

Family structure and substance use in 6,178 American Indian youth: a cross-sectional study

J. SHAH¹, A. SHAH², A.A. EL-SAKKA³, O.A. KANDIL⁴, M.A. SHEHATA⁵, S. SHOIB⁶

¹New York State Department of Health, New York, NY, USA

²Division of Biology and Medicine, Brown University, Providence, RI, USA

³Faculty of Medicine, Suez Canal University, Ismailia, Egypt

⁴Faculty of Medicine, Alexandria University, Alexandria, Egypt

⁵Department of Radiology, Mayo Clinic, Rochester, MN, USA

⁶Department of Psychiatry, Jawahar Lal Nehru Memorial Hospital, Srinagar, Kashmir, India

Abstract. – **OBJECTIVE:** Adolescents from single-parent families are at significantly higher risk of substance use compared to those from mother-father families. More than half of American Indian (AI) children live in single-parent families, the second highest percentage among all groups. Given the paucity of research pertaining to the role of family structure and substance use in the AI population, we sought to examine this relationship.

MATERIALS AND METHODS: Data from this study were obtained from the Substance Use Among American Indian Youth: Epidemiology and Etiology, [US], 2015-2020 study. Response variables of interest included age at first substance use, number of substances used, ever-use of substance, and substance use type (i.e., alcohol, cigarette, marijuana, etc.).

RESULTS: Living in a father-only or mother-only setting showed a similar pattern of drug use. There was a significant increase in the risk of cigarette, alcohol and marijuana use. For cigarettes, the odds ratio was (OR = 2.60, 95% CI 1.80-3.75) in father-only setting compared to (OR = 1.42, 95% CI 1.13-1.78) for mother only setting. Alcohol use showed (OR = 1.72, 95% CI 1.19-2.50 and OR = 1.40, 95% CI 1.12-1.74) for father-only and mother-only respectively and marijuana use showed (OR = 1.59, 95% CI 1.10-2.30 and OR = 1.54, 95% CI 1.24-1.92) for father-only and mother-only respectively.

CONCLUSIONS: Disturbed family structure is associated with increased risk of substance use among AI youth. This indicates the importance and need for policy and community level interventions to reduce youth substance exposure.

Key Words:

American Indian, Substance use, Family structure, Adolescents.

Introduction

The American Indians/Native Americans (AI/NA) population has higher rates of substance use compared to the U.S. general population¹. This can be attributed to the plethora of problems that serve to complicate the AI/NA adolescents' lives, including poverty, high levels of unemployment, and lack of health care systems and recovery centers². Family structure also plays a key role in this problem. Existing literature indicates that, among the general population, youth from single-parent families report significantly higher levels of substance use, when adjusting for race-ethnicity, compared to those from mother-father families³. However, no studies reported the situation among the AI adolescents. In 2019, 52% of AI children lived in single-parent families, the second highest percentage among all groups⁴. Given the paucity of research pertaining to the role of family structure and substance use in the AI population, we sought to examine this relationship.

Materials and Methods

Data from this study were obtained from the Substance Use Among American Indian Youth: Epidemiology and Etiology, [US], 2015-2020 study⁵. This survey is part of a decades long surveillance project assessing substance use among AI school-age children attending schools on or close to reservations. Relevant demographic variables included age, gender, family structure, household setting (i.e., on reservation, distance

from reservation), cellphone and internet access. Response variables of interest included age at first substance use, number of substances used (this variable was created by summing the individual responses), ever-use of substance, and substance use type (i.e., alcohol, cigarette, marijuana, etc.).

Statistical Analysis

Descriptive statistics and multivariate logistic regression analyses, adjusting for confounders, were conducted using R and RStudio, version 4.02 and 1.3.1073 respectively. Statistical significance was set at *p*-value below 0.05.

Results

Out of a total of 6,178 children's data included in this study, 2,262 children (33.6%) were living with both parents, 348 (5.6%) were living only with their father, 1,439 (23.3%) were living only with their mother and 2,129 (34.5%) were living with others. Female participants were at significantly higher risk of alcohol and marijuana use (OR = 1.35, 95% CI 1.14-1.60, *p* = 0.001 and OR = 1.20, 95% CI 1.02-1.43, *p* = 0.032 respectively). Each successive year of age showed significant increases in cigarette use, starting from age 15 and substance use peaked at the age of 18.

Living in a father-only or mother-only setting showed a similar pattern of drug use (Table I). There was a significant increase in the risk of cigarette, alcohol, and marijuana use. For cigarettes, the odds ratio was (OR = 2.60, 95% CI 1.80-3.75, *p* <0.001) in father-only setting compared to (OR = 1.42, 95% CI 1.13-1.78, *p* = 0.002) for mother only setting. Alcohol use showed (OR = 1.72, 95% CI 1.19-2.50, *p* = 0.004 and OR = 1.40, 95% CI 1.12-1.74, *p* = 0.003) for father-only and mother-only respectively and marijuana use showed (OR = 1.59, 95% CI 1.10-2.30, *p* = 0.013 and OR = 1.54, 95% CI 1.24-1.92, *p* <0.001) for father-only and mother-only respectively. Living with 'others' was associated with a significant risk of using all types of drugs in this study.

Discussion

Our results indicate that AI adolescents from single-parent families are more prone to substance use than their counterparts from dual-parent families -that may be explained by the financial stress that drives single parents to work for

longer hours, making them unable to monitor their children consistently^{6,7}. Diminished parental monitoring can also lead the youth to become overly dependent on their peers as sources of information with regards to normative behavior⁸, resulting ultimately in greater openness to substance use. The observed increased risk is even more pronounced in families with single fathers than in families with single mothers -because mothers tend to know more about their children's daily activities, be involved in their peer choice, and put more effort into antismoking socialization^{9,10}.

Limitations

Some factors that may influence the risk of substance use were not involved in our analysis, such as the closeness of the parent-child bond. This study is based on a previously collected database and not a specifically conducted survey. Furthermore, the nature of single-parent families as being either divorced, widowed, or never married wasn't elaborated in the database, though it may impact our outcome of interest.

Conclusions

The prevalence of substance use among AI youth indicates the importance and need for policy and community level interventions to reduce youth substance exposure. Further investigation is needed to comprehensively characterize the population of AI youth using substances. Moreover, studies following youth over-time to determine the clinical consequences of AI youth substance use are necessary.

Conflicts of Interest

The authors declare that they have no conflict of interest. The authors alone are responsible for the content and writing of the article.

Informed Consent

Informed consent was obtained from parents of participating students. In the online survey, students were instructed they could refuse to participate or leave any questions they did not want to answer blank. All survey responses were collected anonymously, and all procedures were approved by the Colorado State University institutional review board.

Family structure and substance use in American Indian youth

Table I. Multivariate regression of the association between family structure and ever-substance use.

Characteristics	Cigarette			Alcohol			Marijuana			Inhalant			Amphetamine		
	OR	95% CI	<i>p</i> -value	OR	95% CI	<i>p</i> -value	OR	95% CI	<i>p</i> -value	OR	95% CI	<i>p</i> -value	OR	95% CI	<i>p</i> -value
Father	2.60	1.80 - 3.75	<0.001*	1.72	1.19 - 2.50	0.004*	1.59	1.10 - 2.30	0.013*	1.25	0.73 - 2.16	0.414	1.45	0.67 - 3.11	0.343
Mother	1.42	1.13 - 1.78	0.002*	1.40	1.12 - 1.74	0.003*	1.54	1.24 - 1.92	<0.001*	1.17	0.84 - 1.63	0.361	1.44	0.89 - 2.32	0.139
Other	1.85	1.50 - 2.29	<0.001*	1.82	1.48 - 2.24	<0.001*	2.07	1.68 - 2.54	<0.001*	1.59	1.18 - 2.14	0.002*	1.83	1.19 - 2.81	0.006*

*Statistically significant at *p*-value < 0.05.

ORCID ID

Jaffer Shah: 0000-0002-8961-218X

Asgar Shar: 0000-0003-2979-9496

Amro A. El-Sakka: 0000-0003-2649-8268

Omneya A. Kandil: 0000-0002-5874-6812

Mostafa A. Shehata: 0000-0003-3201-6616

Sheikh Shoib: 0000-0002-3739-706X

References

- 1) The NSDUH Report: Need for and Receipt of Substance Use Treatment among American Indians or Alaska Natives. Accessed January 17, 2022. <https://www.samhsa.gov/data/sites/default/files/NSDUH120/NSDUH120/SR120-treatment-need-AIAN.htm>
- 2) 2020 NSDUH Annual National Report I CBHSQ Data. Accessed January 25, 2022. <https://www.samhsa.gov/data/report/2020-nsduh-annual-national-report>
- 3) Barrett AE, Turner RJ. Family structure and substance use problems in adolescence and early adulthood: examining explanations for the relationship. *Addiction* 2006; 101: 109-120.
- 4) Population Reference Bureau, analysis of data from the U.S. Census Bureau, Census 100 2000 Supplementary Survey, 2001 Supplementary Survey, 2002 through 2019 American Community Survey.
- 5) Substance Use Among American Indian Youth: Epidemiology and Etiology, [United States], 2015-2020. Accessed April 10, 2022. <https://www.icpsr.umich.edu/web/NAHDAP/studies/37997/versions/V1>
- 6) Hemovich V, Lac A, Crano WD. Understanding Early-Onset Drug and Alcohol Outcomes among Youth: The Role of Family Structure, Social Factors, and Interpersonal Perceptions of Use. *Psychol Health Med* 2011; 16: 249.
- 7) Hemovich V, Crano WD. Family Structure and Adolescent Drug Use: An Exploration of Single-Parent Families. *Subst Use Misuse* 2009; 44: 2099.
- 8) Bush PJ, Weinfurt KP, Iannotti RJ. Families versus peers: Developmental influences on drug use from grade 4–5 to grade 7–8. *J Appl Dev Psychol* 1994; 15: 437-456.
- 9) Waizenhofer RN, Buchanan CM, Jackson-Newson J. Mothers' and fathers' knowledge of adolescents' daily activities: its sources and its links with adolescent adjustment. *J Fam Psychol* 2004; 18: 348-360.
- 10) Crouter AC, Bumpus MF, Davis KD, McHale SM. How Do Parents Learn About Adolescents' Experiences? Implications for Parental Knowledge and Adolescent Risky Behavior. *Child Dev* 2005; 76: 869-882.