A COMPARISON OF EARLY ADOLESCENT BEHAVIORAL HEALTH RISKS AMONG URBAN AMERICAN INDIANS/ALASKA NATIVES AND THEIR PEERS

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Abstract: We sought to examine behavioral health indicators for an early adolescent population of American Indians/Alaska Natives (AI/AN) within an urban setting in Washington State. We conducted secondary data analyses from a randomized clinical trial implemented in local middle schools that compared AI/ANs (n = 43), non-Hispanic Whites (n = 620), and other racial/ethnic minority youth (n = 527) across a variety of behavioral health risks. AI/AN youth reported significantly more depressive symptoms than other racial/ethnic minorities as well as non-Hispanic Whites. They also reported more discrimination, more generalized anxiety, and were more likely to have initiated substance use, in comparison to non-Hispanic Whites. Psychosocial screening and early intervention are critically needed for AI/AN youth.

INTRODUCTION

American Indian and Alaska Native (AI/AN) persons have historically been understudied in the psychosocial literature. The population is growing, and yet according to U.S. Census data from 2010, approximately l.6% of the total United States population endorsed some degree of AI/AN heritage (U.S. Census Bureau, 2010). In comparison to other ethnic minority groups, there is little research that has addressed the strengths, disparities, and needs of AI/AN individuals. Even more so, there is a lack of psychological studies that have focused on AI/AN youth. This may be due to difficulties inherent to conducting child and adolescent research with AI/ANs (e.g., obtaining informed consent); however, this is an important research gap. In order to reduce health disparities that have greatly affected this population, it is important to have a robust research body to guide appropriate clinical interventions. We especially wish to highlight the importance of examining psychological development among early adolescents (enrolled in

middle schools) as an understudied area, as overall within the child development literature there are more studies on child populations (i.e., elementary school aged youth) and later adolescent populations (i.e., high school aged youth). Further, there have been limited studies that have addressed the functioning of AI/AN individuals within urban settings (versus rural settings or tribal reservations). Thus, taken together, we seek to examine behavioral health indicators among an extremely understudied group: AI/AN early adolescents living in an urban setting.

To our knowledge, there are only a handful of studies that have examined mental health among AI/AN adolescents (Beals et al., 1997; Manson, Ackerson, Dick, Baron, & Fleming, 1990; Whitesell et al., 2014). Regarding epidemiology, the research has predominantly focused on older adolescents. In general, AI/AN adolescents experience elevated rates of psychiatric disorders (Beals et al., 1997). One study found that AI/AN adolescents enrolled in a boarding school had depression rates as high as 58.1% (Manson et al., 1990). Among AI/AN adolescents seeking mental health treatment, mood disorders and adjustment disorder were the most common psychiatric diagnoses (not including substance use), and 84.2% reported having witnessed domestic violence (Dickerson & Johnson, 2012). There have also been elevated rates of psychiatric disorders among AI/AN adolescents detained in the juvenile justice system (Duclos et al., 1998). It is important to highlight that there is substantial heterogeneity among AI/AN adolescents (especially with regards to cultural practices), and cultural heterogeneity is associated with unique constellations of psychiatric risk factors (Novins, Beals, Roberts, & Manson, 1999). Research on clinical mental health interventions for early adolescent AI/ANs is even more limited compared to the epidemiological literature. One pilot study (N = 8) found initial support for an intervention targeting depression among early adolescent AI/ANs (Listug-Lunde, Vogeltanz-Holm, & Collins, 2013). However, there is a need for more clinical studies targeting early adolescent AI/ANs in particular to both create appropriate clinical interventions and to research the generalizability of such interventions among this heterogeneous group.

In addition to having a greater risk of mental health difficulties, AI/AN youth are at greater risk for problematic substance use. Research suggests that substance use initiation typically occurs between the ages of 10 and 13 for AI/AN youth, making it all the more important to conduct further research with AI/AN early adolescents in particular (Beauvais, 1996). AI/AN youth are more likely than their peers to use tobacco, use inhalants, smoke cannabis, and, in some instances, drink alcohol (Hawkins, Cummins, & Marlatt, 2004). They are

also more likely to continue substance use after initiation and have higher rates of polysubstance use (Beauvais, 1992; Hawkins et al., 2004). It has been found that AI/AN adolescents show elevated rates of drug use in comparison to their non-AI/AN peers (Beauvais, 1996). Whitesell and colleagues (2014) examined predictors of escalating substance use among AI/AN youth and found that exposure to stress, early puberty, and deviant peer relationships were associated with increased substance use. In another sample of AI/AN youth, 70% identified at least one parent or grandparent who met lifetime criteria for an alcohol use disorder (Walker et al., 1996), which may also explain why AI/AN youth are at greater risk for substance use disorders. There is also significant complexity among this group, with some research finding distinctions between low-frequency and high-frequency cannabis use, tribal affiliation, gender, and other substance use (Novins & Mitchell, 1998). Importantly, there is evidence that community-delivered, culturally-grounded prevention programs can successfully address substance use among AI/AN youth (Donovan et al., 2015; Thomas et al., 2009).

Mental health and substance use problems among AI/AN adolescents may relate to their social integration among their peers and wider community, as socialization is an important aspect of adolescent development (see Fergusson & Woodward, 2002 for a longitudinal study examining psychosocial outcomes in an ethnically diverse adolescent sample). To address socialization processes, we were interested in examining two social integration constructs: school belongingness and perceived discrimination. School belongingness is the extent to which an individual feels connected to his/her school (Goodenow, 1993). A stronger sense of school belongingness is a protective factor against substance use for AI/AN youth, with a lower lifetime report of alcohol and cigarette use, lower frequency of alcohol and cigarettes, fewer substances ever used, and a later age of drug use initiation (Napoli, Marsiglia, & Kulis, 2003). These findings are consistent with research showing that lower school involvement is associated with increased substance use among AI/AN youth (Friese, Grube, & Seninger, 2015). Perceived discrimination, another aspect of social integration, has been found to be strongly associated with depressive symptoms among AI/AN adults (Whitbeck, McMorris, Hoyt, Stubben, & LaFromboise, 2002). There is also empirical support that discrimination may be an independent risk factor for substance use (LaFromboise, Hoyt, Oliver, & Whitbeck, 2006). There are also indications that perceived discrimination affects psychosocial functioning among AI/AN youth. For example, perceived discrimination has been linked to early substance use initiation among

AI/ANs in 5th through 8th grade (Whitbeck, Hoyt, McMorris, Chen, & Stubben, 2001). Much less literature addresses the effects of discrimination among AI/AN children and adolescents, and there is a need for more research on how discrimination affects their development.

In addition to a relatively limited literature addressing the behavioral health needs of AI/AN adolescents, there is a scarcity of empirical investigations that have examined the needs of AI/AN adolescents in urban settings. Approximately 70% of AI/ANs live outside of tribal reservations and within urban areas, where they generally have less familial and social support (Castor et al., 2006). Urbanization of AI/ANs has resulted from forced relocation (e.g., the Indian Relocation Act of 1956) and increased opportunities for education and employment in urban areas (Jackson, 2002; Wendt & Gone, 2012). Urbanization has resulted in poverty that is on par with poverty on reservations and considerably higher than in the general urban population (Dickerson & Johnson, 2010). Compared to their counterparts on reservations, urban AI/AN adolescents have less familial and social support, fewer opportunities to engage in traditional cultural practices, and less access to culturally appropriate health care services (Castor et al., 2006; Evans-Campbell, Lindhorst, Huang, & Walters, 2006).

Taken together, there has been very little research examining mental health, substance use, and social integration/isolation risks among early adolescent AI/ANs living in urban settings. Our study addresses behavioral and social health indicators among AI/AN early adolescents (attending 7th and 8th grades) within an urban setting. The purpose of this study was to compare rates and levels of depression and anxiety, early substance use initiation, and social integration (school belongingness and perceived discrimination) between AI/AN early adolescents, other racial/ethnic minority youth, and non-Hispanic White youth. Using secondary analyses of data from a large sample of middle school youth, we hypothesized that AI/AN early adolescents would report higher rates of depression, anxiety, and substance use in comparison to their peers (both non-Hispanic Whites and other minorities). We also used an exploratory approach to examine differences across social integration (i.e., school belongingness and perceived discrimination).

METHODS

Overview of Original Study

We conducted secondary analyses from a cross sectional screening survey that was used to identify 7th and 8th grade students eligible to enroll in a preventive mental health intervention study among early adolescents enrolled in four, urban middle schools in Washington State (McCarty, Violette, Duong, Cruz, & McCauley, 2013). Of the 2,650 students enrolled at these schools, 1,190 students (45%) returned parental consent forms to be included in the study. Those with elevated depression scores were eligible to participate in the full intervention study. We utilized data from the initial screening portion of that study (N = 1,190). This study was approved by the Seattle Children's Research Institute Institutional Review Board and followed all laws and regulations for the protection of human subjects. Participants who assented and had parental consent to participate in the study completed an assessment battery including mental health, substance use, and social integration measures. Across all measures, no more than 7 data points were missing for any measure utilized in this study. See McCarty et al. (2013) for a full description of the original study.

Participants

Of the 1,190 youth that provided assessment data for these analyses, 43 youth indicated that they primarily identified as AI/AN, 527 indicated other racial/ethnic minorities, including Asian (n = 244), Latino (n = 144), African American (n = 43), Native Hawaiian or Pacific Islander (n = 33), and all others (n = 63), and 620 indicated non-Hispanic White. All participants were between the ages of 11 and 15. Of the total sample, 84.12% were either 12 or 13 years old. Among the AI/AN early adolescents, the average age was 12.58 years (SD = .82), and 65.1% were female. All participants were enrolled in local, urban middle schools.

Measures

Depression

Depressive symptoms were assessed using the Mood and Feelings Questionnaire, Child Self-Report, Long Form (Angold et al., 1995; Burleson Daviss et al., 2006). This 32-item measure asks participants to report the frequency of depressive symptoms in the previous two

weeks (*most of the time*, *sometimes*, or *not at all*). Example items include "I felt I was no good anymore," "I felt I was a bad person," and "I felt lonely." This measure has been normed on early adolescents, but not explicitly among AI/AN youth. We examined depressive symptoms as both a continuous variable, as well as using a clinically-significant cutoff score of 29 (as suggested by Burleson Daviss et al., 2006). Possible scores on the measure range from 0 to 66. The MFQ was originally normed on participants between ages 6-17.

Anxiety

Data on anxiety came from the Revised Children's Anxiety and Depression Scale (RCADS; Chorpita, Moffitt, & Gray, 2005) to assess symptoms of anxiety. The RCADS is a 47-item measure that assesses specific types of anxiety (e.g., generalized anxiety disorder, panic disorder, social phobia, etc.). We used the Generalized Anxiety Disorder subscale for our analyses (6 items). Example items from the RCADS include "I worry when I go to bed at night" and "I worry about what is going to happen." The RCADS was normed on a sample of children in grades 3-12, with an average age of 12.9 years (*SD* = 2.7).

Substance Use Prevalence

Substance use data were collected by assessing lifetime prevalence of any use as an indicator of early initiation. Participants responded to three items that assessed whether they had ever used alcohol, cannabis, and tobacco. The tobacco items did not assess if tobacco was used in ceremony settings and/or as a part of cultural practices. A composite, dichotomous variable indicating any lifetime substance use was created from these three items.

School Belongingness

We assessed school belongingness using the Psychological Sense of School Membership scale (Goodenow, 1993). This measure contains 18 items that are rated on a 5-point Likert scale (1 = *not at all true*, 5 = *completely true*). Example items include "I feel like a part of my school" and "I can really be myself at school." A total score is summed and represents the degree to which a youth feels a sense of school belongingness and school connectedness. This measure was originally normed on a sample of participants with a mean age of 12.65 years (*SD* = .98).

Perceived Discrimination

Participants also completed the Multicultural Events Scale for Adolescents (MESA), and we used the discrimination subscale to examine the construct of perceived discrimination

(Gonzales, Gunnoe, Jackson, & Samaniego, 1995; Gonzales, Tein, Sandler, & Friedman, 2001). Participants were asked to rate if each event listed had "happened" or "did not happen" in the previous three months. The discrimination subscale contains six items. Examples include items such as "You were unfairly accused of doing something bad because of your race or ethnicity" and "People put you down for practicing the customs or traditions of your own race or ethnicity or country of origin." This measure was originally normed on a sample of participants with a mean age of 13.35 years (*SD* = .88).

Data Analytic Plan

We first examined the bivariate data using Pearson correlations within the AI/AN group in order to examine how depression, anxiety, and social integration were related. We were particularly interested in the relationship between the mental health constructs (depression and anxiety) and the social integration constructs (school belongingness and perceived discrimination). We then used one-way ANOVAs and chi-square tests to examine racial/ethnic group differences of the entire sample regarding depression, anxiety, early substance use initiation, perceived discrimination, and school belongingness. We compared the AI/AN early adolescents to other racial/ethnic minorities as well as non-Hispanic White youth.

RESULTS

Bivariate Analysis

We examined the correlations between the continuous measures within our study, which included depression, anxiety, school belongingness, and perceived discrimination (see Table 1). Not surprisingly, depression and anxiety symptoms were positively correlated ($r = .68$, $p < .001$). Depression was negatively correlated with school belongingness, such that increases in depression were associated with less psychological connection with the school environment ($r = -.35$, $p = .02$). Perceived discrimination was positively correlated with both depression ($r = .36$, $p = .02$) and anxiety ($r = .35$, $p = .02$). School belongingness and perceived discrimination were not significantly correlated.

Table 1
Bivariate Data Among American Indian/Alaska Native Early Adolescents (*n* = 43)

	Depression[1]	Anxiety[2]	School Belongingness[3]	Perceived Discrimination[4]
Depression[1]	-	-	-	-
Anxiety[2]	.68***	-	-	-
School Belongingness[3]	-.35*	-.1	-	-
Perceived Discrimination[4]	.36*	.35*	-.06	-

Note. [1] The Mood and Feelings Questionnaire. [2] Revised Children's Anxiety and Depression Scale. [3] Psychological Sense of School Membership. [4] Multicultural Events Scale for Urban Adolescents.
* signifies p <.05. *** signifies p <.001.

Mental Health Outcomes

There was a statistically significant difference between racial/ethnic groups on the total depression score ($F(2, 111.57) = 11.31$, $p < .001$). Post-hoc tests indicated that the AI/AN group had a significantly higher depression score ($M = 18.30$, $SD = 13.67$) than non-Hispanic Whites ($M = 9.67$, $SD = 9.22$; $p = .001$) and other minorities ($M = 11.43$, $SD = 11.06$; $p = .007$). Notably, the AI/AN early adolescents reported nearly twice the level of depression compared to non-Hispanic White adolescents. There was also a significant difference between other minorities and non-Hispanic Whites, with other minorities reporting more depression ($p = .011$). These findings also held when we examined the percentage of participants reporting depression levels above the clinically-significant cut-off score of 29 (x^2 (2) = 23.81, $p < .001$). Among AI/AN early adolescents, 23.3% were above this threshold, compared to 5.2% of non-Hispanic Whites and 10.2% of other minorities. With regard to anxiety, there was a significant difference between racial/ethnic groups ($F(2, 1184) = 4.95$, $p = .007$), with AI/AN early adolescents reporting more anxiety symptoms ($M = 12.53$, $SD = 3.33$) than non-Hispanic Whites ($M = 10.8$, $SD = 3.4$; $p = .005$) and other racial/ethnic minority peers ($M = 10.98$, $SD = 3.66$; $p = .014$). See Table 2 for a summary of these findings.

Substance Use

As shown in Table 2, AI/AN early adolescents were significantly more likely to report lifetime prevalence of substance use (30.2%), compared to 12% of non-Hispanic Whites and 16.7% of other racial/ethnic minorities. These differences were significant for each of the three

reported substances. For tobacco, 14% of AI/ANs reported lifetime use, compared to 2.4% of non-Hispanic Whites and 4.2% of other minorities. For alcohol, 25.6% of the AI/AN sample reported lifetime alcohol use, compared to 11.4% of non-Hispanic Whites and 14.6% of other minorities. For cannabis, 9.5% of AI/ANs reported lifetime cannabis use, compared to 2.6% of non-Hispanic Whites and 2.9% of other minorities.

Table 2
Behavioral Health Indicators for Early Adolescents in Three Racial/Ethnic Groups

	American Indian/Alaska Native *n* = 43	Non-Hispanic White *n* = 620	Other Racial/Ethnic Minorities *n* = 527		
Continuous Variables	*M (SD)*	*M (SD)*	*M (SD)*	*F*(df)	*p*
Age	12.58 (.82)	12.74 (.7)	12.8 (.88)	1.79 (2, 1187)	.167
Depression Total Score[1]	18.30 (13.67)	9.67 (9.22)	11.43 (11.06)	11.31 (2, 111.57)	<.001*
Anxiety[2]	12.53 (3.33)	10.8 (3.4)	10.98 (3.66)	4.95 (2, 1184)	.007*
School Belongingness[3]	51.91 (10.77)	55.67 (7.95)	54.98 (9.91)	3.05 (2,112.42)	.021*
Perceived Discrimination[4]	1.35 (1.21)	0.7 (.99)	1.34 (1.38)	42.28 (2, 113.61)	<.001*
Categorical Variables	*n* (%)	*n* (%)	*n* (%)	X^2 (df)	*p*
Gender (Female)	28 (65.1)	348 (56.1)	287 (54.5)	1.92 (2)	.383
Depression Above Cutoff[2]	10 (23.3)	32 (5.2)	54 (10.2)	23.81 (2)	<.001*
Used Any Substance Use[5]	13 (30.2)	74 (12)	87 (16.7)	13.61 (2)	.001*
Used Alcohol[5]	11 (25.6)	70 (11.4)	76 (14.6)	8.30 (2)	.016*
Used Cannabis[5]	4 (9.5)	16 (2.6)	15 (2.9)	6.59 (2)	.037*
Used Tobacco[5]	6 (14)	15 (2.4)	22 (4.2)	16.04 (2)	<.001*

Note. [1] The Mood and Feelings Questionnaire. [2] Revised Children's Anxiety and Depression Scale. [3] Psychological Sense of School Membership. [4] Multicultural Events Scale for Urban Adolescents. [5] Lifetime prevalence.

Social Integration

There was a significant group difference regarding school belongingness between the groups ($F(2, 112.42) = 3.05$, $p = .021$), although post hoc analyses did not find significant differences between either the non-Hispanic Whites or the other minority peers. There were also significant differences between groups regarding perceived discrimination ($F(2, 113.61) = 42.48$, $p < .001$). Post hoc analyses indicated that the AI/AN early adolescents reported significantly more perceived discrimination ($M = 1.35$, $SD = 1.21$) than the non-Hispanic White group ($M =$

.7, *SD* = .99; *p* = .003). There were no significant differences on perceived discrimination between the AI/AN group and the other racial/ethnic minority group.

DISCUSSION

We examined racial/ethnic group differences among urban AI/AN early adolescents (ages 11-15 years old), non-Hispanic Whites, and other racial/ethnic minorities on mental health and related risks by conducting secondary analyses from cross sectional data. We found that AI/AN youth reported nearly twice the level of depression as did non-Hispanic Whites. Significantly more AI/AN early adolescents also reported notable levels of depression than did other racial/ethnic minorities within the sample. Similar to studies with adults (Herne et al., 2014) and older adolescents (Borowsky, Resnick, Ireland, & Blum, 1999), there is evidence that early adolescents also report higher levels of depression. Further, we found that AI/AN early adolescents also reported more symptoms of generalized anxiety than their peers. Depression was correlated with lower school belongingness and greater perceived discrimination, which highlights the importance of addressing psychosocial functioning among this group. These findings indicate that elevated symptoms of depression as well as anxiety among AI/AN early adolescents are frequently present prior to enrollment in high school (Listug-Lunde et al., 2013).

Consistent with previous research, we also found that AI/AN early adolescents endorsed a higher lifetime prevalence of using any substance, as well as higher lifetime prevalence of tobacco use, alcohol use, and cannabis use. Prior studies have suggested that AI/AN early adolescents report elevated levels of parental substance use disorders, which may increase access or tolerance for substance use (Walker et al., 1996). Our findings are consistent with previous research that has found that AI/AN early adolescents are more likely to smoke tobacco (Hawkins et al., 2004). Our findings that they were also at an increased risk for using alcohol and cannabis are consistent with other studies that have found that AI/AN persons tend to initiate substance use at an earlier age (Beauvis, 1992; Hawkins et al., 2004).

Finally, we examined how AI/AN early adolescents compared with their peers and the wider community regarding two social integration constructs: school belongingness and perceived discrimination. AI/AN early adolescents reported significantly less school belongingness, and although we were unable to test for causal relationships because these were cross sectional analyses, feeling less connected to the school system may be related to depression

and anxiety or vice versa. Although cultural connectedness was not assessed in this study, previous research has found that cultural connectedness was positively associated with school belongingness (Snowshoe, Crooks, Tremblay, & Hinson, 2016). We also found that AI/AN early adolescents reported more perceived racial discrimination than non-Hispanic Whites, and this level was similar to other racial/ethnic minorities. Because discrimination is inherently unjust and associated with negative outcomes such as isolation and stress (Bombay, Matheson, & Anisman, 2014; Whitbeck et al., 2001; Whitbeck et al., 2002), the endorsement of discrimination among early adolescent AI/ANs is important to highlight. This too may be related to depression, anxiety, and substance use.

Our results speak to several potential clinical and prevention planning implications. The first is that early intervention is indicated among this group, as even urban (non-reservation), early adolescent AI/ANs report greater depression symptoms, greater anxiety symptoms, more substance use, and a higher level of perceived racial discrimination in comparison to their non-Hispanic White peers. Our study also highlights the need for screening of behavioral health indicators (e.g., school adjustment, perceived discrimination, substance use, depression, anxiety) in order to inform such interventions. Further, despite the observed disparities experienced by the AI/AN early adolescents, it is important to note that AI/AN persons are a resilient group with many cultural strengths. Our results indicate a need for targeted, culturally responsive assessment and intervention for this subgroup of AI/AN youth. In recent years, there has been some development of culturally adapted interventions for AI/AN youth (Donovan et al., 2015), and our investigation indicates the importance of broadening and disseminating such work. Taken together, our finding that AI/AN early adolescents endorsed behavioral health risk factors indicates a need to reduce such disparities through prevention planning and clinical interventions.

There are several important limitations to our investigation. The first is that our results were derived exclusively from cross sectional data, which prevented any causal inferences from being made. Second, we were unable to target the mechanisms of such disparities. Some potential mechanisms that have been cited in the literature include the impact of historical trauma (Whitbeck, Adams, Hoyt, & Chen, 2004), poverty (Sarche & Spicer, 2008; Wolfe et al., 2012), and limited access to culturally-appropriate health care services (Brown, Ojeda, Wyn, & Levan, 2000; Gone & Trimble, 2012). Also, tribal affiliation was not collected during the course of the

study (whether within the urban setting or on reservations), so we were unable to determine tribal membership among this subgroup of AI/AN youth or the level of connection and involvement with their respective tribes. Finally, due to small sample sizes, we were unable to further break down the analyses by age and gender. There were also notable sample size differences between racial/ethnic groups in our study. Because this was one of very few investigations that have examined behavioral health indicators among urban, AI/AN early adolescents, the results found in this study should be generalized cautiously.

Future research would benefit by specifically recruiting AI/AN early adolescents and following their mental health and substance use outcomes utilizing a prospective, longitudinal design. We also recommend piloting a culturally adapted, school-based intervention to identify at-risk AI/AN early adolescents and enhance their resiliency.

In conclusion, we found that early adolescent AI/ANs enrolled in middle schools in urban settings were at risk for a number of behavioral health risk factors, including elevated depression, anxiety, and substance use; less school belongingness; and increased discrimination. This population has been triply understudied in that there is a paucity of research addressing 1) AI/AN behavioral health in comparison to other racial/ethnic groups; 2) early adolescent AI/AN behavioral health; and finally 3) behavioral health needs of an early AI/ANs residing in an urban setting. Thus, we believe that these findings support the need for more research among this group, as well as the need for early intervention and prevention services.

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