



From counselor skill to decreased marijuana use: Does change talk matter? ☆

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ABSTRACT

Client language about change, or change talk, is hypothesized to mediate the relationship between counselor fidelity in motivational interviewing (MI) and drug use outcomes. To investigate this causal chain, this study used data from an MI booster delivered to alternative high school students immediately after a universal classroom-based drug abuse prevention program. One hundred and seventy audio-recorded MI sessions about substance use were coded using the motivational interviewing skill code 2.5. Structural equation modeling showed that percentage of change talk on the part of the client mediated three of the four relationships between MI quality indicators and marijuana outcomes, while percentage of reflections of change talk showed a main effect of counselor skill on marijuana outcomes. Findings support change talk as an active ingredient of MI and provide new empirical support for the micro-skills of MI.

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1. Introduction

Motivational interviewing (MI), a client-centered counseling style used for the exploration of ambivalence about behavior change (Miller & Rollnick, 2002), has been identified as a promising intervention for adolescent substance use treatment (Macgowan & Engle, 2010) and appropriate for addressing a range of substances across a variety of settings (Barnett, Sussman, Smith, Rohrbach, & Spruijt-Metz, 2012; Jensen et al., 2011). MI also has a well-specified technical model, whereby counselor behaviors or skills (X) are expected to promote client language predictive of change or “change talk” (M), and this language influences outcomes (Y; see Fig. 1; adapted from Miller & Rose, 2009). A growing body of evidence exists to support this hypothesized causal mechanism (Moyers, Martin, Houck, Christopher, & Tonigan, 2009; Pirlott, Kisbu-Sakarya, DeFrancesco, Elliot, & MacKinnon, 2012).

One issue in measuring causal models in MI concerns how this method is defined. The counselor skills within MI are commonly measured using objective behavioral rating schema designed to assess MI sessions (Houck, Moyers, Miller, Glynn, and Halgren (2013). The instruments measure the micro-skills of MI by categorizing counselor statements as open or closed questions, complex or simple reflections.

They further create composite measures of counselor speech that demonstrates adherence to the “way of being” prescribed in MI. MI consistent behaviors (MICO) include instances of asking permission before giving advice or making suggestions, offering support, affirming, emphasizing personal choice and control, and sometimes, depending upon the measurement instrument used, may include open questions and reflections. MI inconsistent behaviors (MIIN) include instances of confronting, warning, and giving advice without permission and sometimes closed questions.

To date much of the evidence for a causal path or mediation has been shown using MICO as the predictor (Moyers et al., 2009; Pirlott et al., 2012; Vader, Walters, Prabhu, Houck, & Field, 2010). Because MICO is a composite variable, none of the studies provide guidance as to which of the MI micro-skills is the most effective at eliciting change talk. Since counselors must decide which specific skill to employ as a session unfolds, and these choices theoretically influence the direction of the subsequent interactions between the client and counselor, empirical evidence to support choosing one skill over the other could increase both the efficiency and the efficacy of MI.

Current research has shown a relationship between some of these specific skills and treatment outcomes (path c in Fig. 1). Gaume, Gmel, Faouzi, and Daepfen (2009) modeled the unique MI counselor skills separately to predict alcohol use at 12-month follow-up in a study of alcohol-using adults in an emergency department. In so doing, they found significant relationships between complex reflection, the ratio of reflections to questions, and MIIN on outcomes when controlling for client ability language. Similarly, McCambridge, Day, Thomas, and Strang (2011) found a significant relationship between percentage complex reflection and marijuana cessation at 3-months in a sample of youth ages 14–19 attending further education colleges in London.

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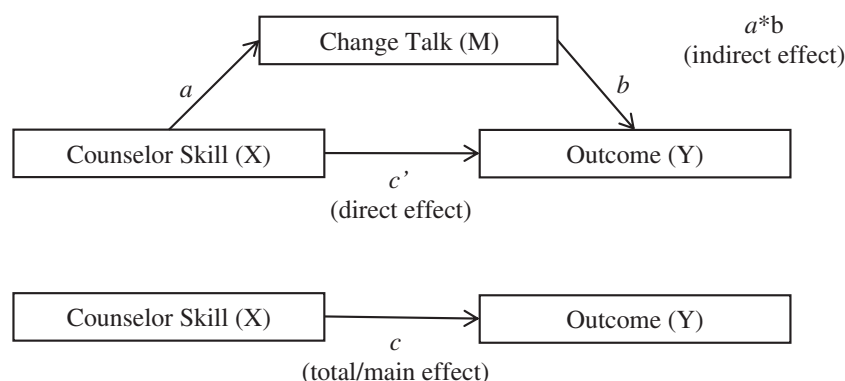


Fig. 1. Proposed mediation model illustrating the hypothesized causal mechanisms of MI being tested in this analysis.

Research has also been done to investigate the relationship between counselor skills and client language about change (i.e. change talk (CT) and counter change talk (CCT); path a in Fig. 1). Sequential analyses have provided probabilistic support that MICO behaviors are more likely to be followed by CT, while MIIN behaviors are more likely to be followed by CCT (Gaume, Bertholet, Faouzi, Gmel, & Daepfen, 2010; Gaume, Gmel, Faouzi, & Daepfen, 2008; Moyers & Martin, 2006; Moyers et al., 2009). Regression analyses of non-sequential count data have similarly shown associations between MICO and the amount of CT (Catley et al., 2006) in MI sessions. Further, experimental manipulations of counselor attempts to elicit CT have resulted in higher levels of CT when counselors intend to evoke it (Glynn & Moyers, 2010). Morgenstern et al. (2012), in a three-condition RCT, found that the directive elements of MI are more instrumental in producing CT than the non-directive elements.

CT has also been shown to predict client outcomes (path b in Fig. 1) in several studies; although, as with MICO, it has been conceptualized and defined slightly differently across research projects. Support has been found for a single category of combined CT to predict alcohol use outcomes (Campbell, Adamson, & Carter, 2010; Gaume, Bertholet, Faouzi, Gmel, & Daepfen, 2013; Moyers et al., 2007) as well as improvements in substance use rates in a sample of homeless youth (Baer, Beadnell, Garrett, Hartzler, & Wells, 2008). Measures of the strength of change talk, rather than its frequency, indicate that the strength of client ability language predicted drinking rates and drug use (Amrhein, Miller, Yahne, Palmer, & Fulcher, 2003; Gaume, Gmel, Faouzi, et al., 2008).

Finally, mediation analyses are important for investigating the mechanisms by which MI works as they aid in formulating a more complete understanding of what is occurring during treatment. Moyers et al. (2009) found significant main effects of MICO on outcomes (path c) and significant indirect effects (path a*b) for MICO, CT and drinks per week at 5-week follow-up after the personalized feedback session. Vader et al. (2010), in a sample of college age students, did not find evidence for significant indirect effects (path a*b) though there were significant relationships between the MICO and CT (path a) and CT and 3-month alcohol use (path b) in the condition receiving personalized feedback. They did not report any information about a main effect for MICO on alcohol use. Morgenstern et al. (2012) conducted a 3-armed randomized controlled trial comparing a standard care control, an MI condition that included personalized feedback and other directive activities to elicit client change talk such as importance/confidence rulers, and a spirit only condition which relied on the non-directive elements of MI. They found significant effects for condition on commitment language (path a) and a trend toward significance for commitment language on alcohol use at 7-day follow-up (path b), but no significant indirect effects and no main effects. Finally, Pirlott et al. (2012), in a study using personalized feedback, investigated the use of MI to encourage

fruit & vegetable consumption. This study showed significant effects for MICO on total CT (path a) and CT on 12-month fruit & vegetable consumption (path b), significant indirect effects (path a*b) and no main effect (path c).

Taken together, these mediation results are inconclusive. While the rigor and design of these studies are solid, any comparison of their results should be made cautiously in light of the fact that they often defined their predictors, mediators, and outcome variables differently, used different versions of similar coding instruments, had widely varying length of follow-ups, and used different statistical tests for mediation. Although it is premature to draw strong conclusions about the MI technical model at this point, the initial evidence supports further investigation into the proposed mediation. Also, it is important to note that alternative mediation models based on the relational elements of the complete theoretical model are not addressed in this study (Miller & Rose, 2009).

1.1. The current study

Using data from the MI condition of a 3-armed randomized controlled trial of a universal classroom-based substance abuse prevention program, we investigated whether the percentage of change talk (PCT) present in an MI session mediates the relationships between specific behaviors prescribed for MI fidelity and marijuana outcomes. As a universal prevention program, outcomes included prevention for non-users at baseline as well as reduction and cessation for adolescents already experienced in drug use. While the main trial addressed additional drug outcomes, marijuana use was the only outcome that showed a trend toward significance ($p = .07$) suggesting that the MI condition performed better than the classroom-only condition (Sussman, Sun, Rohrbach, & Spruijt-Metz, 2012). In this study, we investigated five indicators of MI quality as predictors: 1) the percentage of complex reflections (PCR), 2) the percentage of open questions (POQ), 3) percentage of reflections of change talk (PRCT), 4) percentage of MICO (PMIC) behaviors and 5) the reflections to questions ratio (RQR). This study is the first to conduct mediation analyses on the individual MI skills and the first to do so with structural equation modeling (SEM). In a series of 5 SEM models, we tested our hypotheses that PCT would mediate the relationship between PCR, POQ, RQR, PRCT, PMIC, and marijuana use outcomes.

2. Methods

2.1. Procedure and Sample

The sample used in this study is derived from the 7th randomized trial of Project Toward No Drug Abuse, a classroom-based substance abuse prevention program. Twenty-four alternative high schools in Southern California participated. In total, 2397 students were enrolled

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