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## Negative urgency, problem drinking and negative alcohol expectancies among members from one First Nation: A moderated-mediation model

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### Abstract

Problematic alcohol use is a major health concern for many Native communities in both Canada and the United States (Spillane & Smith, 2007, 2010; Spillane, Smith, & Kahler, *in press*). Because health disparities related to alcohol use are pronounced in this population (Beauvais, 1996; Whitesell et al., 2007), it is important to study factors that may contribute to risk for this set of problems. Alcohol expectancies represent a well known risk factor for alcohol use in non-Natives. This study sought to examine the relationship between negative urgency and negative alcohol expectancies, and to determine if this relationship is influenced by problem drinking behaviors. We hypothesized that negative urgency's effects on the development of negative alcohol expectancies would be mediated by negative urgency's influence to increase drinking behaviors in a First Nation sample (see (Spillane & Smith, 2010). We also hypothesized that this relationship would be moderated by sex. We administered measures of alcohol use, negative urgency, and negative alcohol use expectancies to a total of 209 First Nation people (96 men; 113 women). Following the steps of moderated mediation outlined by Preacher, Rucker, & Hayes (2007), we found that the relationship between negative urgency and negative alcohol expectancies was significantly mediated by problem drinking for males ( $\beta = 0.42, p < .001$ ), but not for females ( $\beta = 0.13, p = .32$ ). The current study suggests that for males in this First Nation sample, negative urgency's effects on development of negative alcohol expectancies is mediated by problem drinking behavior.

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### Contributors

Dr. Spillane conceptualized the idea along with input from Dr. Cyders and Ms. Maurelli. In addition, she wrote the manuscript with comments and edits from Dr. Cyders and Ms. Maurelli. Dr. Cyders directed the data analysis and assisted with writing the results section.

### Conflicts of Interest

The authors have no conflicts of interests to declare.

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## Keywords

First Nations; alcohol use; negative expectancies; negative urgency

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## 1. Introduction

Problematic alcohol use is a major health concern for many Indigenous People (IPs) living in Native communities, including American Indians living in the United States and members of First Nation groups living in Canada (Spillane & Smith, 2007). Reported rates of alcohol dependence (Spicer, Novins, Mitchell, & Beals, 2003) and binge drinking are higher for IPs compared to non-IPs in national samples ((SAMSHA), 2010). Similar to what is observed for other groups, binge drinking or problematic drinking is associated with significant impairments in functioning and well-being in IPs (Robin, Long, Rasmussen, Albaugh, & Goldman, 1998). IPs who engage in binge drinking behavior are more likely to meet criteria for alcohol dependence and experience other social, health, and legal problems related to alcohol compared to those IPs that do not binge drink (Aad et al., 2012; Robin, et al., 1998). A better understanding of problematic drinking will lead to improved prevention/intervention programs by highlighting appropriate targets for intervention.

### 1.1. Problem Drinking and Alcohol Expectancies

Alcohol expectancies are expectations about the effects of alcohol consumption and reflect one's learning history relevant to the consequences of drinking behavior (Christiansen & Goldman, 1983). While research has shown that positive alcohol expectancies are related to alcohol use behaviors in IPs (Garcia-Andrade, Wall, & Ehlers, 1996; Mitchell & Beals, 2006; Spillane & Smith, 2010), less is known about the role of negative alcohol expectancies and their relation to problematic drinking among IPs. Studying potential ways in which negative expectancies develop in a high risk population such as IPs might allow us to develop better prevention/intervention programs. Therefore, the goal of the current study was to begin evaluating a model for the development of negative alcohol expectancies using a cross-section sample of adult First Nation members.

Negative alcohol expectancies may develop through observation or modeling as social learning theory suggests or through direct drinking experience (Christiansen & Goldman, 1983; Leigh & Stacy, 2004; Miller, Smith, & Goldman, 1990). Leigh & Stacy (2004) argue that negative alcohol expectancies change as drinking experience is accumulated. In this way, experiencing some alcohol-related problems influences negative expectancy formation, which leads to a decrease in alcohol consumption (Jones & McMahon, 1998).

### 1.2 Impulsivity and Problem Drinking

Impulsivity-related traits, have received much attention in the substance use research literature in non-IPs, especially for their role in affecting both alcohol consumption and the development of alcohol expectancies. However, the term impulsivity is overly broad and subsumes at least five different traits that are modestly correlated with each other (Cyders et al., 2007; Smith et al., 2007; Whiteside & Lynam, 2001). The current papers focuses on negative urgency because it has been found to predict alcohol use and problem drinking in both Caucasians and IPs (Cyders & Smith, 2008; Fischer, Anderson, & Smith, 2004; Magid, Maclean, & Colder, 2007; Spillane & Smith, 2010). Negative urgency has been conceptualized as the propensity to engage in risk behaviors in response to negative affect (Cyders & Smith, 2008; Magid, et al., 2007). Individuals higher on negative urgency are thought to be more likely to consume alcohol in general, and especially in situations that are

hazardous, because of their tendency to react impulsively when faced with distress (Cyders & Smith, 2008).

### 1.3 Conceptual Model: Negative urgency, problem drinking, and the development of negative alcohol expectancies

Based on learning theory, we propose that individuals who are likely to act rashly when experiencing negative affect will be more likely to drink alcohol, and to experience negative consequences related to this consumption (Cyders, Flory, Rainer, & Smith, 2009; Cyders & Smith, 2008; Fischer, et al., 2004; Fischer, Smith, & Cyders, 2008; Smith, et al., 2007; Spillane & Smith, 2010; Spillane, Smith, & Kahler, 2010). Subsequently, the experience of these negative consequences will make it more likely that an individual will learn that alcohol will cause negative consequences. After experiencing repeated negative consequences from alcohol consumption, negative alcohol expectancies would be expected to increase, as negative alcohol expectancies can be strengthened in adulthood as individuals experience repeated problems from their drinking (Jones & McMahon, 1998; McMahon & Jones, 1994; McMahon, Jones, & O'Donnell, 1994). Therefore, we hypothesized that negative urgency influences the formation of negative alcohol expectancies through the experience of problem drinking behaviors. Individuals who act out when distressed are more likely to experience drinking problems and develop negative alcohol expectancies. Because prior studies with Native youth have shown the sensation seeking relationship with risky behavior differs by sex (Spillane et al., 2012), we will include sex as a moderator of the mediated model.

## 2. Method

### 2.1 Participants

Participants were reservation-dwelling First Nation members who belonged to a tribe in New Brunswick, Canada. A total of 209 First Nation people (96 men, 113 women) completed measures related to alcohol use, negative urgency, and negative expectancies. Fifty percent of males and 41% of females reported that they consumed alcohol at least once a week and a third of males and females reported that when they drink, they typically consumed 8 or more drinks per occasion. The sample ranged in age from 18 to 70-years-old ( $M = 35$ ,  $SD = 13.1$ ), and 71% of the sample's income was below \$20,000.

### 2.2 Measures

**2.2.1 Demographics Questionnaire**—Participants were asked to complete a demographics questionnaire that included questions related to their age, gender, level of educational attainment, and occupation.

**2.2.2 Drinking Style Questionnaire**—The Drinking Style Questionnaire (DSQ; (Smith, McCarthy, & Goldman, 1995) contains two subscales that measure alcohol consumption and problematic drinking behavior. The subscales have evidenced internal consistency, test-retest reliability, and construct validity (Smith et al., 1995). There is also evidence that the scales have the same factor structure in an American Indian population as in a Caucasian population (Spillane & Smith, 2010) and similar reliability. The coefficient alpha for the current sample was .69. The DSQ was used to assess level of alcohol use and problem drinking in the study participants.

**2.2.3 Negative Alcohol Outcome Expectancy Questionnaire**—The negative effects items of the Alcohol Outcome Expectancy Questionnaire (AOEQ; (Leigh & Stacy, 1993) were used to assess for negative alcohol expectancies. The 15-item negative effects scale measures perceived negative consequences from alcohol consumption that are organized

into four domains: negative social behavior, negative emotions, physical discomfort, and cognitive/performance impairment. The AOEQ negative effects scale's coefficient alpha for the current sample was .84, which is consistent with previous samples (Leigh & Stacy, 1993).

**2.2.4 UPPS-R**—The UPPS-R contains four scales that measure separate aspects of impulsivity: negative urgency, sensation seeking, lack of planning/premeditation, and lack of perseverance (Whiteside & Lynam, 2001). The UPPS-R negative urgency scale was used in this study, which consists of 11 items. The coefficient alpha for the current sample was .77, which is consistent with other samples of non-Natives (Whiteside & Lynam, 2001). The factor structure of the UPPS-R has also been found to be consistent in Caucasian and American Indian samples (Spillane & Smith, 2010).

### 2.3 Procedure

**2.3.1 Data Collection**—Two weeks prior to data collection, a flyer was sent out to each tribal member describing the research project; fliers were also posted around the reservation. The fliers described the investigator, the purpose of the study, when they would be approached to consider participating, and how much they would be paid (\$10 USD). The first author went door-to-door to recruit potential participants. When an individual agreed to participate, he/she completed consent forms and then the investigator left a packet of questionnaires with him or her and scheduled a return visit to pick up the completed materials. Participants were also provided a phone number they could use to contact the investigator

## 3. Results

### 3.1 Preliminary Analyses

There were no significant differences between males and females on negative alcohol expectancies ( $t(1, 207) = -1.50, p = .13$ ) or problem drinking ( $t(1, 207) = 1.45, p = .15$ ). However, a significant difference was observed for negative urgency with the mean males' scoring less than females' ( $t(1, 207) = -2.11, p = .036$ ). Sex was positively associated with negative urgency ( $r = .15, p = .04$ ), negative urgency is positively related to problem drinking ( $r = .26, p < .001$ ) and negative alcohol expectancies ( $r = .15, p = .03$ ), and problem drinking is positively related to negative alcohol expectancies ( $r = .42, p < .001$ ).

### 3.2. Moderated-Mediation Model

In order to evaluate the study hypotheses, we conducted a moderated mediation analysis as suggested by Preacher, Rucker, and Hayes (2007) using SPSS 19.0 and the Macros provided by the authors (<http://www.afhayes.com/spss-sas-and-mplus-macros-and-code.html>), to test the extent to which the relationship between negative urgency and negative expectancies is mediated by alcohol-related problems and the extent to which the relationship between negative urgency and alcohol-related problems is moderated by sex. The analysis utilized the conditional indirect effects model posited by Model 2 of Preacher et al. (2007), where the relationship between the independent predictor and the mediator is moderated by the moderator. The results of this analysis (see Table 1) indicate a significant mediation of the relationship between urgency and negative alcohol expectancies by alcohol-related problems, as well as a marginally significant moderation by sex ( $\beta = -0.09, p = 0.06$ ). Probing of this relationship indicates that for males (sex = 0), there is a significant relationship between negative urgency and alcohol-related problems ( $\beta = 0.42, p = .004$ ), whereas this relationship is not significant for females (sex = 1;  $\beta = 0.13, p = 0.32$ ). This relationship is also presented in Figure 1.

## 4. Discussion

The present study was the first to show that for males, negative urgency predicts greater development of negative alcohol expectancies from experiencing negative consequences associated with problem drinking behavior. Given the high unemployment rate that exists in many Indigenous communities, men may have little to lose from drinking, so their negative urgency predicts alcohol-related problems (Spillane & Smith, 2007; Spillane, et al., *in press*). In contrast, women are expected to care for their children and less likely to be expected to have a job. Being high on negative urgency may mean that they are less likely to develop alcohol-related problems because of their other responsibilities (Spillane & Smith, 2007), but they may be more likely to develop other maladaptive or risky behaviors such as bingeing (Fischer, et al., 2004; Fischer, Settles, Collins, Gunn, & Smith, 2012).

These results have important implications for the treatment of alcohol use problems in First Nation communities. They suggest that treatment aimed at simply instilling greater negative alcohol expectancies in alcohol-abusing individuals may be misguided, as many individuals with alcohol use problems likely already hold negative alcohol expectancies based in part from their drinking experiences. These negative expectancies are not affecting their alcohol use behavior perhaps because positive alcohol expectancies are more powerful for these individuals (Walters, 2000). Therefore, strategies aimed at increasing the salience of negative alcohol expectancies, while decreasing the availability of positive alcohol expectancies, may be more beneficial to motivate change in alcohol use behaviors (Walters, 2000).

The findings described here should be understood in the context of the limitations of this research. First, our test of this model was cross-sectional and correlational, even though the model is a causal model. Second, tests of this model were conducted using members from one First Nation community and therefore, we cannot be certain how well our results would generalize to other groups. Third, it is possible that our recruitment of First Nation people resulted in samples not fully representative of the population; future research on truly random samples is necessary. Finally, although the measures we used in this study were found to be invariant across ethnic groups in a prior study (Spillane & Smith, 2010); this does not mean that other constructs may not be equally important. Despite these limitations, the results of this study, although preliminary, were consistent with the proposed model. Future studies may want to further investigate these relationships in a longitudinal design.

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## References

- (SAMSHA), S. A. M. H. S. A. The National Survey on Drug Use and Health (NSDUH) Report. 2010. Retrieved from <http://www.oas.samhsa.gov/2k10/182/AmericanIndian.htm>
- Aad G, Abbott B, Abdallah J, Abdelalim AA, Abdesselam A, Abdinov O, et al. Search for new phenomena in tt events with large missing transverse momentum in proton-proton collisions at  $\sqrt{s} = 7$  TeV with the ATLAS detector. *Phys Rev Lett.* 2012; 108(4):041805. [PubMed: 22400827]

- Beauvais P. Trends in drug use among American Indian students and dropouts, 1975 to 1994. *Am J Public Health*. 1996; 86(11):1594–1598. [PubMed: 8916526]
- Christiansen BA, Goldman MS. Alcohol-related expectancies versus demographic/background variables in the prediction of adolescent drinking. *J Consult Clin Psychol*. 1983; 51(2):249–257. [PubMed: 6841769]
- Cyders MA, Flory K, Rainer S, Smith GT. The role of personality dispositions to risky behavior in predicting first-year college drinking. *Addiction*. 2009; 104(2):193–202. ADD2434 [pii]. 10.1111/j.1360-0443.2008.02434.x [PubMed: 19149813]
- Cyders MA, Smith GT. Emotion-based dispositions to rash action: positive and negative urgency. *Psychol Bull*. 2008; 134(6):807–828. 2008-14745-002 [pii]. 10.1037/a0013341 [PubMed: 18954158]
- Cyders MA, Smith GT, Spillane NS, Fischer S, Annus AM, Peterson C. Integration of impulsivity and positive mood to predict risky behavior: development and validation of a measure of positive urgency. *Psychol Assess*. 2007; 19(1):107–118. 2007-03014-009 [pii]. 10.1037/1040-3590.19.1.107 [PubMed: 17371126]
- Fischer S, Anderson KG, Smith GT. Coping with distress by eating or drinking: role of trait urgency and expectancies. *Psychol Addict Behav*. 2004; 18(3):269–274. 2004-19092-008 [pii]. 10.1037/0893-164X.18.3.269 [PubMed: 15482082]
- Fischer S, Settles R, Collins B, Gunn R, Smith GT. The role of negative urgency and expectancies in problem drinking and disordered eating: testing a model of comorbidity in pathological and at-risk samples. *Psychol Addict Behav*. 2012; 26(1):112–123. 2011-10382-001 [pii]. 10.1037/a0023460 [PubMed: 21604832]
- Fischer S, Smith GT, Cyders MA. Another look at impulsivity: a meta-analytic review comparing specific dispositions to rash action in their relationship to bulimic symptoms. *Clin Psychol Rev*. 2008; 28(8):1413–1425. S0272-7358(08)00128-1 [pii]. 10.1016/j.cpr.2008.09.001 [PubMed: 18848741]
- Garcia-Andrade C, Wall TL, Ehlers CL. Alcohol expectancies in a Native American population. *Alcohol Clin Exp Res*. 1996; 20(8):1438–1442. [PubMed: 8947322]
- Jones, BT.; McMahon, J., editors. *Treating addictive behaviors*. 2. New York, NY: Plenum Press; 1998.
- Leigh BC, Stacy AW. Alcohol outcome expectancies: Scale construction and predictive utility in higher order confirmatory models. *Psychological Assessment*. 1993; 5:216–229.10.1037/1040-3590.5.2.216
- Leigh BC, Stacy AW. Alcohol expectancies and drinking in different age groups. *Addiction*. 2004; 99(2):215–227. 641 [pii]. [PubMed: 14756714]
- Magid V, Maclean MG, Colder CR. Differentiating between sensation seeking and impulsivity through their mediated relations with alcohol use and problems. *Addict Behav*. 2007; 32(10):2046–2061. S0306-4603(07)00030-5 [pii]. 10.1016/j.addbeh.2007.01.015 [PubMed: 17331658]
- McMahon J, Jones BT. Social drinkers' negative alcohol expectancy relates to their satisfaction with current consumption: measuring motivation for change with the NAEQ. *Alcohol Alcohol*. 1994; 29(6):687–690. [PubMed: 7695784]
- McMahon J, Jones BT, O'Donnell P. Comparing positive and negative alcohol expectancies in male and female social drinkers. *Addiction Research*. 1994; 1:349–365.10.3109/16066359409005202
- Miller PM, Smith GT, Goldman MS. Emergence of alcohol expectancies in childhood: a possible critical period. *J Stud Alcohol*. 1990; 51(4):343–349. [PubMed: 2359308]
- Mitchell CM, Beals J. The development of alcohol use and outcome expectancies among American Indian young adults: a growth mixture model. *Addict Behav*. 2006; 31(1):1–14. S0306-4603(05)00066-3 [pii]. 10.1016/j.addbeh.2005.04.006 [PubMed: 15905039]
- Robin RW, Long JC, Rasmussen JK, Albaugh B, Goldman D. Relationship of binge drinking to alcohol dependence, other psychiatric disorders, and behavioral problems in an American Indian tribe. *Alcohol Clin Exp Res*. 1998; 22(2):518–523. 00000374-199804000-00032 [pii]. [PubMed: 9581662]

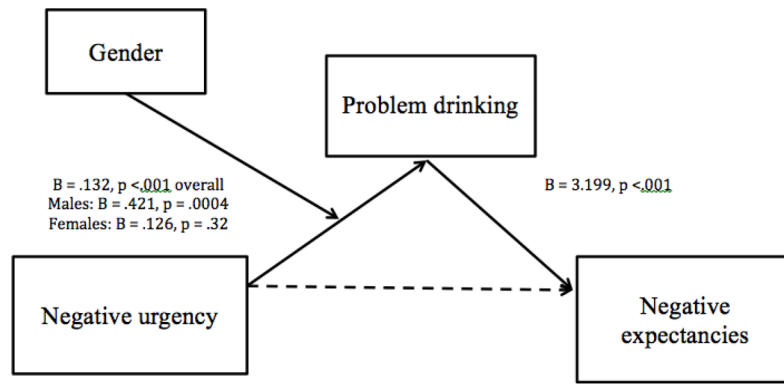


- Smith GT, Fischer S, Cyders MA, Annus AM, Spillane NS, McCarthy DM. On the validity and utility of discriminating among impulsivity-like traits. *Assessment*. 2007; 14(2):155–170. 14/2/155 [pii]. 10.1177/1073191106295527 [PubMed: 17504888]
- Smith GT, McCarthy DM, Goldman MS. Self-reported drinking and alcohol-related problems among early adolescents: dimensionality and validity over 24 months. *J Stud Alcohol*. 1995; 56(4):383–394. [PubMed: 7674672]
- Spicer P, Novins DK, Mitchell CM, Beals J. Aboriginal social organization, contemporary experience and American Indian adolescent alcohol use. *J Stud Alcohol*. 2003; 64(4):450–457. [PubMed: 12921186]
- Spillane NS, Muller C, Noonan C, Goins RT, Mitchell CM, Manson S. Sensation-seeking predicts initiation of daily smoking behavior among American Indian high school students. 2012
- Spillane NS, Smith GT. A theory of reservation-dwelling American Indian alcohol use risk. *Psychol Bull*. 2007; 133(3):395–418. 2007-06095-002 [pii]. 10.1037/0033-2909.133.3.395 [PubMed: 17469984]
- Spillane NS, Smith GT. Individual differences in problem drinking among tribal members from one first nation community. *Alcohol Clin Exp Res*. 2010; 34(11):1985–1992. ACER1288 [pii]. 10.1111/j.1530-0277.2010.01288.x [PubMed: 20659067]
- Spillane NS, Smith GT, Kahler CW. Impulsivity-like traits and smoking behavior in college students. *Addict Behav*. 2010; 35(7):700–705. S0306-4603(10)00087-0 [pii]. 10.1016/j.addbeh.2010.03.008 [PubMed: 20381971]
- Spillane, NS.; Smith, GT.; Kahler, CW. Alcoholism: Clinical and Experimental Research. Perceived reinforcers as a function of alcohol consumption among one First Nations group. in press
- Walters, GD. The self-altering process: Exploring the dynamic nature of lifestyle development and change. Westport, CT: Praeger Publishers; 2000.
- Whitesell NR, Beals J, Mitchell CM, Spicer P, Novins DK, Manson SM, et al. Disparities in Drug Use and Disorder: Comparison of Two American Indian Reservation Communities and a National Sample. *American Journal of Orthopsychiatry*. 2007; 77(1):11p.10.1037/0002-9432.77.1.131
- Whiteside SP, Lynam DR. The five factor model and impulsivity: Using a structural model of personality to understand impulsivity. *Personality and Individual Differences*. 2001; 30:669–689.

### Highlights

- Problem alcohol use is a major public health concern for Native communities.
- Alcohol expectancies and impulsivity traits are risk factors for problem drinking.
- We examined what influences the formation of negative alcohol expectancies.
- Negative urgency influences problem drinking and this influences expectancies.
- This relationship was moderated by sex, significant for males only.





**Figure 1.** Moderated mediation of Negative urgency to problem drinking to negative alcohol expectancies, as moderated by sex.

**Table 1**

## Moderated Mediation of Urgency on Negative Alcohol Expectancies

<i>Mediator Variable Model</i>				
	<b>Coefficient</b>	<b>SE</b>	<b><i>t</i></b>	<b><i>p</i></b>
Constant	0.11	0.95	0.11	0.91
Urgency	0.13	0.03	4.32	<.001
Gender	2.24	1.60	1.40	0.16
Urgency x Gender	-0.09	0.05	-1.87	0.06
<i>Dependent Variable Model</i>				
	<b>Coefficient</b>	<b>SE</b>	<b><i>t</i></b>	<b><i>p</i></b>
Constant	30.04	6.88	4.36	<.001
DSQ problems	3.20	0.50	6.39	<.001
Urgency	0.11	0.23	0.46	0.64
Gender	11.54	11.51	1.00	0.32
Urgency x Gender	-0.20	0.36	-0.55	0.58