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Do therapist behaviors differ with Hispanic youth? A brief look at within-session therapist behaviors and youth treatment response

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Abstract

Brief addiction treatments, including motivational interviewing (MI), have shown promise with youth. One under-examined factor in this equation is the role of therapist behaviors. We therefore sought to assess whether and how therapist behaviors differ for Hispanic versus non-Hispanic youth and how that may be related to treatment outcome. With 80 substance-using adolescents (M age = 16 years; 65% male; 59% Hispanic; 41% non-Hispanic) we examined the relationship between youth ethnicity and therapist behaviors across two brief treatments (MI and Alcohol/ Marijuana Education; AME). We then explored relationships to youth three-month treatment response across four target outcomes: binge drinking days, alcohol-related problems, marijuana use days, and marijuana-related problems. In this study, therapists showed significantly more MI skills within the MI condition and more didactic skills in the AME condition. With respect to youth ethnicity, across both conditions (MI and AME), therapists used less MI skills with Hispanic youth. Contrary to expectations, therapists' use of MI skills was not connected to poorer outcomes for Hispanic youth across the board (e.g., for binge drinking days, marijuana use days, or marijuana-related problems). Rather, for Hispanic youth, therapists' use of lower MI skills was only related to poorer treatment outcomes in the context of alcohol-related problems. The observed relationships highlight the importance of investigating salient treatment interactions between therapist factors and youth ethnicity to guide improvements in youth treatment response.

Keywords

adolescents; Hispanic; motivational interviewing; substance use; therapists

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Introduction

At least 16% of the United States (U.S.) currently identifies as Hispanic (Ennis, Rios-Vargas, & Albert, 2011), and is expected to grow to 25% within 15 years (DeNavas-Walt, Proctor, & Lee, 2006). Despite the significant presence of Hispanic Americans in the U.S., major health disparities still exist (Carter-Pokras & Baquet, 2002) in the treatment of addiction (Lowman & Le Fauve, 2003). Along with high rates of alcohol and marijuana use, compared with non-Hispanic peers, Hispanic youth have greater consequences, including drinking and driving, engaging in substance use prior to sex, and violence (CDC, 2014). These issues are more pronounced among justice-involved youth, who often have substance use disorders (SUD) (Aarons, Brown, Hough, Garland, & Wood, 2001), but do not receive (Garland et al., 2005), engage, or complete indicated addiction treatment (Alegria, Carson, Goncalves, & Keefe, 2011).

A number of brief interventions, including motivational interviewing (MI; Miller & Rollnick, 2013) have been suggested as a good match for Hispanic individuals (Miller, Villanueva, Tonigan, & Cuzmar, 2007). Yet, only a few have examined adolescent addiction treatment mechanisms and outcomes for Hispanic youth (e.g., Becker et al., 2012; Clair et al., 2013). This is important because while some argue that MI is ideally suited for Hispanic youth, it is equally possible that the approach of MI may be a poor fit (Feldstein Ewing, Wray, Mead, & Adams, 2012). Specifically, aspects of MI might be culturally incongruent. For example, in terms of MI spirit, MI therapists ideally operate "on the same level" as their clients. Yet, Hispanic youth may not want a provider who behaves as an equal. Rather, Hispanic youth may expect and prefer to receive help from someone in an expert role (e.g., Lopez Viets, 2007).

Studies examining therapist behavior in adolescent MI are emerging (e.g., Barnett, Moyers, et al., 2014; Barnett, Spruijt-Metz, et al., 2014; D'Amico et al., 2012; McCambridge, Day, Thomas, & Strang, 2011). Yet few have contrasted therapist behaviors within MI and an active comparison. Moreover, no publications have examined youth ethnicity in this equation.

Thus, in terms of our guiding rationale, we sought to conduct exploratory analyses to evaluate the potential relationships between youth ethnicity, therapist behaviors, and treatment outcomes. First, we predicted that in the MI condition, therapists would show more MI skills, and in the active comparison condition, therapists would show more didactic skills. Second, following the literature, which shows that MI consistent therapist skills are positively related to treatment outcomes for adolescents through adults (e.g., Barnett, Moyers, et al., 2014; Gaume, Magill, et al., 2014; Moyers, Martin, Houck, Christopher, & Tonigan, 2009), we predicted that therapists' greater use of MI skills would relate to better treatment response (less substance use frequency and related problems) for both Hispanic and non-Hispanic youth at the three-month follow-up. Third, consistent with prior theoretical work, which suggests that different factors may be salient to Hispanic youth's treatment response, thus necessitating examination of therapeutic processes and outcomes for Hispanic youth (Feldstein Ewing et al., 2012; Salvador, DeVargas, & Feldstein Ewing,

in press), we hypothesized that therapists would show greater MI skills with non-Hispanic versus Hispanic youth.

Methods

Participants

This study was part of a larger randomized controlled trial evaluating health disparities (NIAAA R01 AA017878; PI: Feldstein Ewing). Data for the parent trial, including study flow and overall 3- and 6-month treatment outcomes can be found at (Feldstein Ewing, Schmiege, Tohen, & Bryan, under review). To evaluate our specific aims herein, all analyses were focused on our fidelity-monitoring sample (N=80).

Following other adolescent MI treatment studies (e.g., D'Amico, Hunter, Miles, Ewing, & Osilla, 2013; Walker et al., 2011), participants were non-treatment seeking youth invited to participate in a study aimed at improving adolescent health. Research staff introduced the project at local juvenile justice programs, informing youth that participation was voluntary and separate from their justice involvement. Youth completed informed written assent. As with other justice studies (e.g., Schmiege, Broaddus, Levin, & Bryan, 2009), audio-recorded informed parent/guardian consent was obtained via telephone following youth assent. All procedures were conducted with institutional review board approval and a Certificate of Confidentiality.

To participate, youth had to be 13–18 years, currently involved with a justice program, and a regular substance user, defined as using alcohol and/or marijuana at least once per month for the past six months (e.g., Chung & Martin, 2001). Exclusion criteria included active psychosis, mental retardation, neurodevelopmental disorder, and/or severe medical illness. All eligible youth were invited to participate and were compensated $70 for this component.

Procedures

All youth completed a baseline assessment and were randomized via random numbers table to receive time-matched individual sessions of MI or alcohol and marijuana education (AME). All youth received two, one-hour sessions, spaced one week apart to provide youth an opportunity to practice newly acquired skills in the intervening weekend. All youth in this project (100%) attended both treatment sessions. All sessions were digitally recorded with youth permission. There were no differences in the representation of youth ethnicity across conditions.

Baseline assessment session—Participants completed questionnaires via Audio Computer-Assisted Self-Interviewing (ACASI) technology on individual laptops (Williams et al., 2000). Measures for this study included demographics, alcohol-related problems (Rutgers Alcohol Problems Index; RAPI; White & Labouvie, 1989), marijuana-related problems (Marijuana-Related Problems; MJP; Johnson & White, 1995), ethnic identity (Multi-Group Ethnic Identity Measure; MEIM; Phinney, 1992) and level of acculturation (Hispanic youth only) (Caetano, 1987). Current frequency of binge drinking (binge drinking days) and marijuana use (marijuana use days) were evaluated via Timeline Follow-Back (TLFB; Sobell & Sobell, 1992).

Intervention sessions—In treatment trials, one must weigh the risk of assigning different therapists to different conditions, which may result in treatment effects, versus assigning the same therapists to conduct all conditions, which may result in therapist effects (Kim, Wampold, & Bolt, 2006; Walters, 2010). We therefore used the same therapists in both conditions, with extensive training, careful monitoring, and weekly supervision, to achieve condition distinction.

Motivational Interviewing (MI): All MI sessions followed a manualized intervention (Feldstein Ewing, Bryan, & Hutchison, 2008), which focused on reducing youths' alcohol and marijuana use. Integrity and fidelity were monitored and maintained by the first author, who reviewed randomly-selected sessions with therapists during supervision. For the MI, therapists were trained to be MI-consistent, using reflections and affirmations to show empathy, support self-efficacy, and reduce resistance.

Alcohol and Marijuana Education (AME): The AME was designed to mirror standard drug and alcohol information provided in justice settings. This manualized intervention (Feldstein Ewing, Wray, Bryan, & Hutchison, 2009) was matched for time and therapist contact to the MI. Procedures to ensure integrity and fidelity paralleled the MI condition. In the AME, therapists were instructed to be didactic, providing 1:1 tutoring in the content areas of alcohol and marijuana. Therapists invited youth to ask questions about presented information. In the AME, therapists did not elicit or reflect youth perspectives.

Three month behavioral follow-up—Follow-ups were completed in person at an easy location for youth (e.g., research center, Starbucks). As with the baseline, youth reported their past month alcohol- and marijuana-related problems and quantity/frequency of substance use.

Coding intervention content—To evaluate therapist behaviors (Moyers, Martin, Manuel, Hendrickson, & Miller, 2005), 15% of the parent trial was randomly selected by an expert third party (third author) using the Motivational Interviewing Treatment Integrity system (MITI 3.1.1). In contrast to some of the more complex and involved measures of therapist performance, the MITI contains two measures: overall global ratings and behavior counts. The global ratings are scaled from 1 (low) to 7 (high) and reflect the rater's judgment of the therapist's performance in these domains: (1) Empathy, attempting to understand the client's perspective, (2) Direction, maintaining focus during the session, rather than drifting aimlessly, (3) Collaboration, sharing power with the client, rather than assuming an expert role, (4) Evocation, eliciting the client's motivation to change, rather than providing it, and (5) Autonomy support, recognizing and supporting the client's ability to make choices. Collaboration, Evocation, and Autonomy support are also averaged to give a global evaluation of (6) MI spirit. Behavior counts are simple running tallies of the therapist's behavior in these areas: (1) Giving information, (2) MI-adherent, supporting the client, emphasizing the client's ability to choose, affirming the client, (3) MI non-adherent, confronting the client, giving advice without permission, giving commands, (4) Closed Questions, (5) Open Questions, (6) Simple Reflections, and (7) Complex reflections. Raters randomly-selected and evaluated 20-minute segments from each selected tape with separate

passes for global ratings and behavior counts; 20% were independently double-coded for inter-rater reliability (using intra-class correlations, ICC; Table 2). ICCs for global scores and behavior counts ranged from .66 to .96, with most (83%) in the excellent range, as defined by Cicchetti and Sparrow (1981). ICC was not computed for <u>Direction</u>, due to perfect agreement.

Analysis plan

Hypothesis 1—We began by comparing therapists' MI behaviors in the MI condition versus therapists' AME behaviors within the AME. While this may be viewed as a simple validation check, therapists often behave the same across different conditions (Miller & Moyers, 2014). Thus, this contrast offers critical information as we disentangle what makes treatment work with underexamined populations (Gaume, McCambridge, Bertholet, & Daeppen, 2014).

To test Hypothesis 2 and 3, we included both conditions (MI and AME) to power comparisons within this small sample (N=80). Consonant with the Aim of Hypothesis 2, we make the case that controlling for condition is theoretically and empirically less important in this comparison, as we were curious which therapist behaviors drive outcomes for youth across both conditions (MI and AME) (Miller & Moyers, 2014). Consonant with the Aim of Hypothesis 3, we controlled for treatment condition in that analysis. Across both analyses, global ratings were normally distributed, and tested with ordinary least square regressions. Behavior counts and count outcomes were right skewed, and tested with negative binomial regressions.

Hypothesis 2—To assess whether greater MI skills were associated with better youth treatment outcomes, we used negative binomial regressions. For each treatment outcome, we evaluated the effect of the therapist behavior sensitive to youth ethnicity. We tested models with a behavior X ethnicity interaction term. None were significant, thus we removed the interaction term and only controlled for ethnicity.

Hypothesis 3—To test whether therapists demonstrated more MI skills with non-Hispanic youth versus Hispanic youth, we used univariate analyses to explore the relationship between youth ethnicity and therapist behavior. All models were initially tested with a treatment X ethnicity interaction term. None were significant, thus we removed the interaction term and only controlled for treatment group.

Exploration of Potential Indirect Effects—We detected significant relationships between therapist behaviors and youth ethnicity, and between therapist behaviors and three-month treatment outcomes. To better explore the relationships observed in Hypotheses 2 and 3, we examined the potential indirect effects between youth ethnicity and treatment outcomes (Fig 1). Here, the *a* path was modeled by regressing therapist behaviors on youth ethnicity, while controlling for baseline alcohol-related problems in an ordinary least square regression. The *b* path was modeled by regressing youth alcohol-related problems outcomes on therapist behaviors, while controlling for baseline alcohol-related problems and ethnicity in a negative binomial regression. We calculated indirect effects and bootstrapped bias-

corrected 95% confidence intervals (with 1000 bootstrap replications) using *paramed* (Stata 13.1), which allows testing indirect effects with a negative binomial regression (Valeri & Vanderweele, 2013).

To evaluate possible differences within comparison groups (e.g., Hispanic vs. non-Hispanic youth), we evaluated all Hispanic youth across their level of acculturation and ethnic identity. Despite differences in geographic background, we found no significant differences, and thus retained all youth within this group. For our comparison group, to ensure that our contrast group did not influence study outcomes, we re-ran all analyses with Hispanic youth (n=54) versus Caucasian youth only (n=18; rather than all non-Hispanic youth, n=26). All regression coefficients were similar in magnitude and direction (results available by request). We observed no significant differences, and therefore the full non-Hispanic comparison group was retained.

Results

Participants' ethnicity, socio-demographics, and baseline substance use

This sample was predominantly male (65%), approximately age 16, with a 10th grade education (Table 1). Many (65%) received financial assistance. We had a higher representation of Hispanic (67.5%; Mexican American=33.8%) versus non-Hispanic youth (32.5%). All had high rates of baseline substance use (M=3.35 binge drinking days, M=13.5 cannabis use days) and substance-related problems (M=13.4 alcohol related problems; M=22 cannabis-related problems), with no significant differences between Hispanic and non-Hispanic youth.

Evaluation of Hypothesis 1

Therapists showed significantly higher MI skills in the MI condition and more didactic skills in the AME condition (Table 2). Therapists were equally high for Direction in MI and AME. MI non-adherent behaviors were rare in MI and AME.

Evaluation of Hypothesis 2

We retained 88% of youth (N=71) at the 3-month follow-up. Here, we evaluated which therapist behavior (sensitive to ethnicity) predicted treatment outcomes (Table 3). No therapist behavior influenced treatment response across binge drinking days, cannabis use days, or marijuana-related problems. Yet, MI spirit, Autonomy support, Complex reflections (and at a trend level, Evocation) each predicted alcohol-related problems, with greater therapist skills predicting better adolescent outcomes.

Evaluation of Hypothesis 3

Table 4 describes the models testing the relationship between youth ethnicity and within-session therapist behavior, controlling for treatment group. We observed significant relationships wherein therapists showed lower MI spirit, Autonomy support (and at a trend level, Evocation), and Complex reflections with Hispanic youth.

Exploration of Potential Indirect Effects

As a complement to the prior analyses, we explored each of the four variables for which we found significant (or near-significant) results for Hypotheses 2 and 3. Results indicated significant indirect effects for MI spirit (Estimate=1.11, bootstrapped bias corrected 95% CI [1.00,1.67]) and Autonomy support (Estimate=1.12, bootstrapped bias corrected 95% CI [1.05,1.57]), and an indirect effect close to significance for Evocation (Estimate=1.10, bootstrapped bias corrected 95% CI [0.99,1.65]) and Complex reflections (Estimate=1.19, bootstrapped bias corrected 95% CI [0.99,1.68]). For alcohol-related problems (only), there was an indirect effect wherein therapists showed lower MI skills with Hispanic youth (MI spirit and Autonomy support, and to a lesser degree Evocation and Complex reflections), which in turn, was associated with poorer alcohol-related problems outcomes.

Discussion

Despite emerging work evaluating health disparities in adolescent addiction treatment (Clair et al., 2013; Field, Cochran, & Caetano, 2013), we still lack critical information about the links between therapist behaviors and Hispanic ethnicity. We therefore sought to address this gap by exploring the relationships between therapist behaviors, youth ethnicity, and three-month treatment outcomes across two active treatments, MI and AME.

In this examination, three patterns emerged. First, therapists showed more MI skills in the MI condition and more didactic skills in the AME. These within-session data indicate that careful training, monitoring, and attentive weekly supervision can ensure clinical distinction across modalities (MI and AME). Second, when evaluated collectively (within MI and AME), we found that therapists provided a slightly different pattern of MI skills with Hispanic youth. Specifically, therapists provided Hispanic youth with less MI spirit, Autonomy support, Evocation (trend-level), and Complex reflections. While these four behaviors are important within the MI literature (Miller & Rose, 2009), one of the interesting findings is that these variations in therapist behaviors were *not* connected to poorer outcomes for Hispanic youth across the board. Rather, youth showed comparable treatment response across level of therapist MI skills for binge drinking days, cannabis use days, and marijuana-related problems. In fact, therapists' differential MI skills were *only* important in the context of alcohol-related problems. Third, for alcohol-related problems only, we found indirect effects for four salient within-session therapist behaviors (MI spirit, Autonomy support, Evocation, and Complex reflections). That is, within both MI and AME, therapists were less likely to use these MI skills with Hispanic youth, and this was connected to poorer three-month outcomes for alcohol-related problems.

Importantly, it must be stated that no study involving race/ethnicity can make strong causal claims, as it is impossible to randomly assign this variable. However, these data are compelling in light of recent findings suggesting that MI has stronger effects with racial/ethnic minority populations (Hettema, Steele, & Miller, 2005). In other words, we observed an interplay between *consequences* of alcohol use (more problems at school, work, family) and therapist behaviors, in light of an absence of group differences across binge drinking levels (Caetano, 2003). We suggest that this may represent one piece of the puzzle in disentangling how and why racial/ethnic minority youth continue to show greater substance-

related problems, despite parallel levels of use (Feldstein Ewing, Venner, Mead, & Bryan, 2011). One factor in this equation may be the role of therapist matching (Field & Caetano, 2010; Flicker, Waldron, Turner, Brody, & Hops, 2008). However, only one therapist in this study was Hispanic, thus, we cannot explore this crucial relationship with these data; this is a critical next step.

One possibility is that Hispanic youth bring something to the treatment equation that evokes fewer MI consistent efforts from their therapists. To this end, our findings may reflect the operation of different cultural scripts for Hispanic youth (defined as patterns of social interactions that are predominant within different cultural groups; Triandis, Marin, Lisansky, & Betancourt, 1984). For example, Hispanic youth may desire a power distance with their health providers (Gallo, Penedo, Espinosa de los Monteros, & Arguelles, 2009). Thus, Hispanic youth may work to develop and protect a clinical distance between their provider and themselves (e.g., Lopez Viets, 2007). These youth behaviors may, in turn, elicit a different a different set of therapist responses (Barnett, Spruijt-Metz, et al., 2014). Future work would benefit from examining cultural scripts to see how these factors influence therapeutic interactions.

Finally, these findings indicate the importance of continuing to examine within-session therapist behaviors to see how and why Hispanic youth may respond to different applications of therapist skill. Building upon the mixed literature in youth MI (e.g., Gaume, Magill, et al., 2014; McCambridge et al., 2011), this study suggests that adolescent treatment response across binge-drinking days and marijuana-related behaviors did not seem to be negatively or positively connected to therapists' varying levels of MI skills. Future work must unpack when therapist MI skills matter, in which intervention contexts, and when they may be less clinically relevant.

In terms of clinical implications, these results suggest the relevance of examining therapist skills (MI spirit, Autonomy support, Evocation, and Complex reflections) across intervention modality in treatment outcomes for Hispanic youth. As with the adult literature (Suarez-Morales et al., 2010), this study brings forth more questions than answers. We suggest that these data support the need to actively monitor and evaluate therapist behaviors in clinical settings to deconstruct the differential within-session therapist skills observed here.

Limitations and Future Directions

While this study offers several strengths, including an evaluation of within-session therapist behaviors with Hispanic youth across two active conditions, findings should be interpreted in light of limitations. The sample size was small. Further, as the two treatment groups differed on use of MI skills, treatment group may have confounded the observed relationships; future work with larger sample sizes is requisite to examine how these relationships appear within an MI condition only. Additionally, we cannot make any causal inference, as we cannot randomly assign youth to ethnicity to see how therapists respond. We also did not collect data regarding therapist perceptions of youth ethnicities; future work would benefit from determining how therapist knowledge of youth ethnicity may relate to therapeutic interactions and subsequent treatment outcomes. Together, these data offer one

step toward understanding within-session therapeutic interactions and their relationships with treatment outcomes for Hispanic youth.

Acknowledgments

References

Aarons GA, Brown SA, Hough RL, Garland AF, Wood PA. Prevalence of adolescent substance use disorders across five sectors of care. Journal of the American Academy of Child & Adolescent Psychiatry. 2001; 40(4):419–426. [PubMed: 11314567]

Alegria M, Carson NJ, Goncalves M, Keefe K. Disparities in treatment for substance use disorders and co-occurring disorders for ethnic/racial minority youth. Journal of the American Academy of Child & Adolescent Psychiatry. 2011; 50(1):22–31. [PubMed: 21156267]

Barnett E, Moyers TB, Sussman S, Smith C, Rohrbach LA, Sun P, Spruijt-Metz D. From counselor skill to decreased marijuana use: Does change talk matter? Journal of Substance Abuse Treatment. 2014; 46:498–505. [PubMed: 24462244]

Barnett E, Spruijt-Metz D, Moyers TB, Smith C, Rohrbach LA, Sun P, Sussman S. Bidirectional relationships between client and counselor speech: The importance of reframing. Psychology of Addictive Behaviors. 2014

Becker SJ, Spirito A, Hernandez L, Barnett NP, Eaton CA, Lewander W, Monti PM. Trajectories of adolescent alcohol use after brief treatment in an Emergency Department. Drug and Alcohol Dependence. 2012; 125(1–2):103–109. [PubMed: 22560729]

Caetano R. Acculturation and drinking patterns among U.S. Hispanics. British Journal of Addiction. 1987; 82:789–799. [PubMed: 3311103]

Caetano R. Alcohol-related health disparities and treatment- related epidemiological findings among Whites, Blacks, and Hispanics in the United States. Alcoholism: Clinical and Experimental Research. 2003; 27(8):1337–1339.

Carter-Pokras O, Baquet C. What is a "health disparity"? Public Health Rep. 2002; 117(5):426–434. [PubMed: 12500958]

CDC. MMWR 2014. 2014

Chung T, Martin CS. Classification and course of alcohol problems among adolescents in addictions treatment programs. Alcoholism: Clinical and Experimental Research. 2001; 25(12):1734–1742.

Cicchetti DV, Sparrow SA. Developing criteria for establishing interrater reliability of specific items: Applications to assessment of adaptive behavior. American Journal of Mental Deficiency. 1981; 86:127–137. [PubMed: 7315877]

Clair M, Stein LA, Soenksen S, Martin RA, Lebeau R, Golembeske C. Ethnicity as a moderator of motivational interviewing for incarcerated adolescents after release. Journal of Substance Abuse Treatment. 2013; 45:370–375. [PubMed: 23810265]

D'Amico EJ, Hunter SB, Miles JN, Ewing BA, Osilla KC. A randomized controlled trial of a group motivational interviewing intervention for adolescents with a first time alcohol or drug offense. Journal of Substance Abuse Treatment. 2013; 45:400–408. [PubMed: 23891459]

D'Amico EJ, Osilla KC, Miles JN, Ewing B, Sullivan K, Katz K, Hunter SB. Assessing motivational interviewing integrity for group interventions with adolescents. Psychology of Addictive Behaviors. 2012; 26:994–1000. [PubMed: 22642853]

DeNavas-Walt, C.; Proctor, BD.; Lee, CH. US Census Bureau, Current Population Reports, P60-231, Income Poverty, and Health Insurance Coverage in the United States: 2005. Washington, D.C: U.S. Government Printing Office; 2006.

Ennis, SR.; Rios-Vargas, M.; Albert, NG. The Hispanic population: 2010. (C2010BR-04). United States Census Bureau; 2011.

Feldstein Ewing, SW.; Bryan, AD.; Hutchison, KE. The Adolescent Substance Use Check-Up: Intervention Manual. Albuquerque, NM: 2008.

Feldstein Ewing SW, Schmiege S, Tohen M, Bryan AD. A model of motivational interviewing with Hispanic youth: Randomized clinical trial in addiction treatment. under review.

Feldstein Ewing SW, Venner KL, Mead HM, Bryan AD. Exploring racial/ethnic differences in substance use: A preliminary theory-based investigation with juvenile justice-involved youth. BMC Pediatrics. 2011; 11(71)

Feldstein Ewing, SW.; Wray, A.; Bryan, AD.; Hutchison, KE. Adolescent Alcohol and Marijuana Education Intervention Manual. Mind Research Network; 2009.

Feldstein Ewing SW, Wray AM, Mead HM, Adams SK. Two approaches to tailoring treatment for cultural minority youth. Journal of Substance Abuse Treatment. 2012; 43:190–213. [PubMed: 22301086]

Field CA, Caetano R. The role of ethnic meatching between patient and provider on the effectiveness of brief alcohol interventions with Hispanics. Alcoholism: Clinical and Experimental Research. 2010; 34:262–271.

Field CA, Cochran G, Caetano R. Treatment utilization and unmet treatment need among Hispanics following brief interventions. Alcoholism: Clinical and Experimental Research. 2013; 37:300–307.

Flicker SM, Waldron HB, Turner CW, Brody JL, Hops H. Ethnic matching and treatment outcome with Hispanic and Anglo substance-abusing adolescents in family therapy. Journal of Family Psychology. 2008; 22(3):439–447. [PubMed: 18540772]

Gallo LC, Penedo FJ, Espinosa de los Monteros K, Arguelles W. Resiliency in the face of disadvantage: do Hispanic cultural characteristics protect health outcomes? Journal of Personality. 2009; 77(6):1707–1746. [PubMed: 19796063]

Garland AF, Lau AS, Yeh M, McCabe KM, Hough RL, Landsverk JA. Racial and ethnic differences in utilization of mental health services among high-risk youths. American Journal of Psychiatry. 2005; 162:1336–1343. [PubMed: 15994717]

Gaume J, Magill M, Longabaugh R, Bertholet N, Gmel G, Daeppen JB. Influence of Counselor Characteristics and Behaviors on the Efficacy of a Brief Motivational Intervention for Heavy Drinking in Young Men-A Randomized Controlled Trial. Alcoholism: Clinical and Experimental Research. 2014; 38:2138–2147.

Gaume J, McCambridge J, Bertholet N, Daeppen JB. Mechanisms of action of brief alcohol interventions remain largely unknown-a narrative review. Frontiers in Psychiatry. 201410.3389/fpsyt.2014.00108

Hettema J, Steele J, Miller WR. Motivational Interviewing. Annual Review of Clinical Psychology. 2005; 1(1):91–111.

Johnson V, White HR. The relationship between work-specific and generalized stress and alcohol and marijuana use. Journal of Drug Issues. 1995; 25:237–251.

Kim DM, Wampold BE, Bolt DM. Therapist effects in psychotherapy: A random-effects modeling of the National Institutes of Health Mental Health Treatment of Depression Collaborative Research Program data. Psychotherapy Research. 2006; 16(2):161–172.

Lopez Viets V. CRAFT: Helping Latino families concerned about a loved one. Alcoholism Treatment Quarterly. 2007; 25(4):111–123.

Lowman C, Le Fauve CE. Health disparities and the relationship between race, ethnicity, and substance abuse treatment outcomes. Alcoholism: Clinical and Experimental Research. 2003; 27(8):1324–1326.

McCambridge J, Day M, Thomas BA, Strang J. Fidelity to motivational interviewing and subsequent marijuana cessation among adolescents. Addictive Behaviors. 2011; 36:749–754. [PubMed: 21440994]

Miller WR, Moyers TB. The forest and the trees: Relational and specific factors in addiction treatment. Addiction. 2014

Miller, WR.; Rollnick, S. Motivational Interviewing: Helping People Change, 3rd Edition. New York: Guilford Press; 2013.

Miller WR, Rose GS. Toward a theory of motivational interviewing. American Psychologist. 2009; 64(6):527–537. [PubMed: 19739882]

Miller WR, Villanueva M, Tonigan JS, Cuzmar I. Are special treatments needed for special populations? Alcoholism Treatment Quarterly. 2007; 25(4):63–78.

Moyers TB, Martin T, Houck JM, Christopher PJ, Tonigan JS. From in-session behaviors to drinking outcomes: A causal chain for motivational interviewing. Journal of Consulting and Clinical Psychology. 2009; 77(6):1113–1124. [PubMed: 19968387]

Moyers TB, Martin T, Manuel JK, Hendrickson SM, Miller WR. Assessing competence in the use of motivational interviewing. Journal of Substance Abuse Treatment. 2005; 28(1):19–26. [PubMed: 15723728]

Phinney JS. The Multigroup Ethnic Identity Measure: A new scale for use with adolescents and young adults from diverse groups. Journal of Adolescent Research. 1992; 7:156–176.

Salvador JG, DeVargas EC, Feldstein Ewing SW. Who are Hispanic Youth? Consideration for adolescent addiction clinical research and treatment. Alcoholism Treatment Quarterly. in press.

Schmiege SJ, Broaddus MR, Levin ME, Bryan AD. Randomized trial of group interventions to reduce HIV/STD risk and change theoretical mediators among detained adolescents. Journal of Consulting and Clinical Psychology. 2009; 77(1):38–50. [PubMed: 19170452]

Sobell, LC.; Sobell, MB. Time-line follow-back: A technique for assessing self-reported alcohol consumption. In: Litten, RZ.; Allen, JP., editors. Measuring alcohol consumption. Totowa, N.J: Humana Press; 1992. p. 73-98.

Suarez-Morales L, Martino S, Bedregal L, McCabe BE, Cuzmar IY, Paris M, Szapocznik J. Do therapist cultural characteristics influence the outcomes of substance abuse treatment for Spanish-speaking adults? Cultural Diversity and Ethnic Minority Psychology. 2010; 16:199–205. [PubMed: 20438158]

Triandis HC, Marin G, Lisansky J, Betancourt H. Simpatia as a cultural script of Hispanics. Journal of Personality and Social Psychology. 1984; 47(6):1363–1375.

Valeri L, Vanderweele TJ. Mediation analysis allowing for exposure-mediator interactions and causal interpretation: theoretical assumptions and implementation with SAS and SPSS macros. Psychol Methods. 2013; 18(2):137–150.10.1037/a0031034 [PubMed: 23379553]

Walker DD, Stephens R, Roffman R, DeMarce J, Lozano B, Towe S, Berg B. Randomized controlled trial of motivational enhancement therapy with nontreatment-seeking adolescent cannabis users: A further test of the teen marijuana check-up. Psychology of Addictive Behaviors. 2011

Walters SJ. Therapist effects in randomised controlled trials: What to do about them. Journal of Clinical Nursing. 2010; 19(7–8):1102–1112. [PubMed: 20492055]

White HR, Labouvie EW. Towards the assessment of adolescent problem drinking. Journal of Studies on Alcohol. 1989; 50:30–37. [PubMed: 2927120]

Williams ML, Freeman RC, Bowen AM, Zhao Z, Elmwood WN, Gordon C, Signes CA. A comparison of the reliability of self-reported drug use and sexual behaviors using computer-assisted versus face-to-face interviewing. AIDS Education and Prevention. 2000; 12:199–213. [PubMed: 10926124]
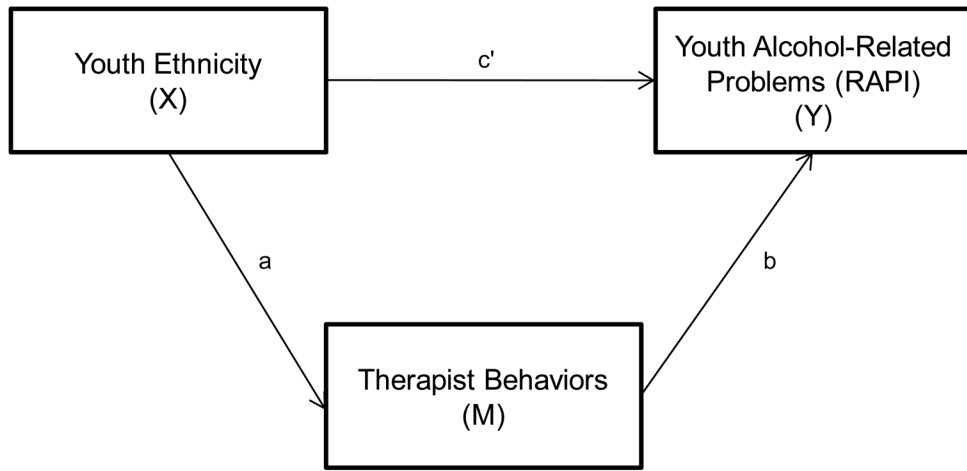
Figure 1.
Model of indirect effects

Table 1

Participants' ethnicity, other socio-demographics, and baseline substance use

Measure	Hispanic N=54, 67.5%		Non-Hispanic N=26, 32.5%	
Ethnicity				
Mexican American, N/%	27	33.8	.	.
Spanish, N/%	20	25.0	.	.
Central American, N/%	1	1.3	.	.
South American, N/%	1	1.3	.	.
American Indian/Alaska Native, N/%	5	6.3	.	.
Caucasian, N/%	.	.	18	22.5
African-American, N/%	.	.	4	5.0
Asian or Pacific Islander, N/%	.	.	2	2.5
Other, N/%	.	.	2	2.5
Ethnic identity (MEIM score), mean/SD	2.8[***]	0.5	2.4	0.5
Socio-demographics				
Gender: Male, N/%	37	68.5	15	57.7
Age, mean/SD	16.1	1.5	16.3	1.3
Highest grade completed, mean/SD	9.4	1.4	10.1	1.7
Family with financial assistance (food stamps), N/%	37	69.8	15	57.7
Substance use				
Age of first alcohol use, mean/SD	12.5	2.4	13.2	2.0
Age of first cannabis use, mean/SD	11.6	2.1	12.3	1.5
Binge drinking days (last month), mean/SD	2.7	3.5	4.0	5.1
Cannabis use days (last month), mean/SD	15.2	10.3	11.8	11.0
Alcohol related problems (RAPI score), mean/SD	13.4	11.7	13.3	12.0
Cannabis related problems (MJP score), mean/SD	22.3	17.6	21.7	22.2

Note. MEIM = Multigroup Ethnic Identity Measure, 12 items, possible range 12–48; RAPI = Rutgers Alcohol Problem Index, 23 items, possible range 0–92; MJP = Marijuana Problems, 29 items, possible range 0–116

[***] Significant difference between groups (p=0.001, Mann-Whitney U test)

Table 2

Therapist behaviors and inter-rater reliability

Behavior	MI (n=45)	AME (n=35)	Reliability	
	Mean (SD)	Mean (SD)	α	ICC
Global scores (1–5 scale)				
Empathy	4.29 (0.46) ***	1.20 (0.47)	.914	.853^^^
Direction	4.89 (0.32)	4.26 (1.54)	#	#
MI Spirit	4.39 (0.46) ***	1.74 (0.41)	.977	.941^^^
Autonomy Support	4.29 (0.69) ***	2.66 (0.76)	.850	.744^^
Collaboration	4.62 (0.53) ***	1.26 (0.44)	.947	.859^^^
Evocation	4.24 (0.53) ***	1.31 (0.47)	.963	.892^^^
Behavior counts (frequency)				
MI Adherent	4.73 (3.26) ***	1.86 (1.48)	.796	.597^
MI Non-adherent	0.02 (0.15)	0.09 (0.28)	.808	.656^^
Give information	0.71 (1.34) ***	4.66 (4.73)	.983	.970^^^
Closed questions	1.00 (1.21) ***	5.11 (4.26)	.909	.845^^^
Open questions	8.80 (6.00) ***	3.63 (3.39)	.978	.959^^^
Simple reflections	10.53 (5.69) ***	1.43 (1.80)	.915	.854^^^
Complex reflections	23.36 (7.76) ***	0.91 (1.62)	.978	.961^^^

Note. MI = Motivational interviewing; AME = Alcohol/Marijuana Education. Descriptive statistics computed on the full sample (N=80). Intra-class correlations (ICC) computed as Shrout & Fleiss model (3,1) on N=12 double-coded sample.

*** Significant difference between groups (Mann-Whitney U test)

Zero variance on this item, neither alpha nor ICC computable

^ Fair reliability;

^^ Good reliability;

^^^ Excellent reliability

Table 3

Therapist Behaviors and Youth Three-Month Treatment Outcomes

	IRR	S.E.	z	p	[95% CI]	
Outcome: Binge Drinking Days (N=62)						
MI Spirit	1.05	0.13	0.42	0.67	0.83	1.34
Autonomy support	0.99	0.16	−0.05	0.96	0.72	1.37
Evocation	1.02	0.12	0.18	0.86	0.82	1.28
Complex Reflections	1.01	0.01	0.63	0.53	0.98	1.04
Outcome: Alcohol-Related Problems (N=56)						
MI Spirit	0.81	0.08	−2.08	0.04	0.66	0.99
Autonomy support	0.72	0.10	−2.41	0.02	0.55	0.94
Evocation	0.83	0.08	−1.92	0.06	0.68	1.00
Complex Reflections	0.98	0.01	−1.93	0.05	0.96	1.00
Outcome: Cannabis Use Days (N=62)						
MI Spirit	0.81	0.14	−1.26	0.21	0.58	1.13
Autonomy support	0.82	0.20	−0.81	0.42	0.50	1.33
Evocation	0.82	0.12	−1.32	0.19	0.61	1.10
Complex Reflections	0.98	0.02	−1.15	0.25	0.95	1.01
Outcome: Marijuana-Related Problems (N=52)						
MI Spirit	0.90	0.09	−1.07	0.28	0.74	1.09
Autonomy support	0.89	0.12	−0.91	0.36	0.69	1.15
Evocation	1.13	0.35	0.41	0.68	0.62	2.08
Complex Reflections	0.99	0.01	−1.44	0.15	0.97	1.01

Notes. 16 negative binomial regression models, controlling for youth ethnicity and the baseline measure of the outcome variable.

IRR: incidence rate ratio, SE: standard error, CI: confidence interval, MI: motivational interviewing.

Table 4

Youth Ethnicity and Therapist Behaviors

Outcome	B*	SE	t	p	[95% CI]	
Empathy	−0.08	0.11	−0.71	0.48	−0.30	0.14
Direction	−0.30	0.25	−1.20	0.24	−0.79	0.20
MI Spirit	−0.25	0.10	−2.47	0.02	−0.46	−0.05
Autonomy Support	−0.39	0.17	−2.30	0.02	−0.73	−0.05
Collaboration	−0.14	0.12	−1.19	0.24	−0.38	0.09
Evocation	−0.23	0.12	−1.90	0.06	−0.46	0.01

Outcome	IRR*	SE	z	p	[95% CI]	
MI-Adherent	1.02	0.18	0.13	0.90	0.72	1.45
Give Information	0.94	0.31	−0.18	0.86	0.50	1.79
Closed Questions	0.73	0.17	−1.34	0.18	0.46	1.16
Open Questions	0.76	0.14	−1.45	0.15	0.52	1.10
Simple Reflections	0.95	0.16	−0.31	0.75	0.68	1.33
Complex Reflections	0.79	0.08	−2.44	0.02	0.66	0.96

Notes. Youth ethnicity is coded 1 for Hispanic and compared to 0 for non-Hispanic (reference group). All models controlled for treatment group (AME vs. MI).

*
Global scores are tested in linear regression models, and behavior counts are tested in negative binomial regression models.

IRR: incidence rate ratio, SE: standard error, CI: confidence interval, MI: motivational interviewing.

N=80.