

# THE IMPACT OF TRAUMA ON ALCOHOL USE AND PRECURSORS TO SEXUAL RISK AMONG AMERICAN INDIAN YOUNG ADOLESCENTS

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## INTRODUCTION

- Compared to other racial/ethnic groups, American Indian (AI) teens experience more traumatic life events and, despite high abstention, report higher rates of alcohol use and adverse sexual health outcomes.
- Research indicates a direct linkage between trauma, alcohol use and sexual risk-taking.
- Prosocial peers mitigate the impact of trauma, reduce substance use, and decrease risky sexual behaviors.
- While AI males and females report similar counts of traumatic life events, literature has found notable gender differences in health risk behaviors—males tend to report higher rates of alcohol use and risky sexual behaviors.
- Youth who have strong relationships with their parents report receiving more support after experiencing a traumatic life event and report lower rates of alcohol use and sexual risk-taking when compared to youth who report weaker relationships.
- The epidemiological profiles of AI adolescent alcohol use and adverse sexual health outcomes show a nearly twenty-fold increase from ages 10-14 to 15-19. Intervening at an early age, before alcohol use and sexual risk-taking begin or increase, is critical to reducing the adverse health outcomes associated with these behaviors.

## OBJECTIVE

This study sought to understand the associations among sex refusal self-efficacy (a precursor to sexual risk-taking shown to delay sexual debut among AI youth) and alcohol use, trauma and peer group affiliation. Differences by gender and parent-child relationship quality were also examined.

## METHODS

### STUDY SAMPLE

Data were from a wait-listed longitudinal clustered-randomized trial conducted from 2006-2009 on a Northern Plains reservation, a rural community and one of the poorest regions in the United States. The purpose of this study was to assess the effectiveness of an HIV prevention intervention among AI youth ages 10 to 14. Participants were students enrolled in all 13 middle schools on the reservation. For this analysis, only waitlisted youth at wave one were used (N = 264) to ensure normal associations, without the influence of the intervention, were examined.

### CONSTRUCT OVERVIEW

**Sex-refusal self-efficacy (latent variable).** Construct consisted of four items to assess participants' beliefs in their ability to refuse intercourse despite encountering exposures and circumstances that encourage sexual activity.

**Trauma (four-level categorical variable).** Youth were asked if they knew someone who attempted suicide, knew someone who committed suicide, someone important to them was hurt or killed in a car accident, observed violence between members of their family, and someone outside their family physically attacked them.

**Alcohol use (dichotomous variable).** The alcohol use question (yes/no to use) was from the Diagnostic Interview Schedule for Children (DISC-R) and has been used extensively in prior AI research.

**Peer group affiliation (latent variable).** Construct included modified items from the Panel Study of Income Dynamics. Two constructs were included: prosocial and deviant peers.

**Parent-child relationships (dichotomous variable).** Preliminary latent profile analyses informed a binary parent-child relationship variable of Moderate and Strong parent-child relationship quality based on 14 items related to parent-child communication and parental warmth.

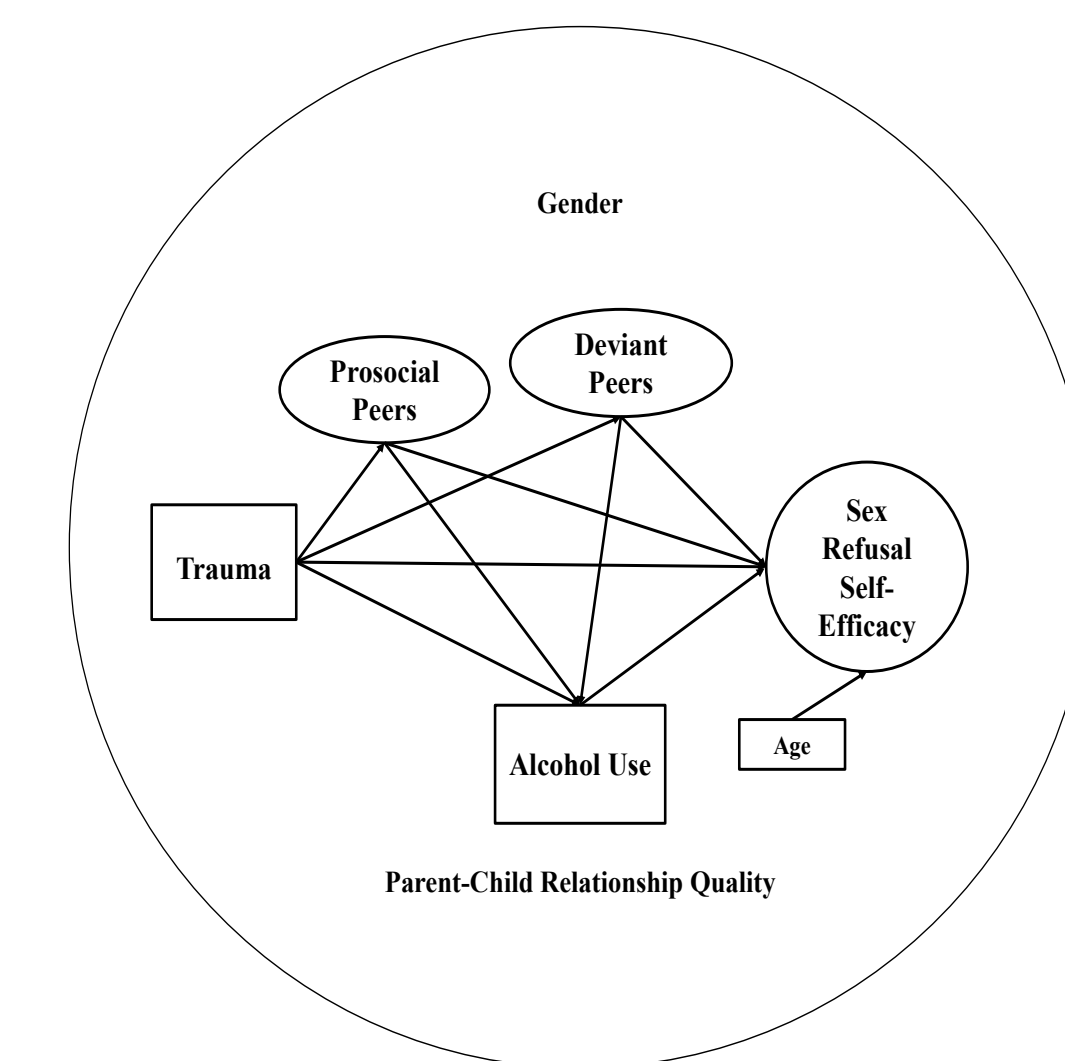
**Gender (dichotomous variable).** Youth were asked, "are you a boy or a girl?"

### ANALYTIC APPROACH

MPlus version 7.4 was used for confirmatory factor analysis, to model fit of the structural model, measurement invariance examination, and structural equation modeling. A Bayesian estimator was used. To better understand the structural relationships of the total sample, we conducted SEM using all participants at wave one, and to examine the differences by gender and parent-child relationship quality we conducted multigroup analyses.

## RESULTS

**Figure 1.** Conceptual model of trauma, peer group affiliation, alcohol use, and multigroup variables of parent-child relationship quality and gender, controlled for age.



**Table 1.** Descriptive statistics of study sample by gender and parent-child relationship quality.

Study variables	Gender		Parent-child relationship quality	
	Male	Female	Moderate	Strong
Age	12.74 (.88)	12.51 (.83)	12.66(.89)	12.54(.80)
Gender	148(56.1%)	116(43.9%)		
Female			32.1%	67.9%
Parent-child relationship quality			93(39.2%)	144(60.8%)
Strong	68(47.2%)	76(52.8%)		
Sex refusal self-efficacy (scale 1-4, alpha=.64)	3.26(.59)	3.72(.40)*	3.41(.59)	3.51(.56)
Trauma				
No trauma	30(58.8%)	21(41.2%)	14(28.6%)	35(71.4%)
1 trauma	32(49.2%)	33(50.8%)	27(42.9%)	36(57.1%)
2 traumas	34(50.0%)	34(50.0%)	28(42.4%)	38(57.6%)
3 or more traumas	24(55.8%)	19(44.2%)	15(38.5%)	24(61.5%)
Alcohol Use				
Yes	52(53.6%)	45(46.4%)	41(46.1%)	48(53.8%)
Deviant Peers (scale 1-4, alpha=.71)	2.03(.58)	1.74(.48)*	1.90(.56)	1.90(.55)
Prosocial Peers (scale 1-4, alpha=.66)	2.73(.88)	3.26(.99)*	2.86(.97)	3.02(.99)

P-value <.05

**Table 2.** Results for the full model, multigroup models by gender and parent-child relationship quality, and model fit.

Structural Relationships	Full Sample (n=217)		Gender				Parent-Child Relationship Quality			
	Posterior Estimate	95% CI	Posterior Estimate	95% CI	Posterior Estimate	95% CI	Posterior Estimate	95% CI	Posterior Estimate	95% CI
<b>Direct Effect</b>										
Deviant Peers → Sex Refusal Self-Efficacy	-.16(.12)	(-.40, .06)	-.10(.19)	(-.24, .52)	<b>-.40(.21)</b>	( <b>-.84, -.03</b> )	-.25(.85)	(-2.30, 1.34)	-.13(.12)	(.73, -.09)
Prosocial Peers → Sex Refusal Self-Efficacy	.21(.13)	(.02, .48)	.02(.16)	(-.29, .33)	<b>.38(.21)</b>	( <b>.01, 0.83</b> )	.30(.19)	(-.03, .71)	.13(.20)	(-.27, .53)
Trauma → Sex Refusal Self-Efficacy	.05(.05)	(-.05, .15)	.01(.08)	(-.15, .17)	.13(.09)	(-.05, .32)	.10(.12)	(-.12, .35)	.02(.07)	(-.11, .15)
Alcohol → Sex Refusal Self-Efficacy	-.11(.06)	(-.23, .10)	<b>-.18(.09)</b>	( <b>-.36, -.01</b> )	-.08(.11)	(-.30, .15)	-.06(.18)	(-.39, .35)	-.11(.08)	(-.28, .05)
Trauma → Deviant Peers	<b>.11(.05)</b>	( <b>.02, .21</b> )	.11(.08)	(-.05, .28)	<b>.14(.07)</b>	( <b>.02, .27</b> )	<b>.16(.08)</b>	( <b>.02, .31</b> )	.12(.07)	(-.01, .26)
Trauma → Prosocial Peers	-.04(.05)	(-.14, .05)	.01(.09)	(-.17, .17)	-.12(.08)	(-.28, .03)	-.04(.11)	(-.25, .17)	-.07(.06)	(-.20, .05)
<b>Indirect Effect</b>										
Deviant Peers → Alcohol	1.56	(.96, 1.11)	<b>2.44</b>	( <b>1.20, 7.65</b> )	.90	(.40, 1.96) <sup>a</sup>	<b>2.88</b>	( <b>2.31, 6.06</b> )	1.06	(.61, 1.85) <sup>b</sup>
Prosocial Peers → Alcohol	.62	(.33, 1.04)	.70	(.30, 1.39)	.55	(.20, 1.15)	0.87	(0.31, 2.24)	<b>0.38</b>	( <b>.11, .80</b> )
Trauma → Alcohol	<b>1.38</b>	( <b>1.12, 1.71</b> )	<b>1.47</b>	( <b>1.04, 2.13</b> )	<b>1.45</b>	( <b>1.07, 2.01</b> )	1.22	(0.58, 2.12)	<b>1.32</b>	( <b>1.01, 1.75</b> )
Trauma → Deviant Peers → Sex Refusal Self-Efficacy	-.02(.02)	(-.06, 0.01)	.01(.03)	(-0.03, 0.08)	<b>-.05(.04)</b>	( <b>-.15, -.01</b> )	-.03(.16)	(-.04, .03)	-.01(.02)	(-.06, .01)
Trauma → Prosocial Peers → Sex Refusal Self-Efficacy	-.01(.01)	(-.04, .01)	.01(.01)	(-.03, .03)	-.04(.04)	(-.14, .01)	-.01(.04)	(-.10, .06)	-.01(.02)	(-.05, 0.03)
Trauma → Alcohol → Sex Refusal Self-Efficacy	.05(.04)	(-.01, .14)	-.06(.05)	(-.19, .01)	-.03(.05)	(-.14, .05)	.01(.07)	(-.18, .12)	-.03(.03)	(-.11, 0.01)
Trauma → Deviant Peers → Alcohol	1.05	(1.00, 1.15)	1.09	(.95, 1.41)	.99	(.86, 1.11)	<b>1.54</b>	( <b>1.02, 3.73</b> )	1.01	(0.93, 1.10)
Trauma → Prosocial Peers → Alcohol	1.02	(0.98, 1.09)	1.00	(.91, 1.10)	1.06	(.97, 1.31)	1.00	(.91, 1.16)	1.06	(0.94, 1.11)
<b>Model Fit</b>										
Positive Predictive p-value	.24		.32				0.12			
95% Credibility Interval	(-33.61, 72.07)		(-61.96, 93.66)				(-31.30, 122.67)			

Bolded values highlighted in grey indicate significance (reference group for OR "no" alcohol use).

<sup>a</sup> Significant difference between genders

<sup>b</sup> Significant difference between parent-child relationship quality

## DISCUSSION

### FULL SAMPLE MODEL

- Deviant and prosocial peers, trauma, and alcohol use were not significantly associated with sex-refusal self-efficacy. Trauma was positively associated with deviant peers and increased the odds of alcohol use.

### MULTIGROUP MODEL BY PARENT-CHILD RELATIONSHIP QUALITY

- Moderate parent-child relationship quality:
  - A direct, significant, and positive association between trauma and deviant peers profile was observed.
  - Deviant peers increased the odds of alcohol use.
- Strong parent-relationship quality:
  - Prosocial peers decreased the odds of alcohol use.
  - Trauma increased the odds of alcohol use

### MULTIGROUP MODEL BY GENDER

- Males:
  - Deviant peers had a significant negative association with sex-refusal self-efficacy
  - Prosocial peers had a significant positive association.
  - Trauma increased the odds of alcohol use.
  - A significant positive association between trauma and deviant peers was observed.
  - Trauma mediated by deviant peers increased the odds of alcohol use.
- Females:
  - A negative direct association between alcohol use and sex-refusal self-efficacy was observed.
  - Deviant peers and trauma increased the odds of alcohol use.

## SUMMARY

- The findings of this study build on and extend the limited extant literature in several ways:
  - This study involved a sample of AI youth from a rural reservation in the Northern Plains. Studies often use samples of AI youth from national surveillance data that have been shown to disproportionately misclassify AIs and often do not incorporate AI who live on tribal reservations.
  - The dataset included stressful life events, family and peer factors, and substance use, allowing for examination of the unique relationships among these variables and sex-refusal self-efficacy.
  - The use of BSEM allowed for multigroup analyses of these complex relationships given our limited sample size.

## LIMITATIONS AND STRENGTHS

### LIMITATIONS

- The timing of the cross-sectional snapshot may not be representative of the underlying relationships among trauma, peer group affiliation, alcohol use, and sex-refusal self-efficacy. As youth age, mature cognitively and have more experiences they may have a more concrete understanding of the concept of sex-refusal self-efficacy, and as a result, we may observe different associations among these factors at later waves.
- We were unable to determine if these factors predict sex-refusal self-efficacy.
- The data are more than ten years old. However, community feedback on our findings illustrated the relevance of this data to current times.
- A more complex model that included profiles of parent-child relationships and gender as simultaneous grouping variables might have been more informative; however, while Bayesian methodologies allow for small sample sizes, when attempted these analyses we encountered convergence issues. Therefore, a sample size larger than the data used for these analyses is necessary to analyze such a complex model.

### STRENGTHS

- This study represents an important step toward better understanding the factors associated with sex-refusal self-efficacy and early sexual risk.
- Our study sought to better understand a precursor to sexual risk-taking shown to reduce sexual experience among AI youth in order to identify youth who are most at risk for STIs and teen pregnancy.

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