental health problems (e.g., depression) (BigFoot & Center, Indian Country Child Trauma, 2007) yet utilize

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less mental health services than Whites and AA adolescents (Aspen Institute, 2014 ; BigFoot & Center, Indian Country Child Trauma, 2007). The African American racial group includes people having origins in any of the black racial groups of Africa (U.S. Census Bureau (2010), 2011). A report by the National Survey on Drug Use and Health among Black Adolescents revealed that AA adolescents aged 12 to 17, represent 15.2% of the total population of this age group while the Whites racial group constituted 77.9% of the population, with children less than 18 years accounting for 23.5% of the total population of the United States (Centers for Disease Control and Prevention (CDC), 2011). Overall, young people 12-18 constitute a significant proportion, (23.3%) of the population of the United States (U.S. Census Bureau (2010), 2011). This study defined adolescents as young people within the age range of 12 to 18 years.

Adolescence is a period marked by physical, psycho-social, and intellectual development that prepares young people for adult roles and responsibilities (World Health Organization, 2014). Many epidemiologic studies of adolescent health problems indicate the pervasiveness of behavioral factors in the morbidity and mortality of adolescents with many of these behaviors initiated during adolescence and continuing on to adulthood (e.g., alcohol, drugs and tobacco use) (World Health Organization, 2014). Compared to other races in the United States, NA adolescents experience higher rates of alcohol and substance abuse, mental health disorders, suicide, violence, and behavior related chronic diseases than any other race in the U.S. (BigFoot & Center, Indian Country Child Trauma, 2007; de Ravello, Everett Jones, Tulloch, Taylor, & Doshi, 2014). A study by Whitbeck and colleagues on NA adult males, showed substance use and alcohol use was 1.7 times higher in NA populations than all other races in the U.S. (Whitbeck et al). Another study by Novis and Baron found that the risk of substance abuse in NA adolescents peaked at age 18. Moreover, NA have the highest rates of suicide among 15-24 year olds in the United State (34 per 100,000 compared to 11 per 100,000 for overall U.S. population (Williams & Mohammed, 2009). These findings suggests that policies and practices that target the youth's environment could have positive effects on decreasing substance use and associated comorbidity in this age group (Novins & Baron, 2004). Each of these serious behavioral health issues has a

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profound impact on the health of individuals, families and their communities. (Indian Health Service, 2014).

More than 55% of NA rely on Indian Health Service (IHS) for their health care needs (Indian Health Service, 2014). Per capita funding for NA healthcare through the IHS is 60% less than is spent on the average American (U.S. Commission on civil rights). A large study of NA adolescents by Beals et.al. found that 34-44% of those with a history of depressive or anxiety disorder sought help from traditional healers (Beals et al., 1997) . Similarly, another study by Walls et al found that parents of NA adolescents with behavioral problems, substance abuse problems, and mental health problems strongly preferred traditional cultural health services which they believed to be more attuned to their needs (Walls, Johnson, Whitbeck, & Hoyt, 2006). Lack of inclusion of NA participants in behavioral health research and previously described exclusion of traditional healing practices has led to under-utilization of available health services due largely to distrust in the current systems.

Many studies have reported lower levels of institutional trust, (i.e., a patient's trust for the medical profession, systems, providers and/or government) among NA and AA than for White populations. To date, very few published studies have examined the links between trauma exposure, risk-taking behavior, and mental health service utilization and symptoms across these groups. A deeper understanding of the background institutional distrust among the NA people, NA adolescents' trauma experiences, and the association with risk-taking behaviors, service utilization, and symptoms may help to improve effective future interventions to reduce the negative consequences associated with trauma and other adversities.

To this end, this study seeks to: (1) extend research on trauma and mental health among NA, AA, and Caucasian/White adolescents; (2) improve our understanding of types of trauma exposure, risk behaviors, mental health symptoms/disorders and service utilization; and (3) identify potential racial differences across NA, AA, and White adolescents so that interventions can be developed to reduce disparities.

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Purpose

The purpose of this study is twofold:

- To describe the types of trauma exposures, mental health service utilization patterns, and presenting problems/symptoms among Native American as compared to African American and White adolescents seeking assessment and treatment services at NCTSN sites.
- To explore whether types of trauma exposure, mental health service utilization, and presenting problems/symptoms differ among Native American, African American, and Caucasian adolescents

Hypotheses

1. NA adolescents will have higher total number of trauma types than AA and White adolescents.
2. NA adolescents will have higher rates of an array of mental health (emotional and behavioral) problems including substance use, suicidality, and depression than AA and White adolescents.

CHAPTER TWO: Methodology

Design and Sample

In 2000, Congress authorized the Donald J. Cohen National Child Traumatic Stress Initiative in recognition of the extensive and often unmet needs of children and families exposed to trauma. This initiative is administered through the Center for Mental Health Services (CHMS) branch of the Substance Abuse and Mental Health Services Administration (SAMHSA). The National Child Traumatic Stress Network (NCTSN) and its coordinating center, the UCLA- Duke University National Center for Child Traumatic Stress (NCCTS), were jointly established to meet the needs of traumatized children, their families, and communities. The NCTSN is a collaborative, cross-disciplinary network comprised of community, university, and hospital based centers integrating extensive clinical and community experience with broad scientific expertise. The mission of the NCTSN is to raise the standard of care for traumatized children and improve access to services for traumatized children, their families and communities, throughout the United States.

Data from the NCTSN Core Data Set collected from 2004-2010 were used for the present study. Data were gathered from children and families from across 56 sites within the NCTSN and analyzed using the SAS statistical software. The present study included adolescents, 12-18 years ($n=2,909$), that were identified as Native American, $n=126$ (NA), African American, $n=1,250$ (AA) or White, $n=1,533$, who had experienced at least one traumatic event, and a subset ($n=2,767$) of adolescents who utilized various treatment services in the 30 days prior to intake were also examined. Although the data were collected over five years, the study only included the most recent observations to avoid duplication of observations and ANOVA test was used for significance testing across and within the three comparison groups. We adjusted for age, the number of trauma types, gender and clinical center through generalized mixed model with random effect for the center.

Measures

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The Child Behavior Checklist (CBCL). The CBCL is a widely used questionnaire and scoring report completed by an adult caregiver who knows the child/adolescent well and can report on the child's functioning. It consists of 113 items scored on a 3-point scale ranging from 0 (not true) to 2 (often true) and yields scores that reflect the emotional and behavioral problems and symptoms of the child/adolescent. The following subscales were computed and used for the present study: Internalizing Behavioral Problems (e.g., depressive symptoms), Externalizing Behavioral Problems (e.g., aggressive or rule-breaking behaviors), and Total Behavioral Problems.

Clinical Evaluation. The Clinical Evaluation Form is a measure used to assess clinical problems, symptoms, and disorders based on the clinician's diagnostic impressions and related collateral information. The emotional and behavioral problems, symptoms, and disorders used in the present study included a broad array of developmentally salient psychosocial and health related problems, including: Depression, Suicidality, Substance Abuse, Post-Traumatic Stress Disorder (PTSD), Dissociation, Somatization, Generalized Anxiety, Separation Disorder, Panic Disorder, Attachment Problems, Sexual Behavioral Problems, Oppositional Defiant Disorder, Conduct Disorder, General Behavioral Problems, Attention Deficit Hyperactivity (ADHD), and Sleep Disorder.

Service Utilization. The services used 30 days prior to entry into treatment were identified by adolescents, caregivers and clinicians. This form included 19 different types of services representing an array of child service systems. All service utilization variables were coded yes, no, or unknown and included primary care centers, child welfare centers, mental health outpatient care, mental health inpatient care, juvenile justice, emergency department, case management and other services (foster care, therapeutic recreation services).

Trauma History Profiles. The definitions supplied for all trauma types were captured as part of the UCLA PTSD-RI screening instrument and are modeled after the National Child Abuse and Neglect Data System Glossary. For each trauma type, providers were asked to indicate whether: (0) no trauma occurred, (1) the trauma had occurred, (2) if it was suspected to have occurred, and (99) if unknown. THP screens for

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20 different types of traumatic events. Types of exposure assessed include sexual maltreatment/abuse, sexual assault/rape (actual or attempted sexual molestation, exploitation, or coercion not by a caregiver and not recorded as sexual abuse); physical maltreatment/abuse, physical assault (actual or attempted infliction of physical pain or bodily injury not by a caregiver and not recorded elsewhere); emotional abuse/psychological maltreatment, neglect (physical, medical or educational neglect); domestic violence (exposure to physical, sexual and/or emotional abuse directed at adult caregiver(s) in the home); illness/medical trauma, serious injury/accident (unintentional injury/accident); natural disaster, kidnapping, traumatic loss or bereavement (death of a primary caregiver or sibling); impaired caregiver (history of exposure to caretaker mental health problems, medical illness, or alcohol/drug abuse); school violence (e.g., school shooting, bullying, classmate suicide), and community violence (e.g., gang-related violence, neighborhood violence).

UCLA Posttraumatic Stress Disorder-Reaction Index (UCLA PTSD-RI). The UCLA PTSD-RI is a widely-used 22-item clinician-administered or self-report measure of DSM-IV PTSD symptoms and traumatic events experienced by youth 7-18 years of age (Steinberg et al., 2004). Total-scale scores were computed and used in the present study. Psychometric properties in the Core Data Set are robust (Steinberg et al., 2013).

Demographics. The demographic variables included in this study are gender (male, female), age (in years), and race/ethnicity (coded as Native American, African American, and White). Type of insurance (specifically public insurance) served as a proxy for low socio-economic status. Current primary residence included living at home with parents, living relatives or other family, foster care, residential treatment center, and others (e.g., independent living or unknown).

All study procedures and methods adhered to the Duke University Health System (DUHS) Institutional Review Board (IRB) and other federal regulations regarding human subject protection and confidentiality.

CHAPTER THREE: Results

To examine the study objectives and hypotheses, comparisons were made between Native American (NA), African American (AA), and Caucasian (White) adolescents. The total sample size included 2,909 children and adolescents from the larger NCTSN Core Data Set (CDS).

Table 1 presents demographic characteristics by comparison groups and shows the mean age of the sample ($M=14.8$, $SD=1.7$), with NA adolescents being slightly older ($M=15.2$, $SD=1.7$) than the AA ($M=14.6$, $SD=$) and White adolescents ($M=15.0$, $SD=1.7$). There was a higher proportion of females in the sample (60%) across the 3 comparison groups. The National Center for Children in Poverty describes NA and AA children as disproportionately living in poverty (income and resources of their parents are so inadequate as to preclude them from having an acceptable standard of living within the society), compared to White children. Also, while 32% of Whites live in low income families, 66% of AA and 64% of NA children live in low income families (National Center for Children in Poverty, 2007). For many children from low income families, their ability to access health insurance is affected by this disparity (National Center for Children in Poverty, 2007). In our study, the type of health insurance was used to assess socioeconomic status. A higher percentage of White adolescents, 19.2% had access to private health insurance compared to NA, and AA who had 15.1% and 6.8% respectively. Similarly, NA and AA adolescents were more likely to have access to public health insurance such as Medicaid. Across all groups, most adolescents lived with their parents (50.9%-63.0%) but NA adolescents were significantly more likely to live in foster care homes (17.0%) or other settings (e.g., homeless or independent living) than AA (14.2%) and White (10.5%) adolescents.

Table 2 presents the various trauma types across Native American, African American and White adolescents. NA adolescents had significantly higher number of trauma types compared to AA and White adolescents. NA had ($M=4.7$) types of trauma

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compared to ($M=3.4$) types of trauma among AA adolescents and ($M=4.1$) types of trauma among White adolescents. ($p<0.05$), confidence intervals (1.93, 2.87; 0.52, 1.35; 0.67, 1.58) respectively, thus statistically significant. NA adolescents had the highest percentage of sexual maltreatment/abuse (28.6%) compared to White adolescents (25.3%) and AA adolescents (18.9%). Native American adolescents, as compared to AA and White adolescents, were more likely to be sexually assaulted (33.3% vs. 17.9% vs. 23.1%), had higher rates of physical maltreatment/ abuse, (36.5% vs. 27.4% vs. 33.5%), higher rates of illness/medical (20.6% vs. 8.1% vs. 10.9%), and higher rates of serious injury (21.4% vs. 11.0% vs. 15.0%). Physical assault was also highest in NA (23%) as compared to AA (13.1%) and White (15.0%) adolescents. In contrast, AA adolescents had higher rates of community violence at 24.9%, as compared to NA (22.2%) and White (11.9%) adolescents. White adolescents also had higher rates of domestic violence (47.8%) as compared to NA (46.0%) and AA (34.5%) adolescents.

Table 3 presents emotional and behavioral problems, symptoms and disorders demonstrated across Native American, African American and White adolescents. NA adolescents had the highest level of Post-Traumatic Stress Disorder (PTSD), substance abuse, sleep disorders, and dissociation as compared to AA and White adolescents. Whites had the highest rates of depression and Generalized Anxiety Disorder when compared to NA and AA. African Americans had the highest rates of Oppositional Defiant Disorder as compared to the other 2 groups of adolescents. Similar rates of general behavioral problems were found in White adolescents (50.0%) and AA (50.3%) vs. NA adolescents (38.3%). The rates of Suicidality were not significantly different across all 3 groups, 15.0% in AA adolescents, 17.4% in NA and 18.0% in White adolescents.

Table 4 presents service utilization within NA, AA and White adolescents. Overall, White adolescents had the highest rates of utilization of primary care services (18.3%), followed by NA (17.1%), with AA (14.2%) having the least usage of primary care services. Native American and White adolescents had similar utilization rates for inpatient care, (20.5% vs. 20.7%) while African American adolescents utilized inpatient care at lower rates (13.0%). Outpatient care was utilized most by NA adolescents

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(56.4%), Whites (47.9%), and least utilized by AA adolescents (41.8%). The highest percentage of youth utilizing the juvenile justice system was NA (21.4%), Whites (18.6%), and AA (14.3%). Case management services were utilized most by NA adolescents (51.3%) and Whites (33.0%), and utilized least by AA (26.1%) adolescents. There were no significant differences between utilization of school services or emergency department services across the three groups.

Table 1. Demographic Characteristics among NA, AA and White adolescents utilizing NCTSN centers for mental health services.

	Native American (N=126)	African American (N=1,250)	White (N=1,533)	Total (N=2,909)
Age, M (SD)*	15.2 (1.7)	14.6 (1.7)	15.0 (1.7)	14.8 (1.7)
Gender (N, %)				
Male	41 (32.5)	508 (40.6)	582 (38.0)	1,131 (38.9)
Female	85 (67.5)	742 (59.4)	951 (62.0)	1,778 (61.1)
Primary Residence (N, %)*				
Home (with parent(s))	57 (50.9)	634 (56.5)	900 (63.0)	1,591 (59.7)
Home (with relatives)	15 (13.4)	206 (18.3)	157 (11.0)	378 (14.2)
Foster care	19 (17.0)	160 (14.2)	150 (10.5)	329 (12.4)
Residential treatment	8 (7.1)	70 (6.2)	153 (10.7)	231 (8.7)
Other	13 (11.6)	53 (4.7)	68 (4.8)	134 (5.0)
Insurance (N, %)*				
None	22 (17.5)	323 (25.8)	341 (22.2)	686 (23.6)
Private	19 (15.1)	85 (6.8)	294 (19.2)	398 (13.7)
Public	84 (66.7)	835 (66.8)	855 (55.8)	1,774 (61.0)
Both	1 (0.8)	7 (0.6)	43 (2.8)	51 (1.8)

***Statistically significant relationship using ANOVA between variable and groups at the $p < 0.05$ level.**

Table 2. Trauma Types among NA, AA and White adolescents utilizing NCTSN centers for mental health services.

Trauma Types	Native	African	White
	American	American	
	N (%)	N (%)	N (%)
Sexual maltreatment/abuse*	36 (28.6)	236 (18.9)	388 (25.3)
Physical maltreatment/abuse*	46 (36.5)	343 (27.4)	514 (33.5)
Sexual assault/rape*	42 (33.3)	224 (17.9)	354 (23.1)
Physical assault*	29 (23.0)	164 (13.1)	230 (15.0)
Emotional abuse/psych maltreatment*	58 (46.0)	311 (24.9)	703 (45.9)
Neglect	32 (25.4)	339 (27.1)	445 (29.0)
Domestic violence*	58 (46.0)	431 (34.5)	733 (47.8)
Illness/ medical*	26 (20.6)	101 (8.1)	167 (10.9)
Serious injury*	27 (21.4)	138 (11.0)	230 (15.0)
Traumatic loss or bereavement	78 (61.9)	704 (56.3)	826 (53.9)
Impaired caregiver*	62 (49.2)	390 (31.2)	800 (52.2)
Community violence*	28 (22.2)	311 (24.9)	182 (11.9)
School violence	25 (19.8)	187 (15.0)	200 (13.0)
Total number of traumas, M (SD)	4.7 (3.1)	3.4 (2.2)	4.1 (2.6)

***Statistically significant relationship between variable and groups at the $p < 0.05$ level.**

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Table 3. Emotional and Behavioral Problems, Symptoms, and Disorders among NA, AA and White adolescents utilizing NCTSN centers for mental health services.

	Native American (N=115) N (%)	African American (N =1,050) N (%)	White (N=2,733) N (%)
Depression*	78 (67.8)	694 (66.1)	991 (71.2)
Suicidality	20 (17.4)	158 (15.0)	251 (18.0)
Substance abuse*	43 (37.4)	122 (11.6)	345 (24.8)
PTSD*	80 (69.6)	629 (59.9)	912 (65.5)
Dissociation*	35 (30.4)	199 (19.0)	244 (17.5)
Somatization*	21 (18.3)	155 (14.8)	264 (19.0)
Generalized anxiety*	44 (38.3)	371 (35.3)	616 (44.3)
Attachment problems	51 (44.3)	376 (35.8)	507 (36.4)
Sexual behavioral problems	18 (15.7)	152 (14.5)	201 (14.4)
Oppositional defiant disorder*	25 (21.7)	327 (31.1)	387 (27.8)
Conduct disorder*	11 (9.6)	146 (13.9)	149 (10.7)
General behavioral problems*	44 (38.3)	528 (50.3)	696 (50.0)
ADHD	31 (27.0)	301 (28.7)	409 (29.4)
Sleep disorder*	25 (21.7)	148 (14.1)	274 (19.7)
CBCL % in clinical range			
Externalizing	49 (58.3)	456 (50.6)	637 (55.4)
Internalizing*	40 (47.6)	367 (40.7)	589 (51.3)
Total*	50 (59.5)	480 (53.3)	700 (60.9)
*Statistically significant relationship between variable and groups at the $p < 0.05$ level.			

Table 4. Service Utilization among NA, AA and White adolescents utilizing NCTSN centers for mental health services.

	Native American (N=117) N (%)	African American (N=1,180) N (%)	White (N=2,868) N (%)	Total (N=4,165) N (%)
Primary Care*	20 (17.1)	169 (14.2)	268 (18.3)	457 (16.5)
Child Welfare	60 (51.3)	502 (42.3)	627 (42.9)	1,189 (43.0)
MH Outpatient Care*	66 (56.4)	496 (41.8)	700 (47.9)	1,262 (45.6)
MH Inpatient Care*	24 (20.5)	155 (13.0)	302 (20.7)	481 (17.4)
Juvenile Justice*	25 (21.4)	170 (14.3)	272 (18.6)	467 (16.9)
Emergency Department	9 (7.7)	79 (6.6)	120 (8.2)	208 (7.5)
Case Management*	60 (51.3)	310 (26.1)	482 (33.0)	852 (30.8)
Other Services	22 (18.8)	174 (14.6)	237 (16.2)	433 (15.6)

*** Statistically significant relationship between variable and groups at the $p < 0.05$ level.**

Note. ADHD = Attention Deficit Hyperactivity Disorder

PTSD = Post-Traumatic Stress Disorder

CHAPTER FOUR: Discussion

The findings in this study are consistent with other studies that suggest that NA adolescents compared to their non-NA peers are at heightened risk of experiencing traumas and more likely to engage in risk-taking behaviors such as substance abuse (Beauvais, Thurman, Burnside, & Plested, 2007; Boyd-Ball, Manson, Noonan, & Beals, 2006). NA adolescents in our study experienced the greatest total number of trauma types compared to AA and White adolescents. This finding is also consistent with a report by the Indian Health Services (IHS) that suggests that NA adolescents have a 2.5 times greater risk of trauma than their peers (Indian Health Service, 2003). The rates of sexual abuse and assaults, physical abuse and assaults, serious injury, placement in foster care homes, and substance abuse problems, were significantly higher in NA adolescents than in AA or White adolescents.

Despite the fact that NA adolescents had a greater number of trauma types, they had limited access to private health insurance which may in turn affect the services available to them outside of the NCTSN, this may in turn have further implications for their mental health.

Across all three comparison groups in our study, most adolescents lived at home with their parents. Native American adolescents, however, were more likely to reside in foster homes when compared to AA and white adolescents. This is consistent with a study by (Earle & Cross, 2001) on child abuse and neglect among Native American/American Indian children that these adolescents are more likely than White adolescents to be placed in foster care (Earle & Cross, 2001) and as a result of living in foster care placements, these adolescents are at increased risk of exposure to additional trauma and engaging in risk taking behaviors. Native American youth in the present study were at greater risk of substance abuse disorders compared with White and AA adolescents. These findings align with other studies (Beals et al., 1997; Beauvais et al., 2007; Boyd-Ball et al., 2006; Cohen, Mannarino, Zhitova, & Capone, 2003) that found higher rates of trauma exposure are associated with substance abuse disorders. This heightened risk of trauma exposure, may also be associated with

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increased risk of other behaviors, such as alcohol and substance use, that may help youth cope but undermine resilience.

Our findings deviate slightly from previous research that suggests that NA adolescents have a four-fold higher rate of mental health problems including suicide and depression (Centers for Disease Control and Prevention (CDC), 2011); (Office of Minority Health, 2008). In our study, suicidality was highest in White adolescents, but not significantly different across groups. Moreover, White adolescents in our sample had the highest rates of depression. This is particularly relevant given the WHO report that describes depression as the leading cause of illness in adolescents (World Health Organization, 2014).

Limitations

Although this study confirms what some researchers have previously observed, namely that NA youth experience a high degree of trauma compared to other groups, there are some limitations that should be noted. First, the sample in this study was not randomly selected but rather was a clinical sample of adolescents seeking assessment and treatment services at NCTSN centers. As a result, some of the findings reported may not generalize to all adolescents in the United States. Another limitation of the present study is the small sample size of NA adolescents as compared to the other two groups. Future research should employ the use of a non-clinical or community based samples to assess whether these results can be generalized to other groups of ethnically diverse adolescents.

Conclusion

Compared to White and AA adolescents, NA adolescents experience disproportionately high rates of behavioral symptoms or disorders like substance abuse (drugs and alcohol), PTSD, and significantly higher rates of trauma such as sexual abuse and sexual assaults/rape, serious injury, bereavement/loss/separation, and physical assault. Child service agencies and their providers may miss opportunities to identify youth with trauma related problems to permit early and effective intervention (Hanson, Hesselbrock, Tworkowski, & Swan, 2002). Public health practitioners should

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focus on prevention of these trauma types among NA adolescents, early intervention where they occur and matching them with the appropriate mental health services. These can be done through the implementation of universal screening and targeted, multifaceted, interventions specifically aimed at reducing risk-taking behaviors. They could include widespread school based interventions; public health discussions in schools (Kaufman et al., 2007). Effective prevention approaches and policies may include those that incorporate aspects of or are responsive to the culture and values of NA and other adolescents of color. This may include practices that support their traditional practices, customs, and teachings and are provided in settings that are not only culturally sensitive but support resilience and recovery (Goodkind, Lanoue, & Milford, 2010).

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