



## A pilot randomized trial of Motivational Interviewing compared to Psycho-Education for reducing and preventing underage drinking in American Indian adolescents



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### ABSTRACT

Underage drinking is an important public health issue for American Indian and Alaska Native (AI/AN) adolescents, as it is for U. S. teens of all ethnicities. One of the demonstrated risk factors for the development of alcohol use disorders in AI/AN is early age of initiation of drinking. To address this issue a randomized trial to assess the efficacy of Motivational Interviewing (MI) compared to Psycho-Education (PE) to reduce and prevent underage drinking in AI/AN youth was developed and implemented. Sixty-nine youth received MI or PE and 87% were assessed at follow-up. For teens who were already drinking, participating in the intervention (MI or PE) was associated, at follow-up, with lower quantity  $\times$  frequency ( $q \times f$ ) of drinking ( $p = 0.011$ ), fewer maximum drinks per drinking occasion ( $p = 0.004$ ), and fewer problem behaviors ( $p = 0.009$ ). The MI intervention resulted in male drinkers reporting a lower  $q \times f$  of drinking ( $p = 0.048$ ) and female drinkers reporting less depression ( $p = 0.011$ ). In teens who had not started drinking prior to the intervention, 17% had initiated drinking at follow-up. As a group they reported increased quantity  $\times$  frequency of drinking ( $p = 0.008$ ) and maximum drinks ( $p = 0.047$ ), but no change in problem behaviors. These results suggest that intervening against underage drinking using either MI or PE in AI/AN youth can result in reduced drinking, prevention of initiation of drinking, and other positive behavioral outcomes. Brief interventions that enhance motivation to change as well as Psycho-Education may provide a successful approach to reducing the potential morbidity of underage drinking in this high-risk group.

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### 1. Introduction

In 2007 the U.S. Surgeon General issued a call to action to engage a coordinated, multi-faceted effort to prevent and reduce underage drinking and its adverse consequences (U.S. Department of Health and Human Services, 2007). Of all ethnic groups, American Indian/Alaska Native (AI/AN) youth are at the highest risk for underage drinking and its associated morbidity and mortality (Bachman et al., 1991; Beals et al., 1997; Beauvais, Jumper-Thurman, & Burnside, 2008; Beauvais,

Jumper-Thurman, Helm, Plested, & Burnside, 2004; Blum, Harmon, Harris, Bergeisen, & Resnick, 1992; Ehlers, Slutske, Gilder, Lau, & Wilhelmsen, 2006; Indian Health Service, 2009; Miller et al., 2008; National Institute on Alcohol Abuse and Alcoholism, 2009; Stanley, Harness, Swaim, & Beauvais, 2014; Substance Abuse and Mental Health Services Administration, 2013; Wallace, Brown, Bachman, & LaVeist, 2003; Wu, Woody, Yang, Pan, & Blazer, 2011). Early age of onset of drinking in adolescence has been associated with higher rates of lifetime alcohol use disorders (AUDs) in the general U.S. population (Grant & Dawson, 1997; Grant, Stinson, & Harford, 2001). Similar to what has been seen in these general population surveys, early onset of drinking in AI/AN youth is predictive of later alcohol problems and use disorders (Ehlers et al., 2006; Henry et al., 2011; Sung, Erkanli, Angold, & Costello, 2004; Whitesell et al., 2009). In addition, the onset of substance use in AI/AN youth appears to be earlier than all other U.S. ethnic groups (Clark, Nguyen, & Kropko, 2013). This earlier onset of drinking may be

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one important explanation for the high rates of morbidity and mortality associated with alcohol in some AI/AN communities and provides a compelling rationale for developing programs to address underage drinking in this high-risk ethnic group.

### 1.1. Motivational Interviewing

One psychotherapeutic intervention that holds promise for reducing underage drinking in AI/AN is Motivational Interviewing (MI). MI is a psychotherapeutic intervention that assesses a person's readiness to change (or stage of change) and then implements a treatment program tailored for his or her stage of change (Miller & Rollnick, 2013). It has been demonstrated to be useful in the areas of treatment adherence and engagement (Dean, Britt, Bell, Stanley, & Collings, 2016), improving health behaviors (Kaar, Luberto, Campbell, & Huffman, 2017) and, in particular, in improving addictive behaviors in several studies (Arnaud et al., 2016; Hetteema, Steele, & Miller, 2005; Lundahl et al., 2013; Romano & Peters, 2015). In adults, MI has had the highest effect sizes of all treatments for alcohol use disorders (Miller, 1996, 2000). MI has also been demonstrated to be effective in reducing substance use and use-related behaviors in adolescents and young adults (Barnett, Sussman, Smith, Rohrbach, & Spruijt-Metz, 2012; Brown et al., 2015; Grenard, Ames, Pentz, & Sussman, 2006; Kohler & Hofmann, 2015; Li, Zhu, Tse, Tse, & Wong, 2016; Macgowan & Engle, 2010; Monti et al., 1999; Monti, Colby, & O'Leary, 2001; Spirito et al., 2004; Tevyaw & Monti, 2004; Vasilaki, Hosier, & Cox, 2006), although not in all analyses (Foxcroft et al., 2016; Li et al., 2016).

One advantage of MI is that it is a brief intervention and thus an alternative to longer term treatments with similar efficacy (Monti et al., 2007, 1999, 2001; Spirito et al., 2004). In some studies, single session MI has been shown to be more effective than a control intervention (McCambridge & Strang, 2004); demonstrated to have effects persisting for 2 years and more post intervention (Baer, Kivlahan, Blume, McKnight, & Marlatt, 2001; Baer et al., 1992; Marlatt et al., 1998; Monti et al., 1999; Roberts, Neal, Kivlahan, Baer, & Marlatt, 2000); and shown efficacy in high risk drinkers (Baer et al., 2001). In two studies, MI's effects on alcohol-related problems persisted longer than its effects on drinking frequency and quantity (Baer et al., 2001; Roberts et al., 2000). MI is able to address the broad spectrum of patients who are using alcohol, not only those who have been using it for long periods of time, those who have developed major life problems, or those who meet criteria for alcohol dependence (Tevyaw & Monti, 2004). Although reduction in drinking is emphasized, MI also takes a harm reduction approach (Colby et al., 2005; Monti et al., 1999), something important for alcohol-related morbidity in underage drinkers. As such, MI may be particularly well-suited to adolescents and young adults who may respond poorly to more rigid authoritarian or confrontational approaches (Monti et al., 2001).

There have been few studies that have specifically examined the efficacy of MI in women as opposed to men (Grella, 2008; Vasilaki et al., 2006). In one study, Intensive MI was found to be a particularly beneficial treatment for alcohol problems in women with methamphetamine dependence (Korcha, Polcin, Evans, Bond, & Galloway, 2014). Because of this paucity of studies, it has been suggested that more research is needed that specifically takes into account gender; particularly in relation to known differences in psychiatric comorbidities between men and women.

### 1.2. Motivational Interviewing in American Indians/Alaska Natives (AI/AN)

Clinical trials analyzing the potential benefits of MI among AI/AN have been limited. Analysis of treatment response of 25 adult American Indians in the Project MATCH study found superiority of MI as compared to cognitive-behavioral and 12-step facilitation interventions (Villanueva, Tonigan, & Miller, 2007). Woodall and colleagues (Woodall, Delaney, Kunitz, Westerberg, & Zhao, 2007) found that a

treatment intervention incorporating MI principles for first time adult DUI offenders, in a primarily AI/AN sample, was associated with significantly greater reductions in alcohol consumption compared to no intervention. Importantly, "cultural relevance" can be built into MI and tailored for AI/AN populations. MI may be particularly useful in AI/AN populations when cultural adaptations are made to: use AI/AN therapists, emphasize respect for the study participant's language and spirituality, their relationship with extended family and clan, as well as their tribes' unique history and culture (Venner et al., 2016). Several groups have developed methodology to implement MI in AI/AN populations as well as demonstrate its acceptance by AI/AN communities (Dickerson, Brown, Johnson, Schweigman, & D'Amico, 2016; Gilder et al., 2011; Venner, Feldstein, & Tafoya, 2008).

A recent review of evidence-based treatments in substance abuse treatment programs serving AI/AN communities found that only two treatments, MI and Relapse Prevention Therapy, were deemed culturally appropriate by the programs that had utilized them (Dickerson et al., 2016; Novins, Croy, Moore, & Rieckmann, 2016; Spillane, Greenfield, Venner, & Kahler, 2015). For this reason, there have been several groups that have begun to develop programs to incorporate MI within a framework of treatment for substance use disorders in AI/AN health care settings (Dickerson et al., 2016; Gilder et al., 2013; Venner et al., 2008). Few studies to date have been developed specifically for AI/AN youth. However, in one study, Dickerson and colleagues developed an alcohol and drug prevention intervention program specifically for AI/AN urban youth age 14–18 that integrates evidence based treatment with cultural integration.

### 1.3. The present study

The present study is part of a larger study to build the capacity of an AI community health center to assess and implement a comprehensive program to reduce underage drinking in a tribal group residing on AI reservations. The study was designed after research had documented, in a sample of this population, that the lifetime rates of alcohol use disorders among young adults in this population exceeded 50% (Ehlers, Stouffer, Corey, & Gilder, 2015; Ehlers, Wall, Betancourt, & Gilder, 2004) and that underage drinking (<13 years) is common and is associated, along with other variables, including male gender, with increased risk for the development of use disorders in this population (Ehlers et al., 2006). An outreach to this community in the form of focus groups with tribal leaders and elders was undertaken to determine if the community felt that an intervention for reducing underage drinking using MI would be generally well tolerated in this reservation community (Gilder et al., 2011). Specifically, the data from tribal leader and member participants supported the belief that youth in the community were in the "pre-contemplation" stage of readiness to change with respect to their drinking. Therefore, it was felt that an evidence-based randomized trial of MI would be an ideally suited intervention to reduce underage drinking in this community, particularly for drinking behaviors that others, but not necessarily the youth themselves, wanted to change.

The Institutional Review Board (IRB) required that we enroll participants who had not had a lifetime drink as well as those that had one or more lifetime drinks. The a priori hypotheses of this study were: 1) that MI would be more effective than PE in reducing and preventing underage drinking; 2) that MI would be more effective than PE in reducing drinking in participants who were drinking pre-intervention than in preventing drinking in those who were not drinking pre-intervention and 3) that MI would be more effective in boys than in girls because we anticipated that more boys would have begun drinking at pre-intervention than girls.

## 2. Methods

This study was conducted as part of an ongoing collaboration among an AI community health center, the Southern California Tribal Health

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