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Therapist-client interactions in Motivational Interviewing: the effect of therapists' utterances on client change talk

Abstract

Aims Motivational Interviewing is an effective treatment for a range of problematic behaviours, however, previous studies have revealed substantial variability in the effectiveness of therapists. Curiously, the specific behaviours which contribute to positive outcomes have rarely been studied. The aim of this study was to investigate hypothesised relationships between therapists' utterances and clients' change talk by analysing interactions sampled from the United Kingdom Alcohol Treatment Trial (UKATT).

Methods This study comprised secondary analysis of process data and recordings selectively sampled from the UKATT database using sequential analyses of utterance categories, defined using the Motivational Interviewing Sequential Code for Observing Process Exchanges (MI-SCOPE). MI-SCOPE categories were modified on the basis of the existing literature. Observed and expected frequencies of change talk, transitional probabilities, and their significance levels both immediately following therapists' statements (lag one) and after a delay (lag two), were calculated using the Generalised Sequential Querier (GSEQ) programme. Regression analyses were conducted using SPSS 21.0.

Results Open questions and complex reflections were significantly positively associated with preparatory talk at lag one. Complex reflections were significantly positively associated with and predictive of strong client commitment talk at lag two.

Conclusions The findings extend those of previous studies, suggesting that open questions and complex reflections play a central role in preparing clients for, and facilitating strong commitment to, behaviour change.

Short summary In successful alcohol treatment sessions, therapists' open questions and complex reflections are significantly positively associated with client preparatory talk.

Therapists' complex reflections are a strong predictor of client commitment talk, but this is not an immediate effect.

Keywords: Motivational interviewing; alcohol addiction; psychotherapy process

1. Introduction

Motivational Interviewing (MI) is an effective psychological therapy which seeks to strengthen motivation to change via therapists' use of a range of strategies, including open questions and reflective listening (Miller and Rollnick, 2013). It is predicated on the idea that eliciting arguments for change ('change talk') is a precursor to behaviour change (Amrhein et al., 2003; Gaume et al., 2013; Magill et al., 2014; 2018). Change talk can be divided into 'preparatory' and 'commitment' talk, and the latter is a good predictor of change, particularly when strongly expressed (Aharonovich et al., 2008; Amrhein et al., 2003; Hodgins et al., 2009).

Research shows that therapists' use of MI strategies is, as predicted, generally associated with more change talk, whilst behaviours inconsistent with MI are generally associated with utterances in favour of no change ('sustain talk') (Catley, 2006; Gaume et al., 2008; Romano and Peters, 2014; Vader et al., 2010) . However, there is a need for process research which takes into account the potentially complex chain of interaction between therapist and client (Miller and Moyers, 2015) as we start to establish which specific therapist behaviours are likely to be effective (Apodaca et al., 2016).

In line with emerging research on therapist effects (e.g. Baldwin and Imel, 2013), a good place to start is with success. When MI has worked, can any individual therapist behaviours

be identified that are associated with commitment to change in the client? The aim of this study was therefore to investigate which specific therapist utterances were predictive of client change talk, specifically strong commitment talk, in successful MI sessions with problem drinkers.

2. Material & Methods

2.1 Study design and setting

This is a secondary analysis of data from the multi-centre UK Alcohol Treatment Trial (UKATT; UKATT Research Team, 2001; UKATT Research Team., 2005). The recordings were sampled from the Motivational Enhancement Therapy (MET; an adaptation of MI) arm. All sampling and analysis procedures received NHS Research Ethics approval.

2.2 Sampling

Given the focus on interactions that lead to commitment utterances, purposive sampling selected from participants who demonstrated progress between sessions 1 and 2 on the Readiness to Change Questionnaire (RCQ; Heather and Honekopp, 2008). Of those in the MET arm with audio data available, 53 had RCQ scores indicating improved readiness to change. Of these, a sample of 20 with adequate audio quality was randomly selected. A single audio recording from each participant was used (four 1st session, thirteen 2nd sessions and three 3rd sessions).

2.3 Procedure

Coding used the Application for Coding Treatment Interactions (CACTI) software, which allows users to modify the interface and specify the codes assigned (Glynn et al., 2012).

The MI-SCOPE is a detailed coding scheme for therapist and client utterances (Martin et al., 2005). Because of the low expected frequencies of many of the individual codes in our data, an adapted version with broader codes was used in the present study. Client categories were collapsed into 'preparatory talk', 'sustain talk', 'neutral talk', and 'commitment talk', which was further divided into 'strong' and 'weak commitment' (weak rated 1-3; strong 4-5) as per previous research (Amrhein et al., 2003; Aharonovich et al., 2008; Hodgins et al., 2009). For the therapist, 'open questions', 'closed questions' and 'simple reflection' were used, but the codes for 'double sided' and 'amplified reflection', 'reflection of feeling', 'reframe', 'metaphor and simile' and 'continuing the paragraph' were collapsed into 'complex reflection'. Other behaviours associated with MI such as 'affirm' and 'permission seeking' were coded as 'other MI consistent behaviours' (OMICO), and behaviours considered inconsistent with MI such as 'advise' and 'confront' were coded as 'MI inconsistent behaviours' (MIIN). 'Self-disclose', 'fill' and 'structure' were not used, given lack of evidence for their impact on change talk. See supplementary table detailing the categories used in the analysis.

Parsing and coding was conducted by MB, who was trained in use of the MI-SCOPE. Three randomly selected tapes, excluded from the main analysis, were coded by an experienced MI researcher and the inter-rater procedures of Gaume et al. (2008) were followed. Intra-class Correlation Coefficients (ICCs; Shrout and Fleiss, 1979) were interpreted using the criteria of Cicchetti (1994). ICCs were calculated for both transition frequency and code frequency. The ICC for transition frequency was consistently excellent (ICC = .83, .87, .94); the ICC for

code frequency was good to excellent (ICC = .68, .89, .93) indicating reliable parsing and coding had been achieved. A further tape was coded half-way through the study to check for rater drift – ICCs for code and transition frequency were excellent (ICC = .76 and .79).

2.4 Analyses

Sequential analyses

Following the procedure used by Moyers et al. (2009), therapist-client interactions were examined using Generalised Sequential Querier (GSEQ) software. Transition probability matrices were calculated (Bakeman and Quera, 1992), i.e. the probability that client utterance B will occur following therapist utterance A. Both lag 1 and 2 transitions were analysed (lag 2 refers to the time gap between a therapist utterance and the second client utterance that follows it (Bakeman and Gottman, 1997).

Regression Analyses

To investigate whether specific therapist utterances were predictive of strong commitment talk, a linear regression analysis was conducted using SPSS 21.0. This analysis complemented the results of the sequential analyses, strengthening the argument for possible causal links.

Results

Sequential Analyses

In terms of the power of the sequential analysis, Bakeman and Gottman (1997) suggest that the number of observed events in a cell needs to be 5 or greater, otherwise the z-score, and

therefore the p-value calculated for that cell, is negatively affected. In the transition matrix produced by the sequential analysis, 54 of the 60 cells met this criterion, 6 did not (MIIN and both strong and weak commitment talk at lag one; OMICO and both strong and weak commitment talk at lag two, and both MIIN and Closed Questions and strong commitment talk at lag two). Caution therefore needs to be applied to the results involving these transitions.

Sequential analyses for lag 1 and 2 transitions are presented in Table 1. At lag 1, therapists' open questions and complex reflections both demonstrated significant positive associations with preparatory talk. Therapists' closed questions and MIIN utterances showed the reverse pattern. No therapist utterance is significantly associated with either weak or strong commitment talk at this time lag. Whilst we made no predictions regarding clients' sustain and neutral utterances, the analysis shows that complex reflections are negatively associated with sustain talk; both complex reflections and open questions are negatively associated with neutral talk, and; closed questions and MIIN utterances are positively associated with neutral talk.

At lag 2, no clinician utterance is positively associated with preparatory talk. Both OMICO and MIIN utterances demonstrate a significant negative association with clients' preparatory talk. Therapists' complex reflections showed a significant positive association with clients' strong commitment utterances. OMICO utterances demonstrated significant negative associations with clients' weak and strong commitment utterances. Furthermore, OMICO utterances are positively associated with neutral client utterances, whilst open questions are negatively associated.

INSERT TABLE 1 ABOUT HERE

Regression Analyses

As the variable of interest is not the number of participants but the number of utterances of each type - in this case ranging from 438 (closed question utterances) to 813 (complex reflection utterances), the sample size was considered adequate for regression analysis (VanVoorhis and Morgan, 2007).

Therapist utterance categories OMICO, open questions, closed questions, simple reflections and complex reflections were regressed onto clients' strong commitment utterances. Data were pooled across the sample; assumptions of linearity, homoscedasticity and normality were met (Field, 2005). The results are presented in Table 2. The resulting model predicts strong commitment utterances (strong commitment adjusted R^2= .51, F (5, 14) = 4.91, p= <.01). Therapists' complex reflections were a significant predictor of clients' strong commitment utterances (β = .75, t (16) = 3.42, p= <.01). No other categories of therapist behaviour were significant predictors of strong commitment utterances.

INSERT TABLE 2 ABOUT HERE

4. **Discussion**

The results of the sequential analysis found no associations with commitment talk at lag one, but that it was significantly more likely at lag two following complex reflections. Regression analysis showed that complex reflections were the only therapist behaviour to be a significant predictor of clients' strong commitment utterances. The findings suggest that

complex reflections may be a good way to elicit strong commitment to change, but that there is a slight delay before this is acknowledged by the client in an utterance. Perhaps this is not so surprising – complex reflections require complex processing. In fact, these findings show that clients are more likely to respond with a preparatory utterance straight after a complex reflection; perhaps this initial utterance occurs whilst they continue to think about what the therapist has just said. This delay may explain the apparent contradiction with the recent conclusion of Apodaca et al. (2015), who argued that simple reflections are as effective as complex reflections. Therapists may need to be aware of the delayed impact of complex reflections on a client's commitment to change, to avoid inadvertently missing valuable opportunities to promote behaviour change.

Caution is needed in translating these findings into clinical practice. First, the tapes analysed were only from those sessions in which increased readiness to change was achieved. Though it seems sensible to begin the search for effective therapist practices with effective sessions, we do not know how these sessions may have differed from others and a greater number and variety of sessions need to be examined to strengthen this preliminary analysis. Second, the use of sequential analysis with linear regression suggests possible causal relationships in the data but does not prove them. In fact, use of linear regression with non-independent observations may increase the risk of errors and whilst this analysis is not an unusual approach to investigating therapy process, researchers should be aware of the potential problems and solutions in statistical analysis of such data (Holsclaw et al., 2015). Third, even if is true that the associations reflect an element of causality, a reductionist interpretation (e.g. complex reflections are the only therapist behaviour connected with strong commitment talk so other behaviours can be dropped) is to be avoided. A client's decision to change may build up gradually over a session, and it may be that different types of therapist

utterance are important at different times during this process. Put simply, complex reflections might only be effective at eliciting commitment talk because of what has happened previously in that session, and they may not be effective in the absence of other MI consistent behaviours used earlier in the conversation.

Conclusion

In using sequential data, the current study strengthens the argument for the importance of complex reflections in change processes, particularly in eliciting strong client commitment talk. Though further investigation is needed to firmly establish causality, this study adds to previous research by building a picture of the potential power of complex reflections in the context of interactions within a successful session of motivational interviewing.

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Table 1 Lag 1 and lag 2 interactions: transitional probabilities

Initial Clinician Utterance	Subsequent client utterance at lag one					Subsequent client utterance at lag two				
	PREP	W COM	S COM	SUST	NEU	PREP	W COM	S COM	SUST	NEU
SREF	.33	.03	.02	.14	.48	.40	.05	.02	.16	.36
CREF	.42**	.04	.04	.10†	.41††	.43	.03	.04**	.14	.35
OQ	.51**	.04	.03	.14	.28††	.44	.03	.03	.20	.30††
CQ	.22††	.02	.02	.11	.63**	.37	.05	.03	.13	.42
OMICO	.31	.02	.05	.09	.52	.31††	.01†	.00†	.13	.54**
MIIN	.18††	.04	.02	.15	.61**	.24††	.07	.01	.21	.46

Note: Figures represent the probability that if a specific therapist utterance category (row) occurs, the client utterance category (column) will follow.

Key: SREF- simple reflection; CREF- complex reflection; OQ- open question; CQ- closed question; OMICO- other motivational interviewing consistent behaviour; MIIN- motivational interviewing inconsistent behaviour; PREP- preparatory talk; W COM - weak commitment; S COM - strong commitment; SUST- sustain talk; NEU- neutral talk. *- Equal to, or more probable than expected by chance at the 0.05 level; ** -equal to, or more probable than expected by chance at the 0.01 level. †- Equal to, or less probable than expected by chance at the 0.05 level; †† - equal to, or less probable than expected by chance at the 0.01 level.

Table 2 Linear regression analysis for strong commitment utterances

Variable	B	SE B	95% CI	β	t
OMICO	-.10	.05	-.21, .00	-.41	-2.11
SREF	-.09	.15	-.42, .23	-.16	-.61
CREF	.32	.10	.12, .53	.75	3.42**
CQ	-.14	.13	-.42, .13	-.22	-1.12
OQ	.18	.10	-.04, .40	.36	1.73

Key. OMICO- Other Motivational Interviewing Consistent Behaviours; SREF- Simple Reflections; CREF- Complex Reflections; CQ- Closed Questions; OQ- Open Questions. **- Statistically significant at the 0.01 level.

Supplementary table Clinician and client categories from the MI-SCOPE (Martin et al., 2005) as adapted for use in the current study

	Original MI SCOPE categories	**Adapted MI SCOPE categories**
Therapist codes	Open questions	Open questions
	Closed questions	Closed questions
	Simple reflection	Simple reflection
	Double-sided reflection	Complex reflection
	Amplified Reflection	
	Continuing the Paragraph	
	Metaphor and Simile	
	Reflection of Feeling	
	Reframe	
	Affirm	OMICO (Other Motivational Interviewing Consistent Behaviours)
	Emphasise Control	
	Feedback	
	General Information	
	Permission Seeking	
	Raise Concern	
	Support	
	Advise	MIIN (Motivational Interviewing Inconsistent Behaviours)
	Confront	
	Direct	
	Opinion	
	Warn	
	Self-disclose	Not used
	Fill	Not used
	Structure	Not used
Client codes	Commitment talk in favour of change	Weak commitment talk
		Strong commitment talk
	Desire to change	Preparatory talk
	Ability to change	
	Reason to change	

	Need to change	
	Taking steps	
	Other talk for change	
	Commitment to status quo	Sustain talk
	Desire in favour of status quo	
	Ability in favour of status quo	
	Reasons in favour of status quo	
	Need in favour of status quo	
	Taking steps in favour of status quo	
	Neutral/Follow	Neutral
	Ask	