Published in final edited form as:

J Drug Educ. 2013 ; 43(3): 203–221. doi:10.2190/DE.43.3.a.

METHAMPHETAMINE USE AMONG RURAL WHITE AND NATIVE AMERICAN ADOLESCENTS: AN APPLICATION OF THE STRESS PROCESS MODEL

David J. Eitle* and Tamela McNulty Eitle

Montana State University, Bozeman, Montana

Abstract

Methamphetamine use has been identified as having significant adverse health consequences, yet we know little about the correlates of its use. Additionally, research has found that Native Americans are at the highest risk for methamphetamine use. Our exploratory study, informed by the stress process model, examines stress and stress buffering factors associated with methamphetamine use among a cross-sectional sample of rural white and Native American adolescents ($n=573$). Results of logistic regression analyses revealed mixed support for the stress process model; while stress exposure and family methamphetamine use predicted past year methamphetamine use, the inclusion of these variables failed to attenuate the association between race and past year use.

National studies have suggested that Native Americans¹ have the highest rates of methamphetamine use (Oetting et al., 2000; Iritani, Hallfors, & Bauer, 2007) with results from one national survey (National Longitudinal Survey of Adolescent Health) suggesting that Native American youth had a substantially (i.e., 4.2 odds ratio) heightened risk of past year methamphetamine use relative to non-Hispanic whites (Iritani, Hallfors, & Bauer, 2007). This racial disparity is particularly significant because of the severity of negative consequences associated with methamphetamine use. Methamphetamine use has been associated with an increased risk of morbidity (National Institute on Drug Abuse, 1998) and evidence suggests that methamphetamine use can produce acute physical problems including hyperthermia, palpitations, chills, hyper motor activity, kidney failure, mental confusion, tremors, and dizziness (Brown, Wise & Kiyatkin, 2003; National Institute on Drug Abuse, 1998; 2002; Herman-Stahl et al., 2007). An array of longer-term consequences have also been identified, including adverse consequences such as depression, paranoia, aggression, anxiety, mood swings, financial problems, legal and work problems and psychoses. When the drug is injected, there is a clear risk of hepatitis and HIV exposure (Lucas, 1997).

Direct correspondence to: David Eitle, Department of Sociology & Anthropology, Montana State University, P.O. Box 172380, Bozeman, MT 59717-2380. deitle@montana.edu Phone: 406-994-5253. Fax: (406) 994-3177.

*Financial assistance for this study was provided to the authors by National Institutes of Drug Abuse (5R03DA029212-02). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

¹We use the term Native Americans in this manuscript, but recognize that different people/tribes may prefer the term American Indian or a different term altogether. We use this term while attempting to be sensitive to the differences in preferences of people indigenous to America.

Yet to date, most studies of methamphetamine use have focused on describing the nature and extent of use and related behaviors (Oetting et al., 2000; Iritani, Hallfors, & Bauer, 2007). Our review of the literature revealed no studies exploring theoretical explanations for racial differences in methamphetamine use. In the present study, we examine risk and protective factors associated with self-reported methamphetamine use among a sample of Native American and non-Hispanic white adolescents from a rural state in the Northwest United States. We employ a stress process framework in this exploratory study to examine the correlates of methamphetamine use.

BACKGROUND

Of the voluminous research exploring adolescent substance use among different racial, ethnic, and cultural groups, one well-established finding is that Native American teens are at significantly greater risk of illicit substance use and abuse than their non-Hispanic white counterparts (Barnes & Welte, 1986; Plunkett & Mitchell, 2000; Beauvais, 1992, 1996, 1998; U.S. Senate Select Committee on Indian Affairs, 1985). Studies have revealed that Native American adolescents have an earlier onset of substance use, are more likely to use “hard” drugs beyond marijuana, and are more likely to use combinations of substances (and alcohol) than white, non-Hispanic adolescents (Plunkett & Mitchell, 2000; Beauvais, 1992, 1996; Oetting & Beauvais, 1990; Costello, Farmer, Angold, Burns, & Erkanli, 1997). Furthermore, Native American teenagers appear to be at greater risk of substance use and abuse regardless of whether they live on reservations or not (U.S. Senate Select Committee on Indian Affairs, 1985). Although marijuana has been the most widely used illicit drug among Native Americans for some time (Beauvais, 1992, 1996), there is growing evidence that methamphetamine use is also a concern. National surveys suggest that rates of methamphetamine use may be higher among Native Americans than any other racial/ethnic group (Oetting et al., 2000; Iritani, Hallfors, & Bauer, 2007).

Although there is cumulative evidence documenting the heightened risk of methamphetamine use among Native American youth, explanations for why this discrepancy exists are limited. One theoretical approach that may be particularly useful in understanding this heightened risk is the stress process model (Pearlin, 1989). The basic notion underlying the stress process model is that exposure to stressors in one’s life is associated with an array of adverse physical and mental health consequences, including substance use behaviors. The likelihood of experiencing adverse health outcomes as a result of cumulative stress exposure, however, may be conditioned by the presence (or absence) of any number of personal and social resources that essentially determine the extent to which an actor can manage the stress so that it does not produce adverse consequences.

There are two basic forms of social stressors: negative life events and chronic, or repeated strains. Negative life events are traumatic events, distinguished by their suddenness, and by their disruptiveness to an individual’s life (Pearlin, 1999: pg. 401). Conversely, chronic stressors are everyday stressful conditions that are often described as life’s hassles (Wheaton, 1994). Various personal and social resources, including social support and self-esteem, can moderate the strength of the association between stress exposure and adverse health outcomes, however. Individuals who feel loved, valued and can count on friends and

families are expected to manage stress in their lives more effectively (Turner & Turner, 1999), and high self-esteem is posited to buffer the effects of harmful stressors on an individual's psyche by giving the person more confidence to engage in problem solving coping strategies to manage the stress (Thoits, 1999a: p. 358).

A number of studies have found that stress exposure and access to resources to manage stress are associated with one's position in the social structure, including one's race (Turner, Wheaton, & Lloyd, 1995; Turner & Lloyd, 2004; Link & Phelan, 1995; Thoits, 1995) and that such differences in social position are associated with mental and physical health differences as well (e.g., Link & Phelan, 1995; Thoits, 1999b). Studies of Native Americans have found that they are at a heightened risk of stress exposure, relative to the general population. For example, Evans-Campbell and colleagues (2006) found that among 112 adult Native American women living in New York City, 65% reported experiencing some form of interpersonal violence and most experienced emotional trauma related to these victimization experiences. Manson and colleagues found in their study that between 51–62% of Native American students reported having experienced at least one traumatic event during childhood (Manson et al., 1996). LeMaster and colleagues (2002) found that strains were associated with both cigarette and smokeless tobacco use in a sample of American Indian adolescents. And Manson and colleagues (2005) found that lifetime exposure to at least one traumatic event ranged from 62.4% to 69.8% in a study of members from two large American Indian communities (see also Whitesell et al., 2007; Baldwin et al., 2011; Boyd-Ball et al., 2006; Cheadle & Whitbeck 2011).

Yet despite the general recognition that strain/stress plays a fundamental role in understanding Native American substance use generally, there has yet to be a published study that systematically explores the stress-methamphetamine use relationship among adolescents generally, or examines the race gap in methamphetamine use between Native American and non-Hispanic white teens specifically. Our study will represent the first systematic effort to evaluate teen methamphetamine use and the Native American-white "race gap" in methamphetamine use utilizing a stress process theoretical framework. Figure 1 presents a basic graphical presentation of stress process model that guides the present study.

DATA AND METHODS

The rural teen stress and health study survey data were collected in 2011–2012 as part of a project examining adolescent health disparities in a rural state. The survey included questions on a variety of health risk behaviors and health outcomes including risky sexual behaviors, drug selling, delinquency, drug and alcohol use, and depression. The study was reviewed and approved by the Institution Review Board at Montana State University. We targeted rural school districts based on high school size and racial/ethnic composition. Our final study included five schools, with three high schools exceeding and two high schools serving a student body less than the state average high school enrollment of 171. Two of the participating schools had less than ten percent non-white enrollment, one school was racially mixed with greater than 30 percent non-white enrollment, and two schools had over 90 percent non-white student enrollment.² Data collection was done at the convenience of the

participating schools between Spring 2011 and Spring 2012. Data collection was designed to protect students' privacy by allowing for confidential and voluntary student participation once parents had been informed and consented to their teen's participation in the study. We visited each school where students completed the self-administered questionnaire during one class period and received a ten-dollar gift certificate for their participation. The final sample included 612 respondents (72.4 percent non-Hispanic white, 20.4 percent Native American, and 7.2 percent other racial/ethnic groups). The Native Americans were encouraged to also specify tribal identities, and over 90 percent identified as one or more of five specific Northwestern tribes. Participant age ranged from 12 to 19 years of age. The majority of students were in high school (95.3%) at the time of the interview, although a small number were in junior high school, due to two participating schools including 7–12th graders. In the present study, only white or Native American respondents with complete information were included in these analyses. This produced a sample of 573 respondents, including 113 Native American students.

Measures

We calculate and report a reliability measure (Cronbach's alpha) based on our study data for measures included in our study.

Dependent Variables—We examine past year and lifetime methamphetamine use. Both variables are coded as dummy variables with a value of one indicating that the respondent reported using methamphetamine. Past 30 day methamphetamine use, a measure often considered in studies of substance use, was not prevalent enough (only 4 respondents reported such use) to consider statistically.

Stress exposure—We include two common measures of stressors—recent life events and chronic stressors. Consistent with prior research, we created an additive index of recent life events composed of 21 items capturing adverse experiences reported by the respondent to have occurred in the past year. These events are typical of those included in a variety of other event checklists (e.g., Avison & Turner, 1988; Turner et al., 1995; Turner & Gil, 2002). Multiple occurrences of the same event are not included in the count measure.

Chronic stressors capture the array of stressful conditions that are open-ended without a natural endpoint (Wheaton, 1994). We employ a measure of ten items capturing such stressful conditions as stress related to parents/guardians (3 items), school related stress (1 item), relationship stress (2 items) and general/ambient stress (4 items). These items have been used in other studies measuring chronic stressors among adolescents and young adults (e.g., Eitle & Turner, 2003). Higher scores indicate greater exposure to chronic stressors (Cronbach's alpha=.73).

Risk and Protective Factors—We include a number of factors previously found to be associated with adolescent substance use, including family social support, self-esteem, and family member methamphetamine use. Prior research has found mixed support for the role

²Due to the rural nature of the state, information regarding whether the school district served reservation or non-reservation Native American students cannot be revealed (under the promise of confidentiality). All selected schools were public school districts.

of family social support as a protective factor inhibiting Native American substance use, with some studies finding such support does serve as a protective factor (Wiegman Dick, Manson, & Beals, 1993) while others have failed to adduce any evidence of an association (King, Beals, & Manson, 1992). We measure family social support by utilizing six items (developed by Pearlin, 1989) that ask respondents such questions as whether you feel very close to your family, you know your family has confidence in you, and your family often lets you think that they believe you are a valuable person. Higher scores on this scale indicate greater family social support (Cronbach's $\alpha=.92$). Family member methamphetamine use is a dichotomous measure asking the respondent if he/she is aware of any family member ever using methamphetamine in the respondent's lifetime. Self-esteem is an additive scale developed by Rosenberg (1979), derived from nine items measuring one's appraisal of their self-worth (Cronbach's $\alpha=.87$). Appendix A reports the items for select measures included in the analyses.

We also examined the relationships between additional risk and protective factors that may be associated with methamphetamine use, including a measure of methamphetamine availability (single item measure asking respondent "how easy do you think it would be for you to get meth?" with possible responses ranging from very difficult, somewhat difficult, somewhat easy, very easy, and not sure), a measure of peer substance use (asking the respondent whether any of their close friends used any of the following drugs/alcohol in the past year-meth, heroin, marijuana, cocaine/crack, prescription drugs for fun, alcohol, huffing), and a measure of friends social support (a six item summative scale asking respondents to report which category [strongly agree to strongly disagree] best describes your experience with your friends—"you feel very close to your friends" "your friends always takes the time to talk over your problems with you" "when you are with your friends you feel completely able to relax and be yourself" "no matter what happens, you know that your friends will always be there for you" "you know that your friends believe in you" and "your friends often let you know that they think you are a worthwhile person" (Cronbach's $\alpha=.91$).

Additional measures—We included a number of demographic measures in the analyses, including gender (female coded 1), race (Native American coded 1), grade in school, and two measures of parental social class—whether at least one parent had a college education, and whether at least one parent was employed full-time. We also included a dichotomous measure of family structure, asking the respondent whether they resided with both of their natural parents (coded 1) or not. Finally, we included a dichotomous measure of whether the respondent is in a romantic relationship or not; some research suggests that adolescent dating and romantic relationships are associated with alcohol and drug use (e.g., Thomas & Hsiu, 1993; Wright, 1982; Cui et al., 2012). Table 1 presents the summary statistics.

Analysis Strategy

The summary statistics reported in Table 1 reveal that relatively few students report past year (1.22 percent) or lifetime (2.3 percent) methamphetamine use. While such results are similar to other prevalence estimates of methamphetamine use (e.g., past year methamphetamine use among high school 10th and 12th graders in the 2011 Monitoring the Future Survey was

1.4 percent; Johnston et al, 2012), a small number of positive cases (approximately 5% or less, King & Zeng, 2001) leads to small sample bias if a maximum likelihood estimation (i.e., conventional logistic regression model) is utilized (Allison, 2012). In such cases, alternative logistic regression models that reduce bias should be employed. In these analyses, we utilized a penalized likelihood logistic regression method, or Firth regression, that reduces small-sample bias in maximum likelihood estimation (Allison, 2012).

RESULTS

Table 2 presents results from the Firth regression models predicting past year and lifetime methamphetamine use. Of the demographic variables included in the baseline model (column 1), only race was found to be a statistically significant predictor of past year methamphetamine use (O.R.=4.69). The addition of the two measures of stress exposure (column 2) revealed that the recent life event scale was also a statistically significant predictor of the dependent variable (O.R.=1.29). The addition of the risk and protective factors (column 3) did little to alter the pattern of significant predictors. Both race (O.R.=5.32) and exposure to recent life events (1.23) remained statistically significant predictors, while only one of the three additional measures—family member methamphetamine use—was found to have a statistically significant association with the dependent variable (O.R.7.93). Overall, these models suggest that exposure to recent stressful life events is associated with past year methamphetamine use, even after controlling for other risk and protective factors. However, the results of these analyses do not provide evidence to support the notion that stress exposure helps us to explain differences in Native American and white methamphetamine use.

Likewise, a similar pattern of predictors emerges when examining the correlates of lifetime methamphetamine use (columns 4–6), with a couple of notable exceptions. First, race is not a statistically significant predictor of lifetime methamphetamine use in any of the three models. However, whether the respondent is currently involved in a romantic relationship is a significant predictor of lifetime use across all three models (O.R.=3.86, 4.48, and 4.60 respectively). Consistent with past research (Thomas & Hsiu, 1993; Cui et al., 2012), dating or being in a romantic relationship increases the risk of methamphetamine use, controlling for other salient factors. The inclusion of the stress measures again reveals that exposure to recent life events is positively associated with lifetime methamphetamine use (O.R.=1.35). Furthermore, the inclusion of the stress exposure measures also reveals an additional relationship that reaches statistical significance—females are significantly less likely to have ever used methamphetamines (column 5-O.R.=.28; column 6-O.R.=.18), controlling for other factors. Finally, a family member using methamphetamines (lifetime) increases the risk of the respondent's lifetime methamphetamine use (O.R.=5.08), holding all other variables constant.

Additional analyses

In addition to the reported results, we also explored models examining other potential risk and protective factors including methamphetamine availability, peer substance use, and

friends' social support. These variables were not statistically significant predictors of either past year or lifetime methamphetamine use.

Finally, we also considered the prospect that the risk and protective factors might moderate the stress-methamphetamine use association. Hence, we analyzed additional models (not reported) that included interaction terms between exposure to recent life events and each of the following measures: self-esteem, family social support, and family member methamphetamine use. None of these variables were found to be statistically significant predictors of the dependent variables. We also examined an interaction term including race (race*recent life events) to examine whether the strength of the association between stress exposure and methamphetamine use differed by racial group, but it also failed to reach statistical significance.

DISCUSSION

Guided by the stress process model, our study examined the risk and protective factors associated with methamphetamine use among a sample of rural white and Native American adolescents. Our results provided mixed support for the utility of understanding methamphetamine use by employing a stress process framework. Stress exposure, measured by exposure to recent life events, was clearly associated with methamphetamine use, both past year and lifetime. Furthermore, having a family member use methamphetamine greatly increased the risk of an adolescent reporting methamphetamine use, holding all other variables constant. But other purported protective factors such as self-esteem and social support were not associated with methamphetamine use. Furthermore, family characteristics (i.e., family structure and family socioeconomic status) that have been associated with adolescent substance use previously did not have any predictive utility in the current study. Finally, we did find that race was a significant predictor of past year methamphetamine use, with Native American adolescents at higher risk of use than their white counterparts. However, the inclusion of the variables associated with the stress process model failed to attenuate the strength of the association between race and past year methamphetamine use, suggesting that other factors (unaccounted for in our analyses) must be considered in order to explain the "race gap" in adolescent methamphetamine use.

The finding that respondents in romantic relationships were more likely to use methamphetamines further contributes to a growing literature regarding the role of romantic others on substance use. While a number of studies have found a strong protective effect from marriage (e.g., Rhule-Louis & McMahon, 2007; Fleming, White, & Catalano, 2010), adolescent romantic relationships appear to have a more mixed role in influencing substance use. Fleming and colleagues (2010) note that people who are dating may actually increase their exposure to substance using peer networks compared to people who are not involved romantically. Additionally, some scholars have speculated that adolescent romantic relationships may generate strong emotions, including depression, which may lead to substance use as a form of self-medication (Davila et al., 2009). While our data restrict us from exploring either explanation, it is clear that additional research is needed to explore the role of romantic relationships in substance use, particularly in racial and ethnic minority populations.

As with any study, we must acknowledge the limitations of our exploratory inquiry. First and foremost, our measurement of stress exposure likely underestimates the stressful experiences of the Native American adolescents in our study. For instance, these analyses do not measure some of the unique aspects of Native American culture, environment, and experiences that are likely germane to capturing a comprehensive portrait of the stress process model among Native Americans. Likewise, we had no measures of historical trauma (e.g., Brave Heart, 1998; Whitbeck et al., 2004), which is the intergenerational transmission of trauma associated with the ethnic cleansing of Native Americans and the forced segregation, isolation, and acculturation of this population. Historical trauma has been identified as an important stressor that has adverse health consequences for many Native Americans (Whitbeck et al., 2009; see Simoni & Evans-Campbell, 2002 for a more culturally-sensitive strain-focused framework).

We were also unable to consider the role of other individual- and family-level factors that may be salient in predicting methamphetamine use. For example, we had no measures of either parental monitoring/supervision or coercive parenting. Both factors have been found to be associated with adolescent substance use (e.g., Barnes et al., 2000), including Native American youth alcohol use (Walls, Whitbeck, & Hoyt, 2007). Overall, our measures of family factors are somewhat limited, and likely underestimate the family's role in protecting an adolescent from engaging in substance use behaviors, including methamphetamine use.

Our sampling strategy and limited sample size also introduced concerns over the generalizability of these results to respondents in other contexts and made it impossible for us to disentangle racial effects from effects due to the racial composition of schools (i.e. a very large proportion of the Native American students attended the two schools that were predominately Native American and a large proportion of the non-Hispanic white students attended the two schools that were predominately non-Hispanic white). In addition, like any school-based study of adolescents, our study may suffer from selection bias due to the purported association between dropping out and truancy from school and substance use behaviors. Further, the cross-sectional nature of our study limits our interpretations to identifying associations. Additional research that can examine the temporal order of key risk and protective factors, as well as the influence of cumulative exposure to stressors would provide a stronger examination of our core research question. Likewise, we have no measures of community-level factors that may also influence the decision to use illicit substances or may condition the individual-level associations between key predictors and methamphetamine use (see Yabiku et al., 2007). This omission is exacerbated by the sampling strategy to target schools that serve students from working and lower socioeconomic strata, which may limit variation on such important contextual influences. As Cheadle and Sittner Hartshorn (2012; p. 1237) note, these unmeasured community characteristics may "swamp" other individual-level measures of disadvantage, which may partially explain why some key factors failed to reach statistical significance in our analyses.

Despite these limitations, the present study does represent one of the few efforts to examine the association between risk and protective factors and rural methamphetamine use, and to attempt to better understand the race gap between Native American and white adolescent use. Our study, while exploratory in nature, does provide an initial investigation of the

correlates of methamphetamine use among Native Americans, an area identified by Young and Joe (2009) as critical to our understanding of alcohol and drug use among American Indian/Alaskan Native youth. Our study also suggests that future research on Native Americans and the Native American-white gap in adolescent methamphetamine use may find it useful to explore additional theoretical models beyond the stress process model. While additional research that can examine the temporal order between stressors, personal and social resources, and methamphetamine use, is warranted, this exploratory study highlights the importance of targeting students with a history of methamphetamine use in their families for prevention efforts. We also hope that it will inspire additional research into the correlates of methamphetamine use, with a particular focus on the consequences of stress among Native Americans.

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Appendix A

Items included in scales

Scales	Items
Recent Stressful Life Events Index $\alpha = .77$ (Higher values indicate greater numbers of recent stressful life events.)	Participants were prompted: "Have any of the following events happened to you?"
	A serious injury or accident
	Serious illness
	Death of someone close to you
	Trouble with the police
	Something stolen/taken
	Beaten up or physically attacked
	Unwanted pregnancy
	Abortion/miscarriage
	Arrested for a crime
	Dropped out of school
	Failed a grade
	Abandoned by parents or put up for adoption
	Loss of home/apartment because of fire or other natural disaster
	Forced to do something sexual that you did not want to do
	Physically abused by someone close to you
	Emotionally abused by someone close to you
	Witness a close relative (parent, sibling) abused physically or emotionally
Chronic Stress $\alpha = .72$ (Higher values indicate greater numbers of chronic life stressors.)	Shot at with a gun or threatened with another weapon (but not hurt)
	Shot or stabbed and hurt
	Witness someone outside of your home get shot, stabbed, or beaten
	Witness someone outside of your house die
	Participants were prompted: "Please answer whether the following situations are not true, somewhat true, or very true for you at this time." (not true, somewhat true, very true)
	You're trying to take on too many things at once
	There is too much pressure put on you to be like other people
	Too much is expected of you by others
	You have a lot of conflict with your best friend
	You are not sure you can trust your best friend
	Your guardian/parent(s) don't really remember what it was like to be your age
	Your guardian/parent(s) beliefs are old-fashioned or old school

Scales	Items
	Your guardian/parent(s) expect you to act like they did when they were young
	You are not popular with the opposite sex
	You are concerned about your ability to keep up your grades
Family Social Support $\alpha=.92$ (Higher values indicate greater levels of family social support.)	Participants were prompted: "For each of the statements, please use the scale shown to report which category best describes your experience with your family." (strongly agree, agree, neither agree or disagree, disagree, strongly disagree)
	You feel very close to your family (reverse)
	Your family always takes the time to talk over your problems with you (reverse)
	When you are with your family you feel completely able to relax and be yourself (reverse)
	No matter what happens, you know that your family will always be there for you (reverse)
	You know that your family has confidence in you (reverse)
	Your family often lets you know that they think you are a valuable person (reverse)
Self-Esteem $\alpha=.87$ (Higher values indicate higher levels of self-esteem.)	Participants were prompted: "For each of the statements, please use the scale shown to report which category best describes you." (strongly agree, agree, neither agree or disagree, disagree, strongly disagree)
	I feel that I have a number of good qualities (reverse)
	I feel that I am a person of worth at least equal to others (reverse)
	I am able to do things as well as most other people (reverse)
	I take a positive attitude toward myself (reverse)
	On the whole I am satisfied with myself (reverse)
	All in all, I am inclined to feel that I am a failure
	When making plans I am confident that I can make them work (reverse)
	I am usually able to protect my personal interests (reverse)
	When I get what I want, it is usually because I worked hard for it (reversed)

Figure 1.
The Stress Process Model.

Table 1

Descriptive Statistics for Rural White and Native American Adolescent Respondents

	Mean	Std. Dev.	Min	Max
Past year Methamphetamine Use (n=573)	.016	.12	0	1
Lifetime Methamphetamine Use (n=572)	.023	.15	0	1
Native American	.20	.40	0	1
Female	.54	.50	0	1
Grade	10.30	1.29	7	12
Family structure (2 parent family=1; else=0)	.58	.49	0	1
Parental education (college degree=1; else=0)	.55	.50	0	1
Parental full time employment	.90	.30	0	1
Romantic relationship	.35	.48	0	1
Recent life events	2.88	2.85	0	19
Chronic stressors	6.64	3.83	0	20
Self-esteem	36.31	5.76	9	45
Family social support	24.23	5.49	6	30
Friends social support	23.92	4.84	6	30
Family member methamphetamine use (lifetime)	.04	.20	0	1

Table 2

Odds Ratios of Selected Predictors Of Methamphetamine Use

	Past Year Methamphetamine Use (n=573)			Lifetime Methamphetamine Use (n=572)		
	1	2	3	4	5	6
Native American	4.69 [*] 1.02–21.60	4.86 [*] 1.01–23.50	5.32 [*] 1.05–27.00	2.53 .78–8.19	2.90 .82–10.23	3.58 .97–13.15
Female	.31 .06–1.53	.34 .07–1.70	.29 .04–2.05	.34 .10–1.08	.28 [*] .08–.99	.18 [*] .04–.80
Grade	1.63 .87–3.07	1.70 .81–3.54	1.93 .76–4.88	1.28 .83–1.97	1.30 .80–2.12	1.60 .90–2.85
Family Structure	1.21 .26–5.56	1.97 .35–10.98	3.17 .45–22.48	.33 .10–1.09	.40 .11–1.42	.61 .17–2.19
Parental education	.37 .07–1.95	.43 .08–2.45	.52 .08–3.29	.35 .11–1.17	.36 .10–1.30	.40 .11–1.46
Parental employment	.54 .08–3.54	1.18 .12–11.65	1.99 .11–35.68	1.20 .24–5.99	4.59 .45–46.88	9.55 .52–175.43
Romantic relationship	3.23 .68–15.38	3.90 .72–21.21	3.67 .61–21.98	3.86 [*] 1.19–12.51	4.48 [*] 1.21–16.56	4.60 [*] 1.20–17.61
Recent Life events	1.29 ^{**} 1.07–1.55	1.23 [*] 1.01–1.50	1.35 ^{***} 1.16–1.57	1.26 ^{**} 1.06–1.49	1.26 ^{**} 1.06–1.49	1.26 ^{**} 1.06–1.49
Chronic stressors	1.12 .93–1.35	1.06 .86–1.30	1.13 .97–1.30	1.06 .91–1.25	1.06 .91–1.25	1.06 .91–1.25
Family social support	.92 .76–1.11	.92 .76–1.11	.92 .76–1.11	.91 .81–1.03	.91 .81–1.03	.91 .81–1.03
Self esteem	1.02	1.02	1.02	.98	.98	.98

	Past Year Methamphetamine Use (n=573)	Lifetime Methamphetamine Use (n=572)
	.84–1.25	.86–1.11
Family member methamphetamine use (lifetime)	7.93 [*] 1.23–51.02	5.08 [*] 1.05–24.65
Wald Chi2	14.98 [*]	26.01 ^{**} 16.03 [*] 29.69 ^{**}

Note.
*** p<.001,
** p<.01,
* p<.05.
Confidence intervals in italics.