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Exploring Binge Drinking and Drug Use among American Indians: Data from Adolescent Focus Groups

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Background: **Risk factors for binge substance use and non-suicidal self-injury (NSSI) are similar, suggesting the importance of exploring how binge substance use and self-injury interrelate.** ***Objectives:*** **To gain insight from a sample of American Indian (AI) adolescents regarding how binge drinking and drug use function in their lives, including as overlapping forms of self-injury, and to identify community-based ideas for dual prevention strategies.** ***Methods:*** **A total of $N = 58$ White Mountain Apache (Apache) adolescents participated in ten mixed gender ($n = 33$ males, 55.9%) focus group discussions. Results were interpreted and categorized by Apache researchers and compared to Nock's behavioral model of NSSI.** ***Results:*** **Participants reported substance use most commonly with "family" and "friends," "at a house," or "around the community." Substance use was not confined to a particular time of day, and often occurred "at school." Commonly endorsed reasons fell into two main categories: "to avoid problems" or "to reduce negative feelings," versus "to be cool" or "to feel part of a group." All adolescents but one thought that some youths use substances excessively as a way to harm/injure themselves ($n = 25$ responses). Prevention approaches included encouraging healthy relationships, teaching about consequences of use, providing alternative recreation, and changing/enforcing laws on the reservation.** ***Conclusion:*** **Tribal-specific data support the idea that binge substance use sometimes functions as a form of self-injury. Home/school environments are critical prevention settings, in addition to improved law enforcement and increased recreation.** ***Scientific Significance:*** **Understanding possible shared root causes and functions of binge substance use and self-injury may advance integrated prevention approaches.**

Keywords: binge substance use, non-suicidal self-injury, American Indian, qualitative research

INTRODUCTION

Binge drinking is related to a substantial proportion of alcohol-related deaths (1), nonfatal injuries, and negative psychosocial outcomes (2,3). Among all US adolescents (<21 years old), 19% (7.2 million) of those with past month alcohol use were classified as binge drinkers. Higher rates of alcohol and drug use among American Indian (AI) adolescents and research specific to AIs suggest they are more prone to binge drinking (4).

Binge substance use and non-suicidal self-injury (NSSI) share common risk factors (5,6). NSSI is characterized by self-inflicted harm (e.g., cuts and burns) without expressed intent to die, is associated with other high-risk behaviors including suicide attempts (7–11), and is increasing among adolescents. NSSI is currently a sizable source of morbidity among the White Mountain Apache Tribe (WMAT/Apache) with rates higher than the general population at 600/100,000 for all ages and 3,000/100,000 for 10–14 year olds (5,10,11). Many Apaches are intoxicated or high during NSSI, contrasting with reports in other populations (5,12,13). Substance use is the second most prevalent self-reported "method" of NSSI by Apaches (5).

Comparable explanatory models exist for alcohol misuse and NSSI (14–16). In addition, the functions of both have been conceptualized as internal (intrapersonal) or external (interpersonal), and as negatively or positively reinforcing. Examples of internal functions are to reduce stress (*negative reinforcement*) and to feel more autonomous or alive (*positive reinforcement*). Examples of external functions include to provide distance or isolate oneself from others (*negative reinforcement*), and to enhance peer group status or strengthen friendships (*positive reinforcement*). In young people, external motives are associated with moderate alcohol use and internal motives with

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alcohol-related problems (17). Most adolescents engage in NSSI for internal functions, but a substantial proportion also report external functions (14,17). Binge substance use also shares common risks with NSSI among US and Apache adolescents, but rarely has this behavior been conceptualized as a possible form of self-injury or on the spectrum of suicidality (5,6).

Background

The WMAT (Apache), with a population of approximately 15,500, resides on the Fort Apache Indian Reservation in Northeastern Arizona. The Apaches have an internationally renowned track record of innovative public health research to address difficult health problems, including infant mortality, adolescent pregnancy, and youth suicide (18–22). Their attention to current health disparities affecting tribal members and determination to employ community-based participatory research (CBPR) to solve problems distinguishes their community.

To better understand self-injury, in 2001, the Tribal Council mandated a unique Apache suicide and self-injury surveillance system (described in detail in previous publications) (5,23). The original mandate required reporting of suicide deaths, attempts, and ideation. In 2004, it expanded to include verification of all reported incidents through in-person follow-up. This process identified that some incidents of intentional self-injury were non-suicidal and binge substance use was frequently co-occurring with intentional self-injury. Therefore, in 2007, data collection expanded to include NSSI, and in 2010, binge substance use was added as a discreet reportable behavior.

The addition of new, self-injurious behaviors of concern to the community occurred with guidance and input from Apache key stakeholders, including representatives from the Elders Council, Apache Community Advisory Board (CAB), three High Risk Coalitions (comprising Apache service providers), and Tribal Health Departments. These groups hold regular meetings where a common vocabulary for observed behaviors has developed, blending both community and scientific terminology, that is used to inform surveillance data collection and interpretation.

The addition of binge substance use to the system reflects local understanding that self-injury and substance use are on a common spectrum of maladaptive behavior. This is a preliminary qualitative study to elucidate possible internal and external functions of binge substance use among Apache adolescents. To interpret our findings, we employed Nock's Four Function Behavioral Model of NSSI (24).

METHODS

Community-Based Participatory Research

This study was designed employing a CBPR approach; tribal leaders and Apache CAB were involved in every aspect of conception and implementation. This study was motivated by a community survey ranking alcoholism as the most troubling health problem, school concerns about student binging, and corroborating surveillance system data.

Definitions and Terms

We utilized Apache surveillance system terminology/definitions. *Self-injurious behavior* is defined as direct and deliberate infliction of injury upon the self, and includes both *suicidal* and *non-suicidal self-injury* (16). "The intent of the [non-suicidal] self-injuring person is not to terminate consciousness, as in suicide, but to modify it; those who engage in non-suicidal self-injury typically have thoughts of temporary relief" [as opposed to permanent relief in suicide] (25, p. 130). *Binge substance use* is defined as consuming substances with the intention of modifying consciousness that results in severe consequence(s) (e.g., passing out, found unresponsive, and requiring treatment in Emergency Department). Note that this differs from the commonly accepted western scientific definition of $\geq$5 drinks for men and $\geq$4 drinks for women in $\leq$2 hours. The commonalities between NSSI and binge substance use definitions, particularly the focus on intentionally modifying consciousness, reflect Apache stakeholders' view that binge substance use is a potential form of self-injury with physical consequences just as harmful and "direct" as cutting one's arm with a razor.

Participants

AI adolescents aged 12–19 living on the Apache Reservation were eligible. This age group was selected to inform prevention strategies as Apache surveillance data indicate both behaviors are initiated at this age.

Sampling and Recruitment

Adolescents were recruited from three collaborating schools. Purposive sampling allowed for heterogeneity on risk and protective factors, such as age, gender, school performance, and past alcohol/drug use. Participants were identified and recruited by counselors and school administrators. Using a standard script, Apache researchers explained the study purpose, associated risks, and benefits of participation. Adolescents aged 12–17 were required to have parent/guardian consent and 18–19 year olds consented themselves.

Design

Ten focus groups ($\sim$1 hour each) were facilitated in local, private classrooms. Apache community mental health specialists, who are bilingual, respected members of their community, knowledgeable in surveillance system terms/definitions, and trained by JHU mental health professionals, facilitated focus groups.

This study and manuscript were approved by the Apache Health Advisory Board and Tribal Council. The study also was approved by the Phoenix Area Indian Health Service and Johns Hopkins Institutional Review Boards.

Focus Group Guide

The focus group guide was developed in collaboration with the CAB and Apache community mental health specialists, semi-structured, and utilized surveillance terminology/definitions. Facilitators used the guide as a general outline for discussion and to probe respondent's

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explanatory and conceptual understanding of how binge substance use functions for Apache adolescents. Participants were asked about general drinking scenarios, context for behaviors, why adolescents engage in binge substance use, agreement/disagreement with tribal stakeholders' belief that binge substance use functions as a form of self-injury, and prevention ideas. Participants were not asked about personal substance use. Focus groups were audio recorded and transcribed.

Analysis

Data analysis was conducted iteratively. Researchers read transcripts and identified major themes. A codebook with definitions was developed and applied to all transcripts manually. Emergent codes were added as themes, followed through focus group texts, and new phenomena were identified. Themes were redefined and recategorized as transcripts were continually reviewed. Data tables and matrices were developed and discussed at team meetings throughout analysis to allow comparison of themes across categories and to ensure consistent and reliable coding. Results are organized in the following domains: (1) the context of binge use, (2) the reasons for adolescent substance use categorized according to Nock's model (24), (3) the ideas about binge behavior as a potential form of self-injury, and (4) the ideas for substance use prevention (1 of 10 transcriptions was eliminated due to poor sound quality and limited field notes).

RESULTS

Sample

A total of $N = 58$ adolescents participated in ten mixed gender ($n = 33$ males, 55.9%) focus groups.

Context of Binge Use (Table 1)

In response to "who do youth usually use drugs or alcohol with?" the most frequent response categories were "family," specifically siblings, cousins, and "friends."

> *They drink with their friends. I guess their closest friends or their family members because their family members can give them the drinks also . . . especially if they are too intoxicated they can just hand it to them and they drink with them.*

> *Sometimes new friends that you meet and old friends that introduce you have alcohol with them . . . they give you some and it just starts out like that with a friendship, so-called friendship from binge drinking.*

Participants were asked "where do youth usually use drugs or alcohol?" The most frequent response category was "at a house," which included their home and friends' houses. The second most frequent response category was "around the community," such as "outside," "in the mountains," "playground," "parks," "stores," "on the road," and "around."

> *You have two options: one, out where nobody can see you where guys are hanging out; two, just go to someone's house where they don't mind guys drinking there . . . .*

"School" also was a frequently cited location.

> *I'd say usually people have been drinking in the school . . . there was this incident where 10 people got suspended for drinking last month.*

> *It could be seeped through a Gatorade . . . or water bottle . . . one of them got caught and it was happening in the classroom, while the teacher was teaching.*

Participants were asked "when do youth usually use drugs or alcohol?" The two most frequently reported answers were "at night" and "after school." The next most frequent set of responses was: "anytime," "in the morning," and "during school."

> *It can actually happen anytime, anywhere, anyplace. It doesn't matter where, doesn't matter when, it will always happen.*

Reasons for Adolescent Substance Use

Participants were asked, "why do you think youth start using drugs or alcohol?" The most frequently reported reasons (total reasons = 105) were "to avoid problems

TABLE 1. Who, where, and when of binge drinking and drug use.

With who? ($N = 49$)	N	Where? ($N = 54$)	N	When? ($N = 45$)	N
Family	23	House	13	Time of day	30
Brothers/sisters	7	Their house	5	Night	9
Relatives	7	Friend's house	5	Afternoon (after school)	7
Cousins	5	House unspecified	3	Anytime	6
Parents	2	Around the community	11	Morning (before school)	5
Family unspecified	7	School	9	During school	3
Friends	17	Special events	8	Special occasions	11
Older kids	2	School related	4	Holidays	6
Alone	2	Community related	4	When they have money	3
Other	6	Away from (parents/police)	8	When no one is home	2
		Anywhere	4	Other	3
		Parties	3		
		Other	3		

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($n = 25$)," "to be cool ($n = 15$)," "to feel part of a group ($n = 14$)," "to reduce negative feelings ($n = 14$)," "to feel good ($n = 11$)," and "to feel strong or better than someone ($n = 10$)." Other less common responses included "to start a confrontation ($n = 4$)," "to get attention ($n = 4$)," to gain respect ($n = 3$)," "to get a reaction from someone even if it's negative ($n = 3$)," and "because they feel numb ($n = 2$)."

We categorized these codes into a behavioral model of NSSI, based on Nock's and colleagues' theory and research (12,16,24), comprising four functions along two dimensions: (1) automatic (internal) versus social (external) motivation and (2) positive reinforcement versus negative reinforcement (see Table 2). The majority of our coding categories mapped onto the four different

TABLE 2. Four-function behavioral model of binge drinking and drug use.

	Negative reinforcement	Positive reinforcement
Automatic	Quotes:	Quotes:
	1. When they don't have more, or when they don't have control over anything, that's when they just let go and they just let the binge drinking take over . . . and when they can't control it, the more you get the more you want, so after you get that point you really have that need.	1. Some people say they don't know, that [they] can't describe that feeling; it's like something they want to be the rest of their life.
	2. When they are at their breaking point . . . some stress and personal issues and parents, school and grades; they can't take it and so they just start drinking, drinking, drinking.	2. Some like the thrill of being high.
	3. Everybody on the reservation has some type of problems, even some small spark can push them there, to that limit.	3. People try to show off sometimes, that they can be more than another person.
	4. Probably to take away the pain because they are not feeling good, and [if] it felt like the way they felt the last time, they'd do it again.	4. Because they are mad at someone.
	5. We all go through problems that burden us in our backs, and there is only a few of us that probably find solutions to get away from it; few of the solutions turn to alcohol and drugs, thinking that is the only alternative.	
	6. Some are too stressed from the teachers that give them problems or their grades if they are not doing well, and if their parents are constantly at them.	
	7. It's because of the grades and how their parents are always nagging at them to get a better grade and it just gets to them.	
Social	Quotes:	Quotes:
	1. Family problems . . . they just don't like being around it . . . maybe they start drinking as a way out.	1. Most of them probably think it's cool and my friends do that so I think I am going to do that. I want to be cool . . . I want to be where people know me and be popular, so just for pride.
	2. I am not sure how to say this . . . just like a mask or something . . . it kind of hide[s] your brain until you are out of it, like all of your problems.	2. Peer pressure; [they're] feeling like they have no friends. They probably just do it just to get accepted by other people.
	3. When they have a problem they can't control anymore or when they get to the point where they can't have enough and when they get pressured by friends. They are saying that it'll make your problems go away.	3. They do it because they see the other kids doing it and they don't want others to think they are not one of them.
	4. Sometimes one of the older family members you know is drinking . . . that's why some people just want to get away from whatever.	4. Most of them think it's cool the way they are around their family and friends; they try to be normal, but around other relatives and friends they act cool . . . .
	5. They'll probably call them names or make fun of them because they don't do it [binge drinking], so they probably don't want [it] to go like that.	5. To feel more respected.
	6. They think it is pretty awesome and amazing just to get out of whatever situation they are in for the time being.	6. Because they probably grew up in an unstable house and they were just not getting accepted by people. The only way is [by] binge drinking. Then you think nobody wants to stop me, nobody cares about me, especially if it's a family problem. They do it to make people feel sorry for them.

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functions. Reasons that were coded into social, positive reinforcement functions included “to feel part of a group,” “to be cool,” “to gain respect,” and “to get attention.”

> *They probably don’t get enough attention from their parents or family members . . . they probably just want to black out and get hurt so that somebody will be there to take care of them and actually notice what they are doing, to give them the attention that they need or wanted for so long.*

Social, negative reinforcement functions included “to avoid problems with school and family.”

> *Certain students who have problems in their lives with relationships or family . . . they just drink to put the problem away.*

Response categories that were coded into automatic, positive reinforcement included “to feel good” and “thrill of being high.”

> *Most of them just want to act like everything is ok, and drinking . . . gives them a good feeling.*

Automatic, negative reinforcement functions included “to reduce negative feelings like stress and depression.”

> *Usually it starts with problems, problems in your family . . . you try to numb somewhat the pain . . .*

Ideas about Substance Use as Self-injury

Participants were asked, “what do you think about the idea that some youth use alcohol and drugs excessively as a way to harm or injure themselves?” $N = 25$ youth gave verbal responses to this question. Responses were coded into “agree” ($n = 21$), “disagree” ($n = 1$), and “maybe/sometimes” ($n = 3$).

> *They want to seek attention, most of them feel neglected, like nobody is really listening to them . . . . to get the attention they need by hurting themselves, by destroying their body, here and there, to and fro, never ending.*

Participants also talked about the relationship between binge substance use and suicide.

> *There is always a point in life when you don’t care about anything anymore . . . you just want to give up, drinking until they die or they just want to attempt . . . .*

Ideas about Prevention of Binge Substance Use

Participants were asked what could be done to prevent Apache adolescents from engaging in binge substance use. Much of the conversation centered on community-wide prevention in the following domains: (1) providing activities, (2) creating programs to encourage healthy family and peer relationships, (3) teaching adolescents about binge substance use consequences, and (4) changing or enforcing local laws regarding drugs and alcohol.

> *I would say programs that bring friends and family together and help them work with one another.*

> *Show them the path of people that were involved in drugs or alcohol and tell them their experience . . . how it ended up bad for them . . . or it ruined their chances of going to a good college.*

> *The penalties for bootlegging don’t seem like anything at all because I know someone that got busted . . . they didn’t really do anything to her . . . she just got a slap on the hand and she was set free again.*

DISCUSSION

This study has several limitations: (1) Representation from only one tribe limits generalizability. (2) The sample was school-based, representing adolescents less at-risk for substance use or NSSI. (3) Utilization of a community-based definition for binge substance use limits comparisons to studies using other definitions. (4) Tribal stakeholders’ hypothesis about binge substance use as potential self-injury framed focus group discussions to elicit common or contrasting ideas, but the frame itself may have biased participants than if discussion were completely open-ended.

Several themes emerged: (1) Adolescents report binge substance use can occur anytime, in any place, and with anyone. (2) Adolescents report some binge substance use occurs during school hours and on school property, highlighting the seriousness of the problem and that school may be an important setting for future prevention efforts. (3) Many reported reasons for binging fit into an accepted behavioral model of NSSI. (4) Some adolescents clearly view binge substance use as a form of non-suicidal and suicidal self-injury, which may necessitate tailored interventions addressing these functions. (5) Adolescents were insightful about public health-focused prevention strategies including ideas to increase recreation, improve family and peer relationships, teach about consequences, and increase law enforcement.

Past cross-cultural studies with adolescents and young adults exploring motivation for substance use are mostly quantitative and utilize the Drinking Motives Questionnaire (DMQ) (17,26–29). DMQ constructs map to Nock’s model and several studies indicate participants use primarily for “social” reasons: to celebrate, be sociable (Positive/Social); followed by “coping” reasons: helps with depression/anxiety, relax (Negative/Automatic); then by “enhancement” reasons: like feeling, exciting/fun (Positive/Automatic); and finally by “conformity” reasons: external pressures (Negative/Social) (17,26–30). Few studies are qualitative and none has directly investigated binge substance use as a potential form of self-injury (31,32). This hypothesis warrants further research given the large disparities and co-occurrence of self-injury and binge substance use among AI adolescents. Intervention approaches that target common motivations and promote culturally based protective factors hold promise (33–35).

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Declaration of Interest

Dr. John Walkup received free medication and placebo from Lilly, Pfizer, and Abbott for NIMH-funded studies. He is a consultant for Shire Pharmaceuticals. He is a paid investigator on grants funded by Pfizer. He receives honoraria and expenses for continuing education presentations from the joint Tourette Syndrome Association and Center for Disease Control outreach program. He receives royalties from Guilford Press and Oxford Press for books on Tourette syndrome. He receives grant funding from the Tourette Syndrome Association. He serves on the advisory board of the Tourette Syndrome Association, the Trichotillomania Learning Center, and the Anxiety Disorder Association of America without pay but with travel expenses covered.

The other authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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