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The relationship between counselors' technical skills, clients' in-session verbal responses, and outcome in smoking cessation treatment

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ABSTRACT

Background: The technical component of Motivational Interviewing (MI) posits that client language mediates the relationship between counselor techniques and subsequent client behavioral outcomes. The purpose of this study was to examine this hypothesized technical component of MI in smoking cessation treatment in more depth.

Method: Secondary analysis of 106 first treatment sessions, derived from the Swedish National Tobacco Quitline, and previously rated using the Motivational Interviewing Sequential Code for Observing Process Exchanges (MISCOPE) Coder's Manual and the Motivational Interviewing Treatment Integrity code (MITI) Manual, version 3.1. The outcome measure was self-reported 6-month continuous abstinence at 12-month follow-up.

Results: Sequential analyses indicated that clients were significantly more likely than expected by chance to argue for change (change talk) following MI-consistent behaviors and questions and reflections favoring change. Conversely, clients were more likely to argue against change (sustain talk) following questions and reflections favoring status-quo. Parallel mediation analysis revealed that a counselor technique (reflections of client sustain talk) had an indirect effect on smoking outcome at follow-up through client language mediators.

Conclusions: The study makes a significant contribution to our understanding of how MI works in smoking cessation treatment and adds further empirical support for the hypothesized technical component in MI. The results emphasize the importance of counselors avoiding unintentional reinforcement of sustain talk and underline the need for a greater emphasis on the direction of questions and reflections in MI trainings and fidelity measures.

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1. Introduction

Motivational Interviewing (MI) is an evidence-based counseling style designed to facilitate behavior change (Miller & Rollnick, 2013). The efficacy of MI has been well evaluated in >200 randomized clinical trials and has been found to be effective in reducing a wide range of unhealthy behaviors (Lundahl & Burke, 2009). More recently, a rapidly increasing body of literature has started to investigate how and why MI works. The founders of MI have hypothesized that MI works through a combination of two components: one relational and one technical. The *relational component* refers to the counselor's demonstration of certain relational skills (such as an empathic listening style and demonstration of the underlying spirit of MI), which are predicted to have a direct positive effect on the outcome for clients (Miller & Rose, 2009). These relational skills have also been found to predict outcomes in MI treatment (e.g. Gaume, Gmel, & Daepfen, 2008; Kaplan, Keeley, Engel,

Emsermann, & Brody, 2013; McCambridge, Day, Thomas, & Strang, 2011). The *technical component* refers to a causal chain model where the counselors' use of certain MI technical skills are predicted to increase client language arguing for change ("change talk") and decrease client language arguing against change ("sustain talk"), and this language will, in turn, predict behavior change (Miller & Rose, 2009). Thus, change talk (CT) and sustain talk (ST) are hypothesized to mediate the effect between a counselor's MI technical skills and the client outcome. The mediational effect of client language between counselors' technical skills and outcome has been empirically investigated in at least five studies (Barnett, Moyers, et al., 2014; Gaume et al., 2016; Moyers, Martin, Houck, Christopher, & Tonigan, 2009; Pirlott, Kisbu-Sakarya, Defrancesco, Elliot, & Mackinnon, 2012; Vader, Walters, Prabhu, Houck, & Field, 2010). Moyers, Martin, Houck, et al. (2009) found that CT frequency mediated the relationship between counselor behaviors consistent with MI (MICO; i.e., affirming, permission seeking, support, and emphasizing the client's autonomy) and client drinking outcome. Further empirical support for CT mediating the effect between technical MI skills and outcome was found by Pirlott et al. (2012) in a dietary change intervention and by Barnett, Moyers, et

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al. (2014) in a drug abuse prevention program. Vader et al. (2010) and Gaume et al. (2016) also tried to replicate the results but did not find statistically significant support for MICO to indirectly predict client drinking outcome through CT. In moderated mediation analysis, Gaume et al. (2016) did, however, find that CT strength mediated the relationship between MICO and outcome among experienced MI counselors treating participants with a high use of alcohol.

Additional knowledge regarding the technical component was summarized in a meta-analysis of 16 studies by Magill et al. (2014). Studies analyzing the relationship between counselors' technical skills and client language (i.e., the *a* path of the technical component) and/or the relationship between client language and outcome (i.e., the *b* path of the technical component) were included. The meta-analysis found ST to be a significant predictor of poor outcomes and a composite measure of CT and ST (i.e., the proportion of CT) to be a predictor of better client outcomes (Magill et al., 2014). The counselors' goal is therefore, among others, to evoke CT and suppress ST. How counselors could achieve this most effectively is of great importance. The meta-analysis found MICO to be associated with more CT and counselor behaviors inconsistent with MI (MIIN; e.g., warnings and unsolicited advices, and confrontations) to be associated with more ST and less CT. Unexpectedly, MICO behaviors were found to be associated with more ST, not less as would have been expected according to the technical model (Magill et al., 2014). There may be several possible explanations for this finding. The authors of the meta-analysis argued that MICO may increase both CT and ST across the entire conversation because the techniques are meant to "first heighten, but then resolve, ambivalence regarding change" (Magill et al., 2014, p. 8). An alternative explanation has to do with how these skills have been measured and categorized. In most studies where these relationships have been studied, the counselors' behavior has been categorized according to techniques that adhered to the MI method (i.e., MICO) and techniques that did not (i.e., MIIN), which are two broad categories containing several different technical skills. It is therefore unclear whether certain techniques are more effective than others in evoking CT, and perhaps most important, in softening ST. Some studies (e.g. Apodaca et al., 2016; Catley et al., 2006) have recognized this problem and analyzed the counselor's techniques (e.g., affirmations, open questions, and complex reflections) separately, which is more informative. Some studies (e.g., Barnett, Spruijt-Metz, et al., 2014; Carcone et al., 2013; D'Amico et al., 2015; Moyers, Martin, Houck, et al., 2009; Ostlund, Wadensten, Haggstrom, Lindqvist, & Kristofferzon, 2016) have not only analyzed the techniques separately but also measured the valence or direction of questions and reflections (i.e., whether the question or reflection favored change, status-quo or was neutral about change). For example, Barnett, Spruijt-Metz, et al. (2014) investigated the relationship between the valence of reflections and client language in a MI intervention targeting adolescent substance use. Reflections favoring CT were 11 times more likely to be followed by CT and 71% less likely to be followed by ST, whereas reflections favoring ST were 19 times more likely to be followed by ST and 65% less likely to be followed by CT.

Even though the body of research investigating the technical component in MI is growing, the findings suggest that the validity of this component may depend on different clinical contexts (Magill et al., 2014). In smoking cessation treatment, only one study has analyzed the *a* path (Catley et al., 2006) and one the *b* path (Lindqvist, Forsberg, Enebrink, Andersson, & Rosendahl, 2017). Catley et al. (2006) analyzed the relationship between counselors' technical skills and client language in MI sessions from a controlled clinical trial for adult smokers. They found the frequency of MICO to be positively and significantly associated with CT. MICO were not, however, found to be associated with resist-CT language (including both ST and client resistance, e.g., interrupting). Nor did the authors find support for the frequency of MIIN utterances to be associated with either CT or resist-CT. However, as discussed by the authors, the reliability of resist-CT and MIIN was low which may have affected the results. In addition, the findings are correlational and we

cannot be certain that a particular counselor technique led to a particular client response. More knowledge regarding which counselor techniques smoking cessation counselors should use to evoke CT and suppress ST is needed.

How client language then predicts outcome, i.e. the *b* path of the technical component, has been analyzed by us in a telephone-based smoking cessation treatment setting (Lindqvist et al., 2017). In that study we found the CT subcategory Activation (ACT) to be positively associated with smoking cessation and the combined ST subcategory Desire/Need (D/N) to be negatively predictive of smoking cessation. A borderline significant negative interaction effect was also found between the frequency of ACT and the counselors' relational skills (MI spirit) (Lindqvist et al., 2017).

In the present study we sought to continue the work to examine the active MI components in smoking cessation treatment. This study extends the work of Catley et al. (2006) and Lindqvist et al. (2017) by analyzing the *a* path of the technical component with sequential coded data, and by modelling the whole technical component within a mediational framework. The first aim was to assess the probabilities that clients respond with CT, ST, or neutral talk (F/A) immediately following different types of counseling techniques, and to analyze whether the above probabilities are affected by the counselors' relational skills. The second aim was to assess the indirect effect of counselor skills on smoking outcome through client language, and to test whether counselors' relational skills moderate the mediational effects of client language. Based on theory and the previous research we hypothesized that:

- (1) MICO, double-sided reflections, and questions and reflections favoring change would be more likely than expected by chance to be followed by CT, and less likely to be followed by ST or F/A;
- (2) MIIN and questions and reflections favoring status-quo would be more likely than expected by chance to be followed by ST, and less likely to be followed by CT or F/A;
- (3) Neutral questions, reflections of neutral talk, and "all other" counselor utterances would be more likely than expected by chance to be followed by F/A, and less likely to be followed by CT or ST;
- (4) The above transition probabilities would not be affected by the counselors' relational skills;
- (5) Counselor techniques would have an indirect effect on smoking outcome through CT and ST;
- (6) The indirect effect of counselor techniques on smoking outcome through CT and ST would be conditional upon the level of the counselors' relational skills.

2. Materials and methods

The data were obtained from our previous study that assessed the predictive power of client language in smoking cessation treatment (Lindqvist et al., 2017). The sample included 106 audio-recorded first treatment sessions from the Swedish National Tobacco Quitline (SNTQ). The 106 sessions had been collected from September 2005 until April 2008 and were distributed among 19 SNTQ counselors. In association with a controlled clinical trial at the SNTQ, about half of the 19 counselors included in this study provided SNTQ's standard treatment counseling and about half of the counselors provided the standard treatment with MI added to the treatment protocol. All counselors had received about 30 days of training in tobacco cessation counseling (distributed over 4–6 months) upon employment at the SNTQ. This training was based on a combination of coaching skills, pharmacological consultation and cognitive behavioral therapy techniques. The counselors allocated to deliver the added MI component underwent comprehensive MI training in February 2005. Initial MI training consisted of a two-day workshop comprising a mixture of didactics and practical exercises. The workshop was followed by supervision in groups of four to

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