UNDERSTANDING RISK AND PROTECTIVE FACTORS INFLUENCING URBAN AMERICAN INDIAN /ALASKA NATIVE YOUTH GRADUATION EXPECTATIONS

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Abstract: Utilizing data collected by the Monitoring the Future project between 2005-2015, this study assesses the effect of risk and protective factors in shaping the graduation expectations of urban American Indian/Alaska Native (AI/AN) students as compared to their non-Hispanic White (NHW) peers. The responses of nearly 150,000 8th- and 10th-grade students reveal that single race and multi-race AI/AN students experienced 13 of 15 risk factors at higher proportions than NHW students, and 12 of 15 risk factors corresponded to single race AI/AN students and a third of risk factors corresponded to multi-race AI/AN students having higher odds of expecting not to graduate. Additionally, for the majority of the 14 protective factors analyzed, both single race and multi-race AI/AN students showed lower odds of expecting to graduate compared to their NHW peers.

INTRODUCTION

Education levels for American Indian and Alaska Native (AI/AN) students are significantly lower than the general U.S. population. The high school graduation rate for AI/ANs in 2015 was 82%, which is the lowest of any racial and ethnic group in the United States, compared to the graduation rate for non-Hispanic Whites (NHW) of 95% (Musu-Gillette et al., 2017). Additional research has shown that AI/AN students drop out of high school at nearly twice the rate as their NHW peers (15% vs. 7%; DeVoe, Darling-Churchill, & Snyder, 2008). These disparities highlight a lack of cultural and structural support within the Westernized education system, stemming from the effects of institutionalized racism and ongoing oppression within societal structure and systems (Aspray, 2016; Keith, Stastny, & Brunt, 2016; Vincent, Tobin, & Van Ryzin, 2017). Years before students don caps and gowns, they begin developing expectations of graduation that are influenced by an array of risk and protective factors that either detract from or encourage their pursuit of a

high school diploma. This study seeks to assess the impact of those factors on expectations of graduation by comparing the experiences of AI/AN students to their NHW peers.

Stereotypes often portray AI/AN people as living only in rural areas or isolated on reservations, which do not accurately represent the contemporary AI/AN experience (Martinez, Sage, & Ono, 2016). Through forced migration, government mandate, and individual choice, AI/AN people have moved to urban areas throughout the United States and have created growing and thriving communities (Martinez et al., 2016). In the 2010 Census, over 5.2 million Americans identified as AI/AN alone or in combination with another ethnic group (Norris, Vines, & Hoeffel, 2012). With approximately 78% of those people living in urban areas, it is imperative to incorporate urban AI/AN communities into research and interventions focused on improving the overall health and well-being of Indian Country (Martinez, 2014; Norris, et al., 2012). In an effort to center the perspectives of urban dwelling AI/ANs, the study specifically focused on urban AI/AN youth due to the fact that they represent 40% of the urban AI/AN population and are of an age where negative health outcomes can be more readily addressed through prevention and intervention (Dominguez, Appanaitis, Simpson, Yang, & Lind, 2016; Blum, Harmon, Harris, Bergeisen, & Resnick, 1992).

Furthermore, by focusing on educational outcomes, this study seeks to guide the implementation of meaningful programs within the urban AI/AN community, as access to a quality education is essential to positive health outcomes across the life course (Kaplan, Fang, & Kirby, 2017). Education lays the groundwork for health literacy, as it allows patients to accurately comprehend nutrition and medication labels, understand medical diagnoses and physician recommendations, and advocate for themselves in a complex health care system (Foster, Idossa, Lih-Wen, & Murphy, 2016). Education is also a precursor to employment, which is linked to improved health outcomes through increased access to housing, nutritious food, clean water, clothing, and more (Day & Newburger, 2002). However, it is important to understand that access to education itself does not counterbalance the totality of ways in which health disparities are linked to institutional and structural inequalities that dictate society today.

Critical Race Theory (CRT) was utilized to conceptualize the theoretical foundations of what the data represents, as well as what it means in the lived realities of the AI/AN youth in the study, with the recognition that race plays a role in the day-to-day activities of those socially identified as non-White. We sought to incorporate the main pillars of CRT into the theoretical conceptualization of the study in order to examine the roots of inequity in health and educational

outcomes that stem from the systems and institutions that continue to uphold and enforce institutionalized racism (Delgado & Stefanic, 2012).

CRT demands the acknowledgement of the continued existence of systems of oppression within modern society that inequitably affect people of color, especially AI/AN communities, and that these systems contribute to persistent educational disparities (Delgado & Stefanic, 2012). In their work, Ford and Airhihenbuwa (2010) have explained the importance of using CRT in addressing public health concerns in order to challenge colorblindness with race consciousness, understand the complex and insidious mechanisms of structural racism, and work towards centering the perspective of marginalized populations, all while using a reflexive and iterative praxis in which knowledge gained from personal experiences as well as theory and research inform each other.

In an effort to support and address the remediation of institutionalized oppression and inequity, protective factors were intentionally incorporated into the analysis as a way to start focusing on some of the strengths of our AI/AN communities. A paradigm shift away from focusing solely on deficits is needed and academic research must work to identify strengths among urban AI/AN youth, while simultaneously examining the perpetuation of the structural injustices affecting their lives. Due to the deficit-based model that is most Westernized scientific research and due to the data that is available, approximately half the variables in this study are risk factors. Yet, they have been included with the acknowledgment that AI/AN communities and students have demonstrated incredible resiliency not only through legacies of oppressive education policies but continue to do so in the face of structural and institutional racism in the education system.

Research on AI/AN dropout rates hold many methodological puzzles that make it difficult to accurately capture dropout rates for this population. For one, definitions of the variable of "dropping out" can differ. School dropout and completion rates metrics are rarely defined and present an important methodological challenge in this field of research (De Witte, Cabus, Thyssen, Groot, & van den Brink, 2013). Measurements vary from "freshman graduation rates" to "status dropout rates" and often include varying criteria like "permanent vs. temporary" dropout measurements (Cataldi, Laird, & KewalRamani, 2009; De Witte et al., 2013). AI/AN communities are a highly mobile population, in which some students may completely drop out and never return to the education system, some may decide to obtain a GED, and others may "dropout" of one school but re-enroll in another, completing their high school education (Faircloth & Tippeconnic, 2010).

Although our study cannot address the methodological issues of research in this area, a primary goal of the study was to add a unique perspective to the current body of knowledge around urban AI/AN students' graduation expectations by 1) assessing the risk and protective factors facing AI/AN youth; 2) highlighting the differences in exposure between single race AI/AN students, multi-race AI/AN students, and their NHW counterparts; and 3) analyzing the influence of race on graduation expectations for students with that exposure. By focusing on AI/AN youth in urban settings, the study adds to the knowledge and understanding of AI/AN youth health and allows the identification and utilization of protective factors to promote and improve the educational and health outcomes for the urban AI/AN community. This increased understanding of the protective and risk factors faced by AI/AN youth can lead to improved educational outcomes and thus better health and well-being throughout their life course (Henson, Sabo, Trujillo, & Teufel-Shone, 2017; Silmere & Stiff, 2006).

METHODS

Data Sources

Analysis was done using data collected by the national Monitoring the Future (MTF) project (http://www.monitoringthefuture.org/) from 2005 to 2015. MTF is an on-going cross sectional survey of the attitudes, behaviors, and values of 8th-, 10th-, and 12th-grade students in the United States, with a focus on substance use as well as the way attitudes and values change over time. It is funded primarily through the National Institute on Drug Abuse and conducted by the University of Michigan ("Monitoring the Future," 2017). The survey uses a randomly selected, multilevel sampling design to establish a nationally representative sample. Sample weights are also used to account for variations in school sample size and selection probability. Surveys are distributed to students during the school day and are self-administered in classrooms ("Monitoring the Future," 2017). The demographic information, risk, and protective factors used in this study were from 8th- and 10th-grade students from the years 2005-2015. This study focused on 8th- and 10th-grade students due to interest in potential for early intervention. The data used for this analysis only includes students attending schools based in standard metropolitan statistical areas as utilized by the U.S. Census Bureau (Office of Management and Budget, 2010). Students were also selected based on self-identified race/ethnicity, focusing on AI/AN and Non-Hispanic White (NHW) students only. For the analysis, AI/AN students were divided into two groups: those who identified

as AI/AN only and those who chose AI/AN in combination with another race/ethnicity. A total of 149,903 students were the focus of this analysis.

Measures

The primary outcome for the study was graduation expectation, which was defined as definitely/probably will not graduate or definitely/probably will graduate. The primary variables of interest for this analysis were year, age, gender, race/ethnicity, risk, and protective factors including substance use, school behavior, attitudes, and social support. Risk and protective factors were selected based on known risk and protective factors from previous research (Whitesell, Mitchell, & Spicer, 2009).

Fifteen risk factors were defined using the following questions. "Being not too happy these days" was categorized as being not too happy vs. pretty/very happy these days. "Binge-drinking in the last 2 weeks" was defined as having five or more drinks in a row. "Cut at least one school day in the last month" was operationalized as missing one or more days of school because of cutting school. "Schoolwork difficult to understand" was measured by a response of often/always (vs. never/seldom/sometime) to finding school work too hard to understand. "Hates school" was operationalized by a response of often/always (vs. never/seldom/sometime) to hating being in school. "Held back in school" was defined as having to repeat a grade in school. "Spent no time on homework" was measured by zero hours spent in an average week on homework, including both in school and out of school. "Missed school due to illness" was based on missing three or more whole days of school. "Punished for misbehaving" was measured by a response of often/always (vs. never/seldom/sometime) to getting sent to the office or having to stay after school because of misbehaving. "Didn't complete school work" was operationalized by an often/always (vs. never/seldom/sometime) response to failing to complete or turn in assignments over the past year. "Skipped a class" was defined as going to school but skipping a class when not supposed to in the last month. "Attended summer school" was any "yes" response to ever attending summer school to make up for poor grades or to keep from being held back. "Suspended/expelled from school" was any "yes" response to ever being suspended or expelled from school. "Spent time home alone after school" was any "yes" response to the average time spent after school each day at home with no adults present. "Friends dropped out of school" was any "yes" response to having any friends who dropped out of school.

Fourteen protective factors were defined using the following questions. "Has adult to talk to" was categorized as any "yes" response to having at least one other adult, other than their parents, that they would feel able to talk to if they were having any problems. "Tried to do their best in school" was defined as a response of always/often (vs. never/seldom/sometime) to trying to do their best work in school. "Enjoyed being in school" was operationalized as a response of always/often (vs. never/seldom/sometime) to enjoying being in school. "Thought about future often" was measured by a response of always/often (vs. never/seldom/sometime) to thinking about their future beyond high school. "Average grade of A" was operationalized as having an A (93-100) as their average grade in their current school year. "Found school work interesting" was defined as a response of always/often (vs. never/seldom/sometime) to finding their school work interesting. "Have plan for after high school" was measured by a response of "I know exactly/pretty well what I will do" (vs. "I have a few/no ideas about what I might do") to best describing their plans after high school. "Expects to go to college" was based on definitely/probably will not go to college (vs. definitely/probably will). "Expects to go to technical/vocational school" was measured by definitely/probably will not go to technical/vocational school (vs. definitely/probably will). "Expects to serve in military" was operationalized by definitely/probably will not serve in military (vs. definitely/probably will). "Works in paid job" was defined as spending one or more hours per week working in a paid job. "Participated in community affairs/volunteer work" was measured by a response of "almost every day/at least once a week/once or twice a month" (vs. "a few times a year/never") to participating in community affairs or volunteer work. "Met with friends informally in free time" was defined by a response of "almost every day/at least once a week/once or twice a month" (vs. "a few times a year/never") to getting together with friends informally in their free time. "Participated in sports, athletics, exercise" was operationalized by a response of "almost every day/at least once a week/once or twice a month" (vs. "a few times a year/never") to actively participating in sports, athletics, or exercising.

Analysis

Chi-square tests were conducted to assess whether any significant differences existed in the frequencies of risk and protective factors between single-race AI/AN, multi-race AI/AN, and NHW students. Multivariate logistic models were used to evaluate whether any associations existed between race and graduation expectations among students with the shared risk/protective

factors when adjusting for the control variables (year, age, gender, and region). A p value < 0.05 and 95% confidence intervals were used to determine statistical significance. All analyses were conducted in SAS version 9.4 with survey design procedures (SAS Institute Inc., Cary, NC) and weighted to represent the population nationally.

Limitations

No socioeconomic status information was available in the data set; therefore, parental education was used as a proxy. Additionally, data were only available for the contiguous United States, indicating that the sample was not representative of all urban AI/AN students. Furthermore, MTF data was collected as a cross sectional survey, which only captures student answers at a single point in time, meaning that we will not know if these students end up completing their high school degree or not. This begs the question if the dependent variable of "intent to graduate" is an effective indicator for later dropping out. It may be that this dataset misses critical variables leading to dropout that are not captured, or it may be that the variables we included may be all important to those who actually do dropout but account for much stronger relationships than our research is able to unearth.

As a self-administered survey, social desirability bias can influence the way students chose to answer questions (Grimm, 2010). Additionally, racial misclassification consistently presents challenges for AI/AN populations and can lead to underestimation within the analysis (Jim et al., 2014). The data also does not allow for the ability to see what other race in combination with AI/AN that a respondent chose, meaning that we are not able to stratify multi-race AI/AN by subsets of that category, potentially missing important differences between those who may be African American and AI/AN or NHW and AI/AN, etc.

Although, ideally, we would be able to incorporate both Indigenous methodologies and CRT into the structure and conduct of analysis, we did not participate in data collection, and therefore cannot account for how race was classified and collected in the MTF survey. This also means the number of protective and resiliency factors that can be included in the analysis is limited.

RESULTS

Demographics

The sample included 2,365 single race AI/AN students, 7,807 multi-race AI/AN students, and 139,731 NHW students from 2005-2015 (Table 1). Comparing the three demographic groups, there were more male students in the single race AI/AN group (53.6% male students vs. 46.4% female students) while the multi-race AI/AN cohort had more females (56.5% female students vs. 43.5% male students). Among NHW students there was a roughly equal gender distribution (50.2% female students vs. 49.8% male students). Both the single race and multi-race AI/AN groups had a higher percentage of eighth graders (58.0% eighth graders in the single race AI/AN cohort; 55.0% eighth graders in the multi-race AI/AN group). There was a higher percentage of tenth graders in the NHW group (46.5% eighth graders vs. 53.5% tenth graders).

A significantly higher percentage of both single race and multi-race AI/AN students reported people outside of the immediate family living in the home compared to NHW students (21.4% single race AI/AN; 23.2% multi-race AI/AN; 11.4% NHW). Looking at parental education level, single race AI/AN students reported the greatest proportion of just one parent graduating from high school (15.9% single race AI/AN; 11.9% multi-race; 6.7% NHW) as well as the highest proportion of two parents completing just high school (30.3% single race AI/AN; 28.1% multi-race AI/AN; 21.8% NHW), whereas 44.9% of NHW students reported two parents graduating college compared with 27.8% of single race AI/AN and 31.8% of multi-race AI/AN students. While the majority of students in all three groups expected to graduate from high school, 3.1% of single race AI/AN students expected not to graduate compared with 1.8% of multi-race AI/AN students and 0.8% of NHW students.

Table 1
Demographic Characteristics of AI/AN and NHW Students in Urban U.S. Areas, 2005-2015

Total	Single race AI/AN, *n*= 2,314 No. (%)	Multi-race AI/AN, *n* = 7,617 No. (%)	NHW, *n* = 138,186 No. (%)
Age, years			
13	502.4 (21.5)	1,585 (20.6)	25,123 (18.1)
14	849.0 (36.3)	2,636 (34.3)	39,362 (28.3)
15	395.2 (16.9)	1,546 (20.1)	30,945 (22.3)
16	592.0 (25.3)	1,925 (25.0)	43,486 (31.3)

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Table 1 Continued
Demographic Characteristics of AI/AN and NHW Students in Urban U.S. Areas, 2005-2015

Total	Single race AI/AN, *n*= 2,314 No. (%)	Multi-race AI/AN, *n*= 7,617 No. (%)	NHW, *n* = 138,186 No. (%)
Sex			
Male	1,240 (53.6)	3,317 (43.5)	69,612 (49.8)
Female	1,073 (46.4)	4,300 (56.5)	69,429 (50.2)
Survey Year			
2005	125.6 (5.3)	326.4 (4.2)	14,556 (10.4)
2006	299.9 (12.7)	728.1 (9.3)	15,327 (11.0)
2007	272.1 (11.5)	827.4 (10.6)	14,068 (10.1)
2008	228.9 (9.7)	684.5 (8.8)	12,779 (9.1)
2009	233.1 (9.9)	759.6 (9.7)	13,073 (9.4)
2010	230.9 (9.8)	677.3 (8.7)	12,958 (9.3)
2011	216.1 (9.1)	745.4 (9.5)	12,873 (9.2)
2012	196.1 (8.3)	722.3 (9.3)	12,674 (9.1)
2013	166.6 (7.0)	729.1 (9.3)	10,422 (7.5)
2014	207.1 (8.8)	792.6 (10.2)	9,566 (6.8)
2015	188.2 (8.0)	814.3 (10.4)	11,435 (8.8)
Grade			
8th	1,371 (58.0)	4,296 (55.0)	64,933 (46.5)
10th	993.6 (42.0)	3,516 (45.0)	74,798 (53.5)
School Region			
Northeast	406.6 (17.2)	1,273 (41.1)	32,621 (23.3)
Midwest	528.5 (22.4)	1,752 (22.4)	39,180 (28.0)
South	889.6 (37.6)	2,873 (36.8)	42,814 (30.6)
West	539.9 (22.8)	1,909 (24.5)	25,117 (18.0)
Number of Parents in Household			
None/One	772.4 (32.9)	2,814 (36.5)	25,917 (18.6)
Two	1,575 (67.1)	4,904 (63.5)	113,364 (81.4)
Siblings in Household			
0	531.9 (22.7)	1,787 (23.5)	26,266 (18.9)
1+	1,735 (77.3)	5,870 (76.5)	113,016 (81.1)
Others Besides Immediate Family in Household	501.7 (21.4)	1,790 (23.2)	15,832 (11.4)
Parents' Education Level			
Only 1 parent completed HS	338.9 (15.9)	856.5 (11.9)	8,846 (6.7)
Both parents completed HS	645.3 (30.3)	2,027 (28.1)	28,902 (21.8)
Only 1 parent completed college	551.8 (25.9)	2,041 (28.1)	35,429 (26.7)
Both parents completed college	591.8 (27.8)	2,298 (31.8)	59,599 (44.9)
Expecting to Not Graduate	71.9 (3.1)	137.4 (1.8)	1,163 (0.8)
Expecting to Graduate	2,259 (96.9)	7,541 (98.2)	138,889 (99.2)

Risk and Protective Factors

The percentages of students experiencing risk and protective factors are presented in Table 2. For 12 out of 15 of the examined risk factors, a significantly higher percentage of both single race and multi-race AI/AN students reported experiencing those factors when compared to NHW students. Significantly higher percentages of AI/AN students reported being "not too happy these days," truancy in the past month, difficulty understanding schoolwork, hating school, spending no time on homework, not completing schoolwork, skipping a class, and having friends who dropped out of school when compared to NHW students. Single race AI/AN students reported being held back in school and suspended/expelled from school at a rate twice that of NHWs (18.9% vs. 7.3%; $p < 0.0001$; 32.4% vs. 16.6%, $p < 0.0001$). Single race AI/AN and multi-race AI/AN students were also punished at twice the rate of NHW students for misbehaving (7.8% single race AI/AN; 7.4% multi-race AI/AN; 3.7% NHW; $p < 0.0001$). All AI/AN students reported attending summer school at nearly twice the rate of NHW students (24.8% single race AI/AN; 22.6% multi-race AI/AN; 11.9% NHW; $p < 0.0001$). A greater percentage of single race and multi-race AI/AN students missed school due to illness (15.0% single race AI/AN; 15.3% multi-race AI/AN; 10.6% NHW; $p < 0.0001$). There was no statistically significant difference between AI/AN students and NHW students for binge-drinking in the past two weeks or spending time home alone after school.

AI/AN students experienced similar percentages to their NHW counterparts for many of the protective factors (Table 2). For four out of the 14 protective factors analyzed, both groups of AI/AN students had higher percentages than NHW students, and for five factors, there was no statistically significant difference between AI/AN students and NHW students. A greater percentage of AI/AN students had a post-graduation plan (57.4% single race AI/AN; 61.7% multi-race AI/AN; 52.3% NHW; $p < 0.0001$), particularly among students planning to attend a technical or vocational school (37.4% single race AI/AN; 33.0% multi-race AI/AN; 24.9% NHW; $p<0.0001$) and among students planning to serve in the military (26.6% single race AI/AN; 23.5% multi-race AI/AN; 14.9% NHW; $p<0.0001$). A higher percentage of both single race and multi-race AI/AN students reported finding school work interesting when compared to NHW students (22.2% single race AI/AN; 21.2% multi-race AI/AN; 20.3% NHW, $p = 0.04$).

Table 2
Descriptive Statistics and Chi-Square Tests of Risk Factors and Protective Factors Comparing AI/AN and NHW Students in Urban U.S. Areas, 2005-2015

Risk Factors	Single race AI/AN, *N*=2,365 No. (%)	Multi-race AI/AN, *N*=7,807 No. (%)	NHW, *N*=169,440 No. (%)	
Not too happy these days	436.0 (18.6)	1,575 (20.4)	16,995 (12.2)	<.0001
Binge-drinking in last 2 weeks (5+ drinks in a row)	283.0 (13.2)	833.1 (11.8)	16,217 (12.2)	0.3054
Cut at least one school day in last month	341.3 (15.4)	1,044 (14.4)	15,886 (11.8)	<.0001
Schoolwork difficult to understand	528.7 (22.5)	1,495 (19.3)	21,811 (15.7)	<.0001
Hates school	872.4 (37.0)	2,812 (36.2)	46,420 (33.3)	<.0001
Held back in school	433.3 (18.9)	989.2 (13.1)	10,142 (7.3)	<.0001
Spent no time on homework	248.3 (10.6)	679.4 (8.8)	7,484 (5.4)	<.0001
Missed school due to illness	340.0 (15.0)	1,136 (15.3)	14,452 (10.6)	<.0001
Punished for misbehaving	183.2 (7.8)	577.9 (7.4)	5,226 (3.7)	<.0001
Didn't complete school work	461.9 (19.7)	1,546 (19.8)	18,675 (13.4)	<.0001
Skipped a class	408.3 (17.7)	1,368 (18.1)	15,697 (11.4)	<.0001
Attended summer school	571.0 (24.8)	1,708 (22.6)	16,476 (11.9)	<.0001
Suspended/expelled from school	744.3 (32.4)	2,686 (35.4)	22,895 (16.6)	<.0001
Spent time home alone after school	1,746 (74.7)	5,964 (77.4)	108,203 (77.8)	0.0096
Friends dropped out of school	799.8 (34.9)	2,593 (34.3)	30,029 (21.7)	<.0001
Protective Factors				
Has adult to talk to	1,542 (73.4)	4,983 (75.4)	98,152 (76.6)	0.0024
Tried to do their best in school	1,781 (75.8)	6,021 (77.6)	110,497 (79.4)	<.0001
Enjoyed being in school	873.8 (37.1)	2,996 (38.6)	54,528 (39.1)	0.1630
Thought about future often	1,159 (50.2)	4,541 (59.7)	69,848 (50.5)	<.0001
Average grade of A	568.2 (24.6)	2,138 (28.3)	55,625 (40.3)	<.0001
Found school work interesting	519.7 (22.2)	1,641 (21.2)	28,220 (20.3)	0.0486
Have plan for after high school	1,322 (57.4)	4,678 (61.7)	72,306 (52.3)	<.0001
Expects to go to college	2,056 (89.2)	7,129 (93.4)	129,912 (94.0)	<.0001
Expects to go to technical/ vocational school	839.8 (37.4)	2,413 (33.0)	32,919 (24.9)	<.0001
Expects to serve in military	612.0 (26.6)	1,784 (23.5)	20,571 (14.9)	<.0001
Works in paid job	690.2 (29.7)	2,041 (26.9)	38,072 (27.6)	0.0752
Participated in community affairs/volunteer work	685.6 (29.3)	2,488 (32.1)	43,299 (31.1)	0.0754
Met with friends informally in free time	2,177 (92.5)	7,100 (91.4)	131,999 (94.9)	<.0001
Participated in sports, athletics, exercise	1,896 (80.7)	6,407 (82.7)	119,270 (85.7)	<.0001

Graduation Expectation Rates

On almost all risk factors (12/15), single race AI/AN students showed statistically significantly higher odds of expecting not to graduate when compared to NHW students, while multi-race AI/AN students only showed statistically significant higher odds of expecting not to graduate on 5 of 15 risk factors (Table 3). For example, single race AI/AN students who missed school for illness had 2.7 times greater the odds of expecting not to graduate compared to NHW students who missed for illness, while multi-race AI/AN students who missed school due to illness had 1.8 times greater the odds of expecting not to graduate compared to their NHW peers who missed school while sick. Among students who cut school at least one school day in the last month, the odds of expecting to not graduate were 3.2 times higher for single race AI/AN students than NHW students, and twice as high for multi-race AI/AN students than NHW students. Lastly, single-race AI/AN students who spent time home alone after school had 4.4 times greater the odds of expecting not to graduate compared to NHW students who spent time home alone after school, while multi-race AI/AN students had twice the odds of expecting not to graduate compared to NHW students who spent time home alone after school. Furthermore, in comparison to NHW students, being punished for misbehaving was a statistically significant risk factor for expecting to not graduate among single race AI/AN students but not for multi-race AI/AN students. Among students who were suspended/expelled from school, the odds of expecting to not graduate were twice as high for single-race AI/AN students compared to their NHW peers; however, the odds of expecting to not graduate were not significant between multi-race AI/AN students and NHW students. As for students who had friends who dropped out of school, the odds of expecting to not graduate were twice as high for single race AI/AN students than for their NHW counterparts while not being significant between multi-race AI/AN students and NHW students. Conversely, being held back in school was a statistically significant risk factor for multi-race AI/AN students but not for single race AI/AN students compared to their NHW peers. Additionally, binge-drinking was not a statistically significant risk factor for expecting to not graduate among single race AI/AN students and multi-race AI/AN students when compared to their NHW counterparts. Although there was no statistical significance found, and this analysis focused on AI/AN youth living in urban settings, it is important to note that the proportions of binge drinking for single race and multi-race AI/AN in our analysis are similar to what Swaim & Stanley (2018) describe. Their research focused on AI/AN youth living on reservations but used MTF data as a comparison for

their original data collection. Our findings suggest similar rates for those who live in urban settings and reservations. Further research is needed to explore this potential association.

Table 3
Adjusted Odds Ratios of Risk Factors Comparing AI/AN Students and NHW Students' Expectation Not to Graduate in Urban U.S. Areas, 2005-2015

Risk Factor	Single race AI/AN vs. NHW Adjusted OR (95% CI)	Multi-race AI/AN vs. NHW Adjusted OR (95% CI)
Not too happy these days	2.03 (1.26, 3.26)	1.43 (1.00, 2.04)
Binge-drinking in last 2 weeks (5+ drinks in a row)	1.66 (0.88, 3.13)	1.35 (0.84, 2.17)
Cut at least one school day in last month	3.21 (2.07, 4.98)	1.95 (1.40, 2.71)
Schoolwork difficult to understand	2.47 (1.59, 3.85)	1.29 (0.87, 1.91)
Hates school	2.68 (1.87, 3.88)	1.59 (1.21, 2.09)
Held back in school	1.38 (0.89, 2.15)	1.54 (1.07, 2.22)
Spent no time on homework	1.88 (1.13, 3.13)	1.18 (0.83, 1.68)
Missed school due to illness	2.68 (1.54, 4.65)	1.82 (1.15, 2.87)
Punished for misbehaving	2.08 (1.10, 3.93)	0.84 (0.54, 1.30)
Didn't complete school work	2.11 (1.41, 3.17)	1.19 (0.89, 1.60)
Skipped a class	2.70 (1.73, 4.21)	1.17 (0.82, 1.66)
Attended summer school	1.50 (0.96, 2.34)	1.19 (0.85, 1.63)
Suspended/expelled from school	2.07 (1.41, 3.04)	1.08 (0.80, 1.45)
Spent time home alone after school	4.38 (3.23, 5.95)	2.03 (1.55, 2.64)
Friends dropped out of school	2.09 (1.43, 3.06)	1.26 (0.94, 1.70)

Note: CI = confidence interval. OR = odds ratio. Multivariable logistic models were adjusted for year, age, gender, and region.

When examining protective factors, single-race AI/AN students showed statistically significantly lower odds of expecting to graduate across all 14 protective factors when compared to their NHW counterparts, while multi-race AI/AN students had significantly lower odds of expecting to graduate on 11 of 14 protective factors (Table 4), regardless of whether they had statistically significant higher proportions of a particular protective factor. Single race AI/AN students who had a plan for after high school had 77% lower the odds of expecting to graduate than their NHW peers, while multi-race AI/AN students with a plan for after high school had 43% lower the odds of expecting to graduate than NHW students with a post-high school plan. Single race AI/AN students who met with their friends in their free time had 73% lower the odds of expecting to graduate than their NHW counterparts, while multi-race AI/AN students who spent

their free time with friends had 52% lower the odds of expecting to graduate than NHW students. Among students who participated in sports, athletics, and exercise, single race AI/AN students had 79% lower the odds of expecting to graduate when compared to their NHW counterparts, while multi-race AI/AN students had 56% lower the odds of expecting to graduate compared to NHW peers. Furthermore, the odds of expecting to graduate among single race AI/AN students who enjoyed being in school were 87% lower than the odds of their NHW counterparts; however, among multi-race AI/AN students who enjoyed school, their odds of expecting to graduate were in line with their NHW peers. Among students who expected to go to technical or vocational school, the odds of expecting to graduate were 67% lower for single race AI/AN than for their NHW counterparts, while there was no statistically significant difference between multi-race AI/AN students and NHW students. As for students who expected to serve in the military after high school, single race AI/AN students had 60% lower the odds of expecting to graduate compared to NHW peers; however, no statistically significant difference was found between multi-race AI/AN students and NHW students.

Table 4
Adjusted Odds Ratios of Protective Factors Comparing AI/AN Students and NHW Students' Expectation to Graduate in Urban U.S. Areas, 2005-2015

Protective Factor	Single race AI/AN vs. NHW Adjusted OR (95% CI)	Multi-race AI/AN vs. NHW Adjusted OR (95% CI)
Has adult to talk to	0.23 (0.16, 0.34)	0.44 (0.32, 0.59)
Tried to do their best in school	0.20 (0.13, 0.30)	0.37 (0.26, 0.52)
Enjoyed being in school	0.13 (0.08, 0.25)	0.99 (0.46, 2.15)
Thought about future often	0.24 (0.14, 0.40)	0.62 (0.39, 0.98)
Average grade of A	0.13 (0.06, 0.27)	0.32 (0.17, 0.64)
Found school work interesting	0.13 (0.06, 0.28)	0.33 (0.15, 0.71)
Have plan for after high school	0.23 (0.15, 0.36)	0.57 (0.38, 0.85)
Expects to go to college	0.17 (0.10, 0.28)	0.38 (0.22, 0.64)
Expects to go to technical or vocational school	0.33 (0.18, 0.60)	0.67 (0.36, 1.25)
Expects to serve in military	0.40 (0.24, 0.66)	0.81 (0.55, 1.20)
Works in paid job	0.33 (0.19, 0.59)	0.45 (0.29, 0.69)
Participated in community affairs or volunteer work	0.12 (0.07, 0.21)	0.27 (0.16, 0.46)
Met with friends informally in free time	0.27 (0.20, 0.37)	0.48 (0.38, 0.61)
Participated in sports, athletics, exercise	0.21 (0.15, 0.30)	0.44 (0.34, 0.58)

Note: CI = confidence interval. OR = odds ratio. Multivariable logistic models were adjusted for year, age, gender, and region.

DISCUSSION

Overall, our findings highlight the inequitable experiences AI/AN students face within the education system and the corresponding impact on graduation expectations. The results show single race AI/AN students are held back at higher proportions than multi-race AI/AN students and at more than 2.5 times the proportion of NHW students (18.9%; 13.1%; 7.3%). Further, 7.8% of single race AI/AN students report being punished for misbehaving, similar to the 7.4% of multi-race AI/AN students who report the same, compared to only 3.7% of NHW students who reported punishment for misbehavior. These findings are consistent with existing studies that have found AI/AN students facing disproportionate disciplinary action which contributes to the school-to-prison pipeline (Wallace, Goodkind, Wallace, & Bachman, 2008). In addition, previous studies have also provided evidence that discipline referrals, suspensions, and expulsions were disproportionately meted out to AI/AN students compared to their NHW peers and did not correlate with behavioral differences (Brown & Tillio, 2013; Gastic, 2017). It was also found that single race AI/AN students reported being held back in school at higher proportions than multi-race AI/ANs and NHWs (18.9%; 13.1%; 7.3%), which is confirmed by Dever, Raines, Dowdy, and Hostutler (2016) in their study on special education that showed AI/AN students being 86.4% more likely to be placed in special education when compared to their NHW peers.

However, these results should be interpreted with caution, as findings about students being held back or experiencing high disciplinary rates often lead to the assumption that these students are not engaged or participating in school. Yet, the data show the opposite. A larger percentage of both single race and multi-race AI/AN students, when compared to NHW peers, found school work interesting (22.2%; 21.2%; 20.3%) and had a post-graduation plan (57.4%; 61.7%; 52.3%). Particularly, this ability to look forward highlights' Indigenous protective cultural factors, as many Indigenous cultures rely on the ability to look forward into the future to overcome the obstacles of today. The Inuit articulate this as "[when] faced with adversity, people talk of hope and wait for it to reveal itself" (Kirmayer, Dandeneau, Marshall, Phillips, & Williamson, 2011, pg.88).

Despite having significant protective factors in place, the results show that protective factors do not enhance graduation expectations for the 1.6% single race AI/AN and 5.2% multi-race of AI/AN youth in this study in the same way protective factors boost these expectations in NHW students. Even with both groups of AI/AN students reporting higher proportions of exposure than NHW peers on four of the 14 protective factors, and three more in which one group of AI/AN students had a higher proportion of exposure, our findings show both groups of AI/AN students

were still more likely than NHW counterparts to not expect to graduate. For single race AI/AN students, they experienced lower odds of expecting to graduate on all 14 protective factors when compared to NHW students who reported the same exposures. It is important to note that the number of cases/sample size was limited, which impacted the analysis and limits the reporting of the results. Small sample sizes reduce statistical power and increase the chance of type II error, warranting caution that any statistically significant results or relationships in this study should be considered estimates and must be examined further.

Yet, although only a small percentage of the sample reported expectation of not graduating (3.1% single race AI/AN; 1.8% multi-race AI/AN; 0.8% NHW) and there is no way to confirm if these students actually do dropout, the importance of examining this small sample size is necessary as researchers often exclude AI/AN students in their analyses due to small numbers and being deemed statistically insignificant (Faircloth & Tippeconnic, 2010). Recognizing that the small population size of AI/ANs is directly related to the legacy of colonialization and genocide is a part of applying a culturally rigorous and equitable approach, which then places immense value on this small subset of the sample as it recognizes that every data point is a person, a story, a life, and a seminal piece of the health and well-being of future generations, no matter the size of the sample. CRT adds the acknowledgement that the impact of institutionalized and structural racism limits the power of the protective factors identified in this study to have the same positive impact on AI/AN students that they do on NHW students. With this in mind, future research should consider oversampling in data collection to address the limitations of small sample sizes, as well as mixed methods research approaches with use of qualitative data like storytelling, to strengthen any associations explored through statistical analysis. While statistical analysis provides us with a baseline understanding of some of these trends, qualitative data can provide a rich context to help understand statistical patterns more clearly.

Moving forward, additional research is needed to examine the cultural, historical, and geopolitical landscape of these communities to contextualize the disparities that are observed. Additional research is also needed on the types of variables leading to dropout as well as clear definitions of different types of dropping out. Further research should highlight that cultural practices and traditions, such as "thinking about the future," double as both cultural and protective factors. Numerous studies of Native youth have identified culture as a key protective factor, which merits further investigation (Henson et al., 2017). A study of alcohol use in the Ojibwe and Dakota tribal communities identified the importance of challenging stereotypes through education and mentoring,

as well as the frustration associated with harmful intergenerational stereotypes, which could be further investigated as protective and risk factors (Myhra & Wieling, 2014). Another study of rural Alaska Native youth identified contribution to village welfare and subsistence and cultural activities as protective factors (Wexler, Dam, Silvius, Mazziotti, & Bamikole, 2016). By continuing to expand on the understanding of protective factors and incorporating urban AI/AN youth into studies and research, public health interventions for AI/AN youth can be improved and contribute to lifting the overall health and well-being of all AI/AN people. Prevention efforts that do not consider cultural and contextual factors may have lower chances of success (Swaim & Stanley, 2018). By understanding institutionalized racism and bias within the education system and focusing on protective factors, communities can move forward towards a positive, more inclusive future.

This work is a launching off point for additional expansion and culturally rigorous investigations around education achievement for AI/AN youth. As community is at the forefront of everything we do, a presentation of this data to AI/AN community members in the surrounding school district has been proposed, to gather feedback and experiences around this topic as well as create an opportunity to brainstorm with community on how to culturally define "risk" and "protective" factors that may differ with how it is discussed in Western academia. "Cultural rigor must include using local cultural protocols that promote a fundamental respect for knowledge of cultural leaders who can provide meaningful insight/explanations to important questions" (Tribal Evaluation Workgroup, 2013, pg 11). Shoalwater Bay Tribal Chair Charlene Nelson articulates this type of Indigenous research as an "exploration together" rather than the classic Western research approach which often focuses on research conducted by "experts" with no ties or investment in the community (Blacksher et al., 2016; Braun, Browne, Ka'opua, Kim, & Mokuau, 2014).

We want to build from the resiliency that AI/AN students have shown and strive to create systems and interventions that work for youth and promote better health and educational outcomes for urban AI/AN communities. A starting point for this will be the Urban Indian Health Institute's current effort to undergo a national urban Indian health programs Behavioral Risk Factor Surveillance System (BFRSS). Although BRFSS's are common, this will be the first to our knowledge that will collect data nationally from all urban Indian health programs. This BRFSS will also link questions to a direct social determinants of health question, as well as place an emphasis on cultural and protective factors to provide data that focuses on the strengths of our urban Indian population.

CONCLUSION

This study builds upon prior research to confirm that both single race and multi-race AI/AN students experience risk factors at higher rates than NHW students. Although both groups experience similar protective factors, the institutional racism at play within our education system inequitably undermines the effect of these factors in facilitating graduation expectations. The data shows that exposure to positive factors was associated with lower odds of expecting to graduate for AI/AN students when compared to fellow NHW students. The study also highlights the need for researchers to investigate protective factors outside of Western paradigms, such as those related to the cultures and values of Indigenous people. Continued research on protective factors and successful interventions is needed to close the educational attainment gap and support the health and well-being of urban AI/AN youth.

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FUNDING INFORMATION

The content is the responsibility of the authors and may not represent the official views of the federal funding agencies or the authors affiliated institutions.

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