

EXPLORING CHANGES IN GANG INVOLVEMENT AND ASSOCIATED RISK FACTORS FOR AMERICAN INDIAN ADOLESCENTS IN RESERVATION COMMUNITIES

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Abstract: Reservation communities are among emerging communities for gang activity, in which reports of a rise in youth and/or criminal gangs began occurring after the 1980s. Gang membership has been found to pose a public health risk, strain community resources, and risk a number of individual negative life outcomes. Perceived increases in reservation gang activity have been observed by law-enforcement and community stakeholders, but comparatively little empirical research has focused specifically on these communities. Utilizing data from an existing public dataset, analysis of variance and regression analysis were utilized to examine cross sectional trends in gang involvement among 14,457 American Indian adolescents in reservation communities between 1993-2013. Results of this study failed to establish a consistent pattern of either growth or decline in gang membership across time when examining all reservations communities, with data suggesting that consistent trends may exist only within specific communities. Gang members were found to endorse significantly more alcohol and marijuana use, anger, depressed mood, and victimization as a whole. Only alcohol and marijuana use, violent behavior, and depressed mood demonstrated a significant interaction with time and gang membership. Finally, self-reported substance use, criminal behavior/delinquency, and violence perpetration significantly increased as gang affiliation increased.

INTRODUCTION

Gang activity has been an increasingly persistent and pervasive issue in the United States over the last century, and gang membership has continued to grow significantly since the turn of the 21st century (Federal Bureau of Investigations [FBI], 2012; Simon et al., 2013). While the full scope of gang activity can be difficult to capture, the number of youth gangs in the United States is estimated to have grown between the years 2002-2010 from 21,800 to 29,400—nearly 35%

(Simon et al., 2013). Similarly, the 2011 National Gang Threat Assessment found an almost 40% increase in adult gang members from 2009-2011, from approximately 1 million to 1.4 million active members (FBI, 2012). As of 2011, the National Gang Intelligence Center estimates that gang members account for approximately 48% of violent crime in many jurisdictions in the United States, with that estimate increasing to as high as 90% of all violent crime in specific jurisdictions (FBI, 2012). Additionally, while the popular image of gang members in the United States may elicit a mental image of adult men, research has shown that most youth who join gangs do so between that ages of 11-15 (Simon et al., 2013).

Gang dynamics and theoretical frameworks have been studied in multiple different settings, but gang research often focuses on major urban centers, and these dynamics remain unexamined outside of the expected areas (Howell & Egley, 2005), particularly in contexts like American Indian (AI) reservations. Journalists, researchers, and community stakeholders have started to draw attention to what is perceived as increased gang activity on AI reservations over the last two decades (Hailer & Hart, 1999). In 2009 the new and growing nature of these reservation gangs were described by *The New York Times* journalists as “[lacking] the reach of the larger gangs after which they style themselves, the Indian gangs have emerged as one more destructive force in some of the country’s poorest and most neglected places,” suggesting a perception of reservation communities as having a particular vulnerability to the effects of gang activity (Eckholm, 2009). Of the limited research that exists, police awareness of gangs operating on or near reservation communities seems to place the beginning of a gang presence in the 1990s, growing to an estimated 370+ gangs operating by the turn of the 21st century (Freng et al., 2012). This could potentially put most reservation communities under the umbrella of *emergent* gang cities, or smaller cities with a gang culture developing after the 1980s (Tita & Ridgeway, 2007). Yet, it has not been clearly established if this perceived belief in growing gang involvement is a measurable and observable phenomenon, if it holds true across reservation communities throughout the United States, and how the characteristics of such gangs would differ from youth gangs found in other communities.

One distinct characteristic of reservation communities which may contribute to gang perceptions is the combination of over- and under-policing which currently and historically impacts the AI community in the United States (Perry, 2006). Over-policing can include more frequent contact with police, increased likelihood of being arrested and charged, increased likelihood of receiving jail time, or disproportionately harsh sentencing (Freiburger & Burke,

2011; Martin, 2013; Perry, 2006). Under-policing can include a limited or non-existent response to experiences of victimization and criminal activity perpetrated against AI individuals (Perry, 2006), even though AI individuals are victims of crime at a per capita rate double that of the general population (Perry, 2006). These disparities are cause for concern because they would suggest that even relatively small-scale vandalism or truancy exhibited by some reservation gangs could yield disproportionately negative repercussions for AI gang members.

In addition to contact with the criminal justice system, gang culture can be expected to develop when there is a confluence of such factors as discrimination, enculturation, and disparities and disruptions to the family, community, and culture (Donnermeyer et al., 2000). Legacies of colonialism and historical mandates forcing assimilation have created a scenario where many individuals, particularly urban AI individuals, may struggle to maintain a sense of ethnic identity (Napoli et al., 2003). Many reservation communities could serve as illustrative examples of Vigil's (2003) Multiple Marginality Framework in which risk continuously accumulates by occurring at multiple ecological levels (Hautala et al., 2016). A confluence of exposure to discrimination, economic disenfranchisement, and disconnect from both the majority culture and one's own ethnic identity may make gang membership more desirable to young people (Donnermeyer et al., 2000).

However, gang involvement is often tied to experiences of both perpetrated and experienced victimization. Young adults participating in gangs are more likely than their peers to have experienced some form of victimization in their lifetime and are more likely to be victimized by their gang-affiliated peers after joining (Fox, 2017; Taylor et al., 2007). Gang members are also more likely to be revictimized by other gang members, but are likely to report lower feelings of risk of revictimization (Fox, 2017). Violence and victimization in gangs have been studied in multiple different settings, but have generally been left unexamined in communities such as AI reservations (Howell & Egley, 2005). Gang membership is also associated with behaviors which increase substance abuse, including both substance use (Bjerregaard, 2010; Decker et al., 2013) and sale/distribution of substances (Bjerregaard, 2010; Decker et al., 2013; Gordon et al., 2004). AI youth living on reservations appear to engage in higher rates of substance use than those who do not (Beauvais, 1992), and increases in substance use risk with gang membership should then be particularly concerning in communities where multiple risks may compound and create a confluence of factors for youth who may already be at increased risk of substance use, as well as the potential capacity for these risk factors to exacerbate each other.

Gang members pose an unaddressed public health risk, in that they experience higher levels of psychiatric morbidity than their peers (Coid et al., 2013). This not only includes a higher likelihood to endorse alcohol dependence or characteristics of antisocial personality disorder, but a higher likelihood to endorse anxiety disorders, victimization, suicidality, and some features of psychosis as well (Coid et al., 2013). This would suggest the possibility that gang involvement may be indicative of considerable risk to an individual's overall mental health and pose a public health concern in addressing these individual's needs appropriately. When considering the average age of those joining a gang (ranging between 11-15 years), this inordinate mental strain at such a developmentally vulnerable stage is cause for alarm.

Despite the negative perception that can be associated with gang membership, there are a number of adaptive reasons that would make it a compelling option, particularly for an adolescent. While gang membership is often characterized as a result of maintaining a delinquent social circle, youth gang members demonstrate greater network stability, creating and maintaining a larger number of friendships than those who leave gangs (Weerman et al., 2015). Gang units can also provide a social structure and sense of belonging, which may be particularly appealing to adolescents unable to find these elements elsewhere (Sharkey et al., 2011). Lack of connectedness in home and school environments has already been found to associate with low educational attainment and increased risk-taking behaviors in AI adolescents (Machamer & Gruber, 1998). Therefore, the camaraderie and support offered through gang membership may be understandably appealing in such circumstances. Among non-AI youth, factors such as low socioeconomic status, inconsistent adult supervision or family organization, subsequent delinquency, and ethnic minority status are all associated with gang involvement (Whitbeck et al., 2002).

The compelling benefits and alarming risks of gang involvement for AI adolescents means that understanding the trends and perceived growth in gang activity in recent years is of critical importance. While concern is generally characterized as an issue of growth, it is currently unclear if there is an actual, measurable growth in the number of AI gang members, changes in the severity or character of their activities, or fluctuations in the configurations of gang networks such that the number of individuals with informal affiliations may change over time. Additionally, it remains unclear how generalizable perceived growth in AI gang membership is to the larger indigenous populations of the United States, which accounts for a large and diverse number of distinct communities and individuals.

The current study examined multiple aspects of potential gang presence in the reservation

communities across the United States over a ten-year span. Based on prior literature, hypothesis 1 posited that self-reported gang involvement would increase from 1993-2013 among AI teenagers. Additionally, hypothesis 2 examined whether there were significant differences in between AI adolescents who were not involved with gangs, associated but not participating in gangs, and members in gangs. It was hypothesized that self-reported substance use, delinquency, and victimization would increase as level of gang involvement increased. Finally, hypothesis 3 tested whether increases in self-reported gang involvement over the early period of this 20-year span would be associated with later increases in substance use, mood disturbances, and experiences of victimization and violence community-wide.

METHODS

Participants

Data for this study was compiled from the public dataset “Drug Use Among Young Indians: Epidemiology and Prediction 1993-2006 and 2009-2013” (ICPSR35062), available through Inter-university Consortium for Political and Social Research (Beauvais, 2014). The primary focus of the original project was the examination of the epidemiology of substance use as well as environmental and developmental factors, such as peer relationships, family dynamics, school resources, and cultural identity for adolescents who attend school on or near AI reservations. Surveys were completed annually in the classroom setting in grades 7-12. Sampling consisted of schools with $\geq 20\%$ AI population on, or in close proximity to, reservation communities. Overall, the full dataset includes 534 variables and data from 26,451 students. Only those students who identified at least one of their ethnic identities as AI were included in the subsequent analyses ($n = 14,457$).

During original data collection, surveys were completed in-school with optional participation, and schools were given \$500 and a comprehensive report of their survey findings for participating in the survey. Fewer than 1% of students refused participation or opted out. Some schools were re-surveyed repeatedly on a 4-year cycle; in these instances, data from students who were already surveyed were not included. See publicly available data materials (Beauvais, 2014) or subsequent studies (e.g., Stanley et al., 2014) for additional details on original data collection methodology.

Measures***Demographics***

Sample demographics were assessed using participant responses to questions identifying age, grade in school (7-12), gender (male/female), and geographic region. Participants endorsed one or more racial/ethnic identities, and those who did not identify as AI were excluded from subsequent analyses.

Gang Involvement

Participants were asked “Have you ever been in a gang?” Possible response options included: *I will never join a gang*; *Used to be in a gang, but not now*; *I will join a gang later*; *Not a member of a gang, but hang out with a gang*; or *In a gang now*. In order to be utilized in multiple different analyses, this variable was also transformed into a dichotomous variable of lifetime gang membership, in which *I will never join a gang*, *I will join a gang later*, and *Not a member of a gang* were combined into a single variable: “Has never been in a gang.” The options *Used to be in a gang, but not now* and *In a gang now* were combined into a single option: “Has ever been in a gang.”

Crime and Delinquency, Substance Use, and Victimization

In order to assess hypothesis 2 cumulative indices of three constructs were created from 69 identified substance use variables, 5 victimization variables, and 11 criminal behavior or delinquency variables. For substance use, this included self-reported user level (Non-user, Very light, Light, Moderate, Heavy, Very Heavy), lifetime use, and past year use (None, 1-2, 3-9, 10-19, 20-49, 50+) of a number of controlled substances (e.g., heroin, marijuana, methamphetamines, etc.). Additionally, this index included questions assessing substance use-related behaviors, including ever using a needle to take cocaine, methamphetamines, heroin, or other drugs (Yes/No); mixing two different drugs and/or mixing drugs with alcohol; and drinking alcohol or using marijuana when alone. This past substance use index yielded an individual total score ranging from 0-202. Perpetration of victimization consisted of five items, including “Have you ever...” questions, including *beaten someone up*, *hurt someone with a weapon*, *used force to get money or things*, *robbed someone of money or property*, and *robbed someone*. When added together, this created a perpetration index with a possible individual score ranging from 0-5. Criminal and delinquent behavior included the variables from the aforementioned perpetration index, while also including ever scaring someone with a weapon, defacing or marking property, stealing a car, being arrested, slashing tires, or committing another serious crime. The total criminal and delinquent

behavior index had a possible individual score ranging from 0-11.

Risk Factors

Hypothesis 3 utilized a number of derived scales which combined both suggested variable combinations utilized in past analyses of the dataset, as well as additional variables unique to this study. Of the 534 variables available in the dataset, 31 face-valid items of anger, depression, self-esteem, marijuana use, alcohol use, violent behavior, and victimization were identified and then analyzed utilizing principal component factor analysis. All variables were mean centered prior to conducting principal component factor analysis, iterated principal factor extraction, and promax oblique rotation for each construct. Anger, depression, violent behavior, alcohol use, and marijuana use all resulted in single factors, whereas victimization and self-esteem analyses resulted in two separate factors.

Alcohol and Marijuana Use. Factor analysis was conducted on 4 face-valid indicators of general alcohol use, including frequency of use of the past month and year, frequency of getting drunk over the past month and year, and self-reported user level. Factor loading for all four variables ranged from 0.87-0.91. Factor analysis of 3 similar indicators of general marijuana use resulted in one interpretable factor (eigenvalue > 1), with factor loadings ranging from 0.90-0.96. *Self-esteem:* Factor analysis of 11 self-esteem variables (e.g., “Peers like me,” “I am proud of myself”) yielded two factors which allowed for self-esteem to be separated out into two separate constructs. These two constructs were labelled: 1) “How I view myself” and 2) “How others view me,” while four other variables with factor loadings < 0.50 were dropped from analyses.

Anger. Factor analysis of 6 variables which appeared to be face-valid indicators of anger (e.g., *I am quick tempered, I feel like hitting someone*) found one interpretable factor (eigenvalue > 1), with all variable factor loadings ranging between 0.54-0.88.

Depressed Mood. Factor analysis of the 7 variables associated with low or depressed mood (e.g., “I am depressed,” “I am lonely”) yielded one interpretable factor (eigenvalue > 1), and all variables were retained as all were found to show factor loadings exceeding 0.68-0.86.

Violent Behavior. Factor analysis was conducted on 4 items that appeared to be face-valid indicators of violent behavior (e.g., “Have you ever beaten someone up?”, “Have you ever hurt someone with a weapon?”), and revealed one interpretable factor (eigenvalues > 1). All four of these items appeared to load cleanly onto this individual factor, with factor loadings ranging from 0.990-0.997.

RESULTS

Descriptive Statistics

See Table 1 for complete descriptive statistics. The final sample resulted in a slight female majority (50.82%), with a mean age of 14.83 years and mean grade of approximately 9th ($M = 9.08$). The Southwest and Northern Plains represented the largest geographic regions, at 33.19% and 32.16%, respectively. The majority (87.37%) of participants do not report having ever been in a gang.

Table 1
Descriptive Statistics (n = 14,457)

Grouping Label	Frequency (%)
Gender	
Female	7,251 (50.82)
Male	7,017 (49.18)
Geographic Regions	
Northwest	386 (2.69)
Northern Plains	4,650 (32.16)
Upper Great Lakes	1,099 (7.60)
Northeast	147 (1.02)
Southeast+Texas	618 (4.27)
Southwest	4,799 (33.19)
Oklahoma	2,755 (19.06)
Has ever been in a gang	1,576 (12.63)
Never has been in a gang	10,906 (87.37)
	n (%)
Race/Ethnicity	
American Indian only	13,017 (90.04)
Two or more races	1,440 (9.97)
	Mean (SD)
Age	14.83(1.73)
Grade	9.08(1.62)

Hypothesis 1: Self-reported Gang Involvement Would Increase Over Time Period

We hypothesized that self-reported gang involvement would have increased from 1993-

2013 among AI adolescents. This is represented in the dataset by the dichotomous variable “Have you ever been in a gang?”, with responses being grouped into the two categories: *Has ever been in a gang* or *Has never been in a gang*. Frequencies for each of these new response options were calculated and converted into percentages of the proportion each frequency represented based on the total number of observations for that time point (see Table 2). To assess the relationship between time and self-reported lifetime gang membership, point-biserial correlation was utilized and showed a small positive correlation between time and gang membership. However, this correlation was not significant, $r(12,482) = .003, p = .714$. Logistic regression was then utilized to corroborate the correlational analyses and further examine the relationship between time and gang membership. Results of the logistic regression found a small positive relationship between time and gang membership, with a non-significant odds ratio of 1.002 ($p > .05$).

Table 2
Frequency of Lifetime Self-reported Gang Membership (dichotomous) by Year

Year/Cohort	Has never been/is not in a gang	Has been/is in a gang	Total
	Frequency (%)	Frequency (%)	Frequency (%)
1993-1994	722 (85.04)	127 (14.96)	849 (100)
1994-1995	398 (86.15)	64 (13.85)	462 (100)
1995-1996	261 (88.18)	35 (11.82)	296 (100)
1996-1997	303 (88.01)	41 (11.92)	344 (100)
1997-1998	1029 (90.18)	112 (9.81)	1141 (100)
1998-1999	520 (81.50)	118 (18.50)	638 (100)
1999-2000	332 (90.71)	34 (9.29)	366 (100)
2000-2001	544 (89.77)	62 (10.23)	606 (100)
2001-2002	360 (86.54)	56 (13.46)	416 (100)
2002-2003	1113 (88.05)	151 (11.95)	1264 (100)
2003-2004	1331 (90.73)	136 (9.27)	1467 (100)
2004-2005	595 (91.82)	53 (8.18)	648 (100)
2005-2006	810 (84.20)	152 (15.80)	962 (100)
2009-2010	757 (81.14)	176 (18.86)	933 (100)
2010-2011	654 (87.2)	96 (12.8)	750 (100)
2011-2012	921 (87.55)	131 (12.45)	1052 (100)
2012-2013	256 (88.89)	32 (11.11)	288 (100)
Total	10906 (87.37)	1576 (12.63)	12,482 (100)

The wide variability and the method of sampling each community meant that the size of samples within the communities varied greatly, therefore the four largest communities by sample

size were identified for additional analyses. These were identified as Communities 11, 47, 48, and 90 in the dataset (see Table 3). These four communities accounted for approximately 40% of the overall sample ($n = 5,806$). Each of these communities had a sample size of at least 450 participants, in addition to having been sampled at least once in all three waves of data collection (1993-2000, 2001-2005, and 2009-2013) to allow for an examination of the effects of time on gang involvement. The same logistic regression analyses which were conducted on the full sample were utilized for each of these four communities. Analysis of Community 11 showed a negative relationship with time, with a 0.066 decrease in log odds ($p = .012$) of gang membership with every 1 unit increase in time. By contrast, Community 48 found a significant positive relationship with time, with an .031 increase in log odds of gang membership with each unit increase in time ($p = .01$). However, neither Community 47 nor Community 90 showed a statistically significant relationship with time. A consistent pattern of growth or decline in gang membership over the observed period of time could not be identified across the sample as a whole. While analyses of the largest communities within the sample showed more discernible trends in specific communities experiencing either a positive (Community 48) or negative (Community 11) trend, no clear patterns of growth emerged.

Table 3
Frequency of gang endorsement (Yes/No) in the 4 largest community samples (communities 11, 47, 48, 90)

Year	Comm 11		Comm 47		Comm 48		Comm 90	
	Yes	No	Yes	No	Yes	No	Yes	No
93-94	-	-	-	-	77	304	-	-
95-96	19	149	-	-	-	-	-	-
97-98	-	-	19	62	-	-	66	732
99-00	-	-	-	-	28	220	-	-
00-01	18	228	-	-	-	-	-	-
03-04	-	-	-	-	-	-	83	780
05-06	-	-	21	130	87	328	-	-
09-10	-	-	21	91	77	217	-	-
10-11	22	404	-	-	-	-	-	-
11-12	-	-	-	-	32	71	69	589
12-13	-	-	13	72	-	-	-	-
Total	840		429		1441		2319	
chi2	(chi ² (2)=7.01; $p=.03$)		(chi ² (3)=3.77; $p=.29$)		(chi ² (4)=25.39; $p=.000$)		(chi ² (2)=2.15; $p=.34$)	

Note: "Yes" = participant endorsed some level of lifetime gang membership. "No" = participant did not endorse any lifetime gang membership thus far. "-" indicates that this community was not assessed at this time point

Hypothesis 2: Self-reported Substance Use, Delinquency, and Victimization Would Increase as Gang-Involvement Level Increased

We hypothesized that self-report substance use, crime and delinquency, and perpetration of victimization would significantly increase as level of gang affiliation increased. This hypothesis was examined utilizing a one-way analysis of variance (ANOVA) with Tukey's HSD post-hoc comparison to test each of the relationships between the aforementioned constructs and the categorical measure of gang involvement. Each construct was compiled into a cumulative index, with higher scores indicating higher levels of each construct (see Measures for additional details). The categorical measure of gang involvement allowed for five response options to the question "Have you ever been in a gang?" Overall mean scores for each of the indices by gang level can be found in Table 4. First, results showed a significant effect of reported substance use on gang-involvement level for the five groups, $F(4, 6938) = 276.13, p = .000$. Post-hoc comparison showed that substance use was significantly higher ($p = .000$) for the *In a gang now* group compared to all other groups. Conversely, substance use was significantly lower ($p = .000$) in the *Will never join a gang* group compared with all other groups. However, the other three groups did not differ significantly ($p > .05$) from each other.

Similarly, a significant effect of crime/delinquency on level of gang involvement also emerged; $F(4, 7866) = 793.04, p = .000$. A similar pattern emerged between groups, with Tukey's HSD post-hoc comparison showing that those who reported they will never join a gang reported significantly lower criminal and delinquent behavior than all other groups ($p = .000$), and those who reported that they are currently in a gang reported significantly higher criminal and delinquent behavior than all other groups ($p = .000$). Additionally, individuals who reported that they are *Not a member of a gang, but hang out with a gang* reported significantly lower criminal and delinquent behavior ($M = 3.43; SD = 2.51$) than those who reported that they *Used to be in a gang, but not now* ($M = 4.02; SD = 2.87; t = -4.99, p = .000$). No significant difference was found between those who reported that they *Will join a gang later*, and either of the groups *Used to be in a gang, but not now* or *Not a member of a gang, but hang out with a gang* ($p > .05$). Analysis of perpetration of victimizing behavior more specifically also found a significant effect of reported perpetration on level of gang involvement, $F(4, 7984) = 562.59, p = .000$ (see Table 4 for additional details). Of the five levels of gang involvement, Tukey's HSD post-hoc comparison again showed that those who endorsed *I will never join a gang* reported significantly lower ($p < .05$) perpetration as compared to all other groups, and those who endorsed that they are *In a gang now* endorsed

significantly higher ($p < .05$) perpetration than all other groups. Those who endorsed that they are *Not a member of a gang, but hang out with a gang* reported significantly lower perpetration ($M = 1.63$; $SD = 1.34$) than both those who *Will join a gang later* ($M = 2.04$; $SD = 1.60$; $t = -3.58$, $p = .003$), as well as those who report that they *Used to be in a gang, but not now* ($M = 1.95$; $SD = 1.45$; $t = -4.97$, $p = .000$).

Table 4
Perpetration, Crime/Delinquency, and Substance Use Scores by Gang Level

	Perpetration		Crime/Delinquency		Substance Use	
	<i>n</i>	Mean (SD)	<i>n</i>	Mean (SD)	<i>n</i>	Mean (SD)
Never been in gang						
Will never join gang	6,049	.67(.93)	5,976	1.23(1.68)	5,427	35.95(13.08)
Will join gang later	101	2.04(1.60)	100	3.84(3.04)	78	49.56(21.94)
Hangs out with gang	937	1.63(1.34)	916	3.43(2.51)	734	46.61(17.41)
Has been in gang						
Used to be in gang	439	1.95(1.45)	428	4.02(2.87)	340	46.79(17.85)
In a gang now	463	2.56(1.67)	451	5.46(3.27)	364	57.84(27.95)

Overall, the greatest differences in substance use, crime/delinquency, and perpetration consistently emerged between those who either entirely endorse or entirely refute gang membership, which set the outer limit of the range of scores. The other three options of past membership, future intent of membership, and gang-affiliated friends then differ to varying degrees within this range.

Hypothesis 3: Increases in Self-reported Gang Involvement over the Early Part of the Time Period Would be Associated with Later Increases in Substance Use, Mood Disturbances, Victimization, and Violence

Finally, we hypothesized that increases in self-reported gang involvement over the early period of this 20-year span would be associated with later increases in substance use, mood disturbances, and experiences of victimization and violence community-wide. Because a consistent pattern of growth or decline was unable to be established in hypothesis 1, hypothesis 3 could similarly not be supported. However, the following analyses attempted to utilize ANOVAs to examine the extent of the interactive relationship between each of the aforementioned constructs, gang involvement, and time.

Alcohol Use

Results of the ANOVA revealed a significant interaction between Time and Gang Membership on Alcohol Use, $F(16, 12425) = 1.89, p = .017$. The interaction indicated that the magnitude of difference between gang and non-gang members varied significantly depending on time point, but there was no clear pattern of increased or decreased differences over time. There was a significant main effect for Gang Membership, such that individuals who reported ever being in a gang reported significantly greater alcohol use ($M = 0.499; SD = 1.114$) compared to those reporting having never been in a gang ($M = -0.071; SD = 0.849; t = -19.48 (1845.45), p = <.001$).

Marijuana Use

Results of the ANOVA found a significant interaction between Time and Gang Membership on Marijuana Use, $F(16, 12423) = 2.75, p = .000$. The interaction effect was similar to the one found for alcohol use. There was a significant main effect for Gang Membership, in which individuals who reported ever being in a gang reported significantly greater marijuana use ($M = 0.639; SD = 1.067$), as compared with those who reported having never been in a gang ($M = -0.0990; SD = 0.882; t = -26.141, p = .000$).

Self-esteem

Results of the ANOVA did not find a significant interaction between Time and Gang Membership on the Self-Esteem factor labelled "How others see me," $F(16, 12188) = 1.39, p = .137$. The main effect of Gang Membership on this factor of Self-Esteem was not significant ($t = 0.413, p = .680$). Similarly, the interaction between Time and Gang Membership on the Self-Esteem factor labelled "How I see myself" was not significant, $F(16, 12272) = 1.53, p = .079$. However, the main effect of Gang Membership was significant. Those who reported any lifetime gang membership were found to endorse a significantly higher score on this scale of self-esteem ($M = 0.14; SD = 0.89$) than those individuals who have never been in a gang ($M = -0.03; SD = 0.76; t = -7.20, p < .01$). Both scales of self-esteem are reverse coded wherein higher scores indicate worse self-esteem.

Anger

Results of the ANOVA did not reveal a significant interaction between Time and Gang Membership on Anger, $F(16, 12257) = 1.21, p = .247$. There was a significant main effect for Gang Membership, such that those who had never been in a gang reported significantly higher scores on the anger scale ($M = 0.048; SD = 0.764$) than those who had ever been in a gang ($M = -0.311; SD = 0.831; t = 16.084, p = .000$). The anger scale is reverse coded so that higher scores indicate less anger.

Depressed Mood

Results of the ANOVA revealed a significant interaction effect between Time and Gang Membership on Depressed Mood, $F(16, 12252) = 1.72, p = .036$. The magnitude of difference in depressed mood between gang and non-gang members varied significantly depending on time point. There was a significant main effect for Gang Membership, such that individuals who reported never being in a gang reported significantly less depressed mood ($M = 0.029; SD = 0.800$), compared to those who reported having ever been in a gang ($M = -0.171; SD = 0.876; t = 8.47, p = .000$). The depressed mood scale is reverse coded so that lower scores indicate a more depressed mood.

Violent Behavior

Results of the ANOVA revealed a significant interaction between Time and Gang Membership on Violent Behavior, $F(12, 9413) = 2.56, p = .002$, meaning the magnitude of difference between gang members and non-gang members in reported violent behaviors varied significantly depending on time, but not in a consistent pattern. However, while violent behavior did show a significant negative correlation with time ($r = -.077, p = .000$), it was not significantly correlated with gang membership ($r = -.000, p = .998$), and overall mean violent behavior scores did not differ significantly between gang members ($M = 0.065; SD = 1.07$) and non-gang members ($M = 0.039; SD = 0.961; t = -0.917, p > .05$).

Victimization

Results of the ANOVA did not reveal a significant interaction between Time and Gang Membership on reported Victimization, $F(16, 12057) = 0.68, p = .816$ (see Figure 9). Victimization was found to have a significant positive correlation with both time ($r = .060, p = .00$) and gang membership ($r = .255, p = .000$). There was a significant main effect for Gang Membership, such that individuals who reported having never been in a gang reported significantly less victimization ($M = 0.128; SD = 0.197$) than those who had ever been in a gang ($M = 0.233; SD = 0.275; t = 22.730, p = .000$).

In general, significant interactions between time, gang membership, and scale scores were found for alcohol use, marijuana, violent behavior, and depressed mood only. In the overall sample, examination of the figures suggested that scores of violent behavior decreased over time, as did scores of alcohol use. Conversely, scores of victimization, depressed mood, and marijuana use appeared to increase over time.

DISCUSSION

The first study aim was to examine the extent to which self-reported gang involvement increased over the 20-year span surveyed. Multiple analyses were conducted which inspected self-report of the individual's level of gang membership, as well as the amount of gang affiliated peers reported. These analyses were unable to find a consistent pattern of either growth or decline collectively across the entire sample over time. Further examination of specific communities within the data set that accounted for large portions of the population yielded similarly inconsistent patterns, with select communities showing trends towards an increase, others trended towards a decline, and still others did not evidence any change. Overall, a consistent linear relationship between gang involvement and time did not emerge among this sample. These results suggest that, while gang membership numbers have potentially changed at different periods and within different communities between 1993-2013, the data does not support the idea of a generalizable increase in gang involvement among teenagers in AI reservation communities throughout the United States.

This inconsistent pattern may be the result of the unique attributes of many reservation communities, including their size and scale, the amount of consistent ingress and egress, and the geographic realities of their surrounding environment. Liverso and Matsueda (2019) point out that organizational elements of a gang influence the length of gang membership and that perceived legitimacy, control of turf and social respect, and overall group organization contribute to longer self-reported membership. However, in reservation communities, it is not uncommon to find comparatively smaller populations spread across a large area, among other factors, which distinguish reservations from large urban centers in which gang research is often conducted. These vast community differences suggest that what is therefore perceived as constant growth of gang membership might then be attributed to periodic “ebbs and flows,” in which smaller gangs cyclically form, maintain for a short period, and then taper off rapidly without the growth, competition, and perceived results that manage to fuel growth in urban gangs. It is also possible that the growth exists in AI gangs outside of reservations and that gang activity is primarily found among those who have moved or who maintain seasonal or inconsistent residence on a reservation, and who, therefore, would be unlikely to be captured in this dataset.

Due to the previously discussed ill-defined construct of gangs among the general public and law enforcement, it is also possible that changes in behavior or cultural expression may be perceived as increased gang membership. With increased access to media portrayals of gangs, as well as migration of gang culture (Hailer & Hart, 1999; Theriot & Parke, 2008), perhaps increasing

numbers of adolescents and young adults are modelling what community members would perceive to be “gang behavior” (e.g., music, dress, adopting labels such as Crips or Bloods), without consistent increases in measurable gang membership.

The next aim of this study was to examine the relationship between level or category of gang involvement and what could broadly be categorized as maladaptive behaviors: crime, delinquency, substance use, and perpetration of victimizing behavior. While five “levels” of gang involvement (i.e., *Never in a gang*, *Used to be in a gang*, *Will join a gang later*, *Not a member but hangs out with a gang*, *In a gang now*) were assessed, the largest differences were found between individuals self-identified as definitively in a gang (*In a gang now*) and those who entirely refuted membership (*I will never join a gang*). Across crime/delinquency, substance use, and perpetration, these two groups consistently set the outer limits of the range of scores. Whereas the other three categories, which might be best described as loose gang affiliation (*Used to be in a gang*, *Will join a gang later*, *Not a member but hangs out with a gang*), were found to consistently fall between the two outer ranges. In examining these five categories by grouping them into three “levels” of gang involvement (ever in a gang, loose gang affiliation, active member in a gang), we see that all of these externalizing, antisocial, maladaptive behaviors increase as level of involvement increases. This relates back to the aforementioned disconnect between public perception of growth of AI gangs and the actual inconsistent patterns in membership found in the data. One could speculate that the increased severity in overt and external behaviors, particularly criminal behaviors, might contribute to a perception that any growth in gang membership is intolerably severe or damaging. If even a small percentage increase in reported membership is accompanied by a proportional increase in crime, violence, and substance use, it is understandable that concern and alarm from community members would follow.

The final goal of this study was to examine whether patterns of gang involvement over time were related to other areas of clinical concern among the adolescents in these communities, including substance use, mood disturbance, and experiences of violence and victimization. Similar to the outcomes found in hypothesis 1, hypothesis 3 could not be assessed as proposed due to the lack of consistent patterns yielded from hypothesis 1. Results of hypothesis 3 testing did not tend to yield significant linear relationships between the constructs in question and time. However, those individuals who identified as having ever been in a gang at any point consistently scored themselves as more depressed, angrier, engaging in heavier alcohol and marijuana use, experiencing more victimization, and held themselves in lower regard. Gang members were

consistently found to be “worse off” (i.e., endorsing higher scores of negative constructs and/or lower scores of positive ones) than those who have never been in a gang for alcohol use, marijuana use, self-esteem (“How I view myself”), anger, depressed mood, and victimization. Notably, when gang membership was stratified in this dichotomous way (e.g., “Never in a gang”, “Ever in a gang”) violent behavior was not found to differ significantly between the two groups. These outcomes both illustrate the appeal that gang membership might hold for these students—camaraderie, social support, sense of identity—as well as raise a number of red flags. Given the established public health disparities (Sarche & Spicer, 2008) that set AI youths apart from teens in other ethnic groups for increased risk of negative health outcomes, AI teens who are also identifying as current or former gang members may experience even more severe challenges. The social and emotional functioning of these teens may therefore benefit more from gang intervention implemented from a public mental health perspective, rather than intervention focused on criminalization and incarceration. Evidence-based practices (EPB) tailored for utilization in indigenous communities, such as the American Life Skills Program (formerly Zuni Life Skills Program), have been found to be effective interventions for targeting specific behaviors such as increasing problem-solving skills and decreasing suicidality (LaFramboise & Lewis, 2008; Suicide Prevention Resource Center, 2007). However, the concerted focus on EPBs within psychology overlooks the dearth of research on culturally relevant implementation in general, and with AI/AN communities in particular (Novins et al., 2016). Given the significance of community and individual identity to the dynamics of gang involvement, future discussions of intervention for gang membership among AI adolescents would do well to keep an eye towards prioritizing collaboration and empowerment of community members. The need for a refocus on health over criminalization is particularly compelling given the lack of significant differences in violent behavior—seemingly the construct most likely to elicit police intervention—between the two gang versus non-gang members.

While this study has many identifiable strengths, including the breadth and scope of the data collected, the wide variety of communities surveyed, the number of data collection points over a 20-year span, and its ability to provide unique insight into challenging and potentially stigmatizing experiences facing these vulnerable adolescents, there are several limitations which must be considered for their potential impact on any outcomes. First, this study only included adolescents who attended and were present in school to complete the survey. Given the associations with delinquency and school risk factors, future research should examine similar

questions among adolescents with limited school attendance or who are outside of the school system altogether, as well as adults outside of this study's age range. While this study did have the added strength of measurement at a wide number of time points spread across 20 years, it is still inherently limited to a specific window, and therefore, patterns of growth or decline may not have been captured within the period surveyed. Additionally, research which engages community stakeholders in a way that encourages collaboration and self-determination is recommended going forward. Finally, data collection for this study occurred on or near reservation communities, which account for less than 25% of the total AI population (U.S. Department of Health and Human Services, 2018). Future research which includes data for individuals living in non-reservation rural, suburban, and urban settings would be beneficial for accounting for this variety. However, the size and scope of this study allowed for a more robust examination of AI gang involvement than has previously been seen and, therefore, also allowing for the diversity and within-group heterogeneity that exists within the AI population in the United States.

CONCLUSION

AI gang membership appears to fluctuate at different time points across different reservation communities in the United States. A number of characteristics of those teens who do endorse gang membership may contribute to the perceived, but ultimately unsupported, rise in membership over time. However, lifetime gang membership among AI adolescents was found to be associated with depressed mood, increased anger, experiences of victimization, marijuana use, and alcohol use. Increasing levels of gang affiliation or involvement were associated with similarly increasing levels of behaviors which would logically cause police, community stakeholders, and outsiders concern, including criminal behavior and delinquency, violence, and substance use. Therefore, what has been characterized as a generalizable increase in AI gang involvement might possibly be better explained by a number of other changes or factors. These may include changing perceptions of the associated behaviors, inaccurate labelling of gang members by outside parties, or growth in specific reservation communities or geographic regions in the United States which are then generalized without accounting for within-group diversity. Or perhaps some other yet-to-be examined factor might be influencing the dynamics of gang life among reservation communities.

Future research to fill some of these gaps in the literature would be beneficial. This study points to the need for this research to incorporate not just a traditional criminal justice perspective

on the implications of gang membership, but a psychological and public health lens. In communities already challenged by physical and mental health disparities far beyond what is found in the general population, these adolescents who are reporting that they are or were in a gang may be uniquely primed for what seems to be a myriad of negative outcomes ranging from poor grades and low self-esteem, to violence, victimization, and criminal behavior. Given the vulnerable position they are in, it remains imperative that accurate reporting of trends in growth or decline exist, so that effective intervention and support can be implemented. The current study results might lend credence to the need for interventions which address vulnerabilities and risk factors across developmental domains, and which address the significant internal (low mood, anger, poor self-image) as well as the external (violent/criminal peers, risky home environments, access to substances) challenges that these adolescents face.

REFERENCES

- Beauvais, F. (1992). Drug use of friends: A comparison of reservation and non-reservation Indian youth. *American Indian and Alaska Native Mental Health Research*, 5(1), 43-50. <https://doi.org/10.5820/aian.0501.1992.43>
- Beauvais, F. (2014). *Drug use among young american indians: Epidemiology and prediction, 1993-2006 and 2009-2013*. <https://doi.org/10.3886/ICPSR35062.v3>
- Bjerregaard, B. (2010). Gang membership and drug involvement: Untangling the complex relationship. *Crime & Delinquency*, 56(1), 3-34. <http://doi.org/10.1177/0011128707307217>
- Coid, J. W., Ullrich, S., Keers, R., Bebbington, P., DeStavola, B. L., Kallis, C., Yang, M., Reiss, D., Jenkins, R., & Donnelly, P. (2013). Gang membership, violence, and psychiatric morbidity. *The American Journal of Psychiatry*, 170(9), 985-993. <https://doi.org/10.1176/appi.ajp.2013.12091188>
- Decker, S. H., Melde, C., & Pyrooz, D. C. (2013). What do we know about gangs and gang members and where do we go from here? *Justice Quarterly*, 30(3), 369-402. <https://doi.org/10.1080/07418825.2012.732101>
- Donnermeyer, J. F., Edwards, R. W., Chavez, E. L., & Beauvais, F. (2000). Involvement of American Indian youth in gangs. *Free Inquiry in Creative Sociology*, 28(1), 73-80. <http://ojs.library.okstate.edu/osu/index.php/FICS/article/view/6993>
- Eckholm, E. (2009, December 13). Gang violence grows on an Indian reservation. *The New York Times*, p. 14. <https://www.nytimes.com/2009/12/14/us/14gangs.html>

- Federal Bureau of Investigations (FBI). (2012). *2011 National gang threat assessment: Emerging trends* (1614481547). <https://www.fbi.gov/stats-services/publications/2011-national-gang-threat-assessment>
- Fox, K. A. (2017). Gangs, gender, and violent victimization. *Victims & Offenders, 12*(1), 43-70. <https://doi.org/10.1080/15564886.2014.989557>
- Freiburger, T. L., & Burke, A. S. (2011). Status offenders in the juvenile court: The effects of gender, race, and ethnicity on the adjudication decision. *Youth Violence and Juvenile Justice, 9*(4), 352-365. <https://doi.org/10.1177/1541204011399933>
- Freng, A., Davis, T., McCord, K., & Roussell, A. (2012). The new American gang? Gangs in Indian country. *Journal of Contemporary Criminal Justice, 28*(4), 446-464. <https://doi.org/10.1177/1043986212458193>
- Gordon, R. A., Lahey, B. B., Kawai, E., Loeber, R., Stouthamer-Loeber, M., & Farrington, D. P. (2004). Antisocial behavior and youth gang membership: selection and socialization. *Criminology, 42*(1), 55-88. <https://doi.org/10.1111/j.1745-9125.2004.tb00513.x>
- Hailer, J., & Hart, C. (1999). A new breed of warrior: The emergence of American Indian youth gangs. *Journal of Gang Research, 7*(1), 23-33.
- Hautala, D. S., Sittner, K. J., & Whitbeck, L. B. (2016). Prospective Childhood Risk Factors for Gang Involvement Among North American Indigenous Adolescents. *Youth Violence and Juvenile Justice, 14*(4), 390-410. <https://doi.org/10.1177/1541204015585173>
- Howell, J. C., & Egley, A., Jr. (2005). Moving risk factors into developmental theories of gang membership. *Youth Violence and Juvenile Justice, 3*(4), 334-354. <https://doi.org/10.1177/1541204005278679>
- LaFromboise, T. D., & Lewis, H. A. (2008). The Zuni Life Skills Development Program: A school/community-based suicide prevention intervention. *Suicide & life-threatening behavior, 38*(3), 343-353. <https://doi.org/10.1521/suli.2008.38.3.343>
- Leverso, J., & Matsueda, R. L. (2019). Gang organization and gang identity: An investigation of enduring gang membership. *Journal of Quantitative Criminology, 35*(4), 797-829. <https://doi.org/10.1007/s10940-019-09408-x>
- Machamer, A. M., & Gruber, E. (1998). Secondary school, family, and educational risk: Comparing American Indian adolescents and their peers. *The Journal of Educational Research, 91*(6), 357-369. <https://doi.org/10.1080/00220679809597565>

- Martin, F. A. (2013). *Rez realities: Exploring the perceptions of crime and justice among tribal police officers in Indian Country* [Doctoral dissertation, Old Dominion University]. ProQuest Dissertations & Theses Global: Social Sciences. <http://doi.org/10.25777/kn8r-1k08>
- Napoli, M., Marsiglia, F. F., & Kulis, S. (2003). Sense of belonging in school as a protective factor against drug abuse among Native American urban adolescents. *Journal of Social Work Practice in the Addictions, 3*(2), 25-41. https://doi.org/10.1300/J160v03n02_03
- Novins, D. K., Croy, C. D., Moore, L. A., & Rieckmann, T. (2016). Use of evidence-based treatments in substance abuse treatment programs serving American Indian and Alaska Native communities. *Drug and Alcohol Dependence, 161*, 214–221. <https://doi.org/10.1016/j.drugalcdep.2016.02.007>
- Perry, B. (2006). Nobody trusts them! Under- and over-policing Native American Communities. *Critical Criminology, 14*(4), 411–444. <https://doi.org/10.1007/s10612-006-9007-z>
- Sarche, M., & Spicer, P. (2008). Poverty and health disparities for American Indian and Alaska Native children: Current knowledge and future prospects. *Annals of the New York Academy of Sciences, 1136*(1), 126–136. <https://doi.org/10.1196/annals.1425.017>
- Sharkey, J. D., Shekhtmeyster, Z., Chavez-Lopez, L., Norris, E., & Sass, L. (2011). The protective influence of gangs: Can schools compensate? *Aggression and Violent Behavior, 16*(1), 45-54. <https://doi.org/10.1016/j.avb.2010.11.001>
- Simon, T. R., Ritter, N. M., & Mahendra, R. R. (2013). *Changing course: Preventing gang membership*. <https://www.ojp.gov/pdffiles1/nij/239233.pdf>
- Stanley, L.R., Harness, S.D., Swaim, R.C., & Beauvais, F. (2014). Rates of substance use of American Indian students in 8th, 10th, and 12th grades living on or near reservations: Update, 2009-2012. *Public Health Reports (1974), 129*(2), 156–163. <https://doi.org/10.1177/003335491412900209>
- Suicide Prevention Resource Center. (2007). *American Indian life skills*. <https://www.sprc.org/resources-programs/american-indian-life-skills-developmentzuni-life-skills-development>
- Taylor, T., Peterson, D., Esbensen, F., & Freng, A. (2007). Gang membership as a risk factor for adolescent violent victimization. *The Journal of Research in Crime and Delinquency, 44*(4), 351–380. <https://doi.org/10.1177/0022427807305845>

- Theriot, M., & Parke, B. (2008). Native American youth gangs: Linking culture, history and theory for improved understanding, prevention and intervention. *Journal of Ethnicity in Criminal Justice*, 5(4), 83–97. https://doi.org/10.1300/J222v05n04_04
- Tita, G., & Ridgeway, G. (2007). The impact of gang formation on local patterns of crime. *The Journal of Research in Crime and Delinquency*, 44(2), 208–237. <https://doi.org/10.1177/0022427806298356>
- U.S. Department of Health and Human Services, Office of Minority Health. (2018). Profile: American Indian/Alaska Native. <https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=3&lvlid=62>
- Vigil, J. (2003). Urban violence and street gangs. *Annual Review of Anthropology*, 32(1), 225–242. <https://doi.org/10.1146/annurev.anthro.32.061002.093426>
- Weerman, F., Lovegrove, P., & Thornberry, T. (2015). Gang membership transitions and its consequences: Exploring changes related to joining and leaving gangs in two countries. *European Journal of Criminology*, 12(1), 70–91. <https://doi.org/10.1177/1477370814539070>
- Whitbeck, L. B., Hoyt, D. R., Chen, X., & Stubben, J. D. (2002). Predictors of gang involvement among American Indian adolescents. *Journal of Gang Research*, 10(1), 11–26. <https://psycnet.apa.org/record/2002-08186-002>

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