Integrating Motivational Interviewing with CBT for Generalized Anxiety Disorder: Direct and Indirect Effects on Interpersonal Outcomes

Integrating Responsive Motivational Interviewing with CBT for Generalized Anxiety Disorder: Direct and Indirect Effects on Interpersonal Outcomes

A Thesis Presented

by

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Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

MASTER OF SCIENCE

May 2019

Clinical Psychology

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ABSTRACT

INTEGRATING MOTIVATIONAL INTERVIEWING WITH CBT FOR GENERALIZED ANXIETY DISORDER: DIRECT AND INDIRECT EFFECTS ON INERPERSONAL OUTCOMES

MAY 2019

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Aim*:** A randomized clinical trial demonstrated that responsively adding motivational interviewing (MI) to cognitive-behavioral therapy (CBT) for generalized anxiety disorder (GAD) outperformed CBT alone on long-term worry reduction (Westra et al., 2016). Consistent with MI's additive aim, this effect was mediated by less patient midtreatment resistance in the integrative treatment (Constantino et al., 2019). Insofar as GAD is marked by interpersonal styles of excessive nonassertiveness and over accommodation, I tested here whether MI-CBT also outperformed CBT, across acute treatment and long-term follow up, on reducing these characteristic interpersonal problems. Moreover, as patient resistance is an interpersonal event for which person-centered MI should, according to theory, be more helpful than directive CBT, I tested if resistance also mediated the expected effect of treatment on the long-term interpersonal outcomes. ***Method: Eighty-five patients with severe GAD were randomly assigned to 15 sessions of MI-CBT or CBT. Patients completed a measure of interpersonal problems repeatedly through treatment and 12 months of follow up. Independent observers rated patient resistance at a midtreatment session. ***Results***: As expected, structural equation models revealed comparable reductions in nonassertiveness and over accommodation across

acute MI-CBT and CBT. Also as predicted, MI-CBT vs. CBT promoted significantly greater reduction in over accommodation problems over long-term follow up; however, this differential effect was only *marginally* significant for nonassertiveness problems. Finally, as predicted, the treatment effect on the level of both interpersonal problems at 12-month follow up was mediated by less midtreatment resistance in MI-CBT vs. CBT. ***Discussion***: Results support that the benefit of adding MI to CBT for GAD extends to long-term interpersonal change, and they implicate resistance management as a candidate mechanism of this additive effect.

Keywords: cognitive-behavioral therapy; motivational interviewing; resistance; interpersonal problems; generalized anxiety disorder

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CHAPTER 1
INTRODUCTION

Generalized anxiety disorder (GAD) is a prevalent mental health concern (Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012) marked by high financial, physical, emotional, and interpersonal burden (Newman, Llera, Erickson, Przeworski, & Castonguay, 2013). With its cardinal feature of excessive and uncontrollable worry and associated cognitive (difficulty concentrating), behavioral (restlessness, fatigue, irritability, sleep disturbance), and physiological (muscle tension) symptoms (American Psychiatric Association, 2013), the most common treatment for GAD has been cognitive behavioral therapy (CBT), an approach that explicitly targets these diagnostic elements (Newman et al., 2013). However, compared to the well-established efficacy of CBT for other anxiety disorders (Watts, Turnell, Kladnitski, Newby, & Andrews, 2015), its GAD-specific efficacy is more modest. Less than 50% of patients demonstrate clinically-significant response by posttreatment (Cuijpers et al., 2014; Hunot, Churchill, Teixeira, & Silva de Lima, 2007), leaving clear room for improvement in CBT for GAD. To this end, researchers have turned their attention to understanding factors that may inhibit or facilitate patients' response to CBT for this condition in order to inform more effective treatment adaptations.

Regarding inhibiting factors, people with GAD are prone to ambivalence about relinquishing their worry (Westra & Arkowitz, 2010). On the one hand, these individuals may be motivated to reduce the discomfort and disability that results from their excessive and uncontrollable worry process; yet, on the other hand, they may experience such worry as a personally adaptive mechanism of readiness and control (Newman et al.,

2013). Behaviorally, such ambivalence about change can manifest in treatment as resistance to the direction of the therapist or therapy, especially when directive change strategies (i.e., worry reduction/removal) are prominent, as they are in CBT (Westra, 2004, 2012). When such resistance occurs, it is associated with poorer treatment processes and outcomes in general (Beutler, Moleiro, & Talebi, 2002), and in CBT for GAD specifically. Regarding CBT for GAD, one study found that high early treatment resistance was associated with lower CBT homework compliance and less symptom reduction (Westra, 2011). Another study demonstrated that resistance occurring as early as session 1 correlated with negative posttreatment outcomes (Aviram & Westra, 2011). Thus, it makes sense that some efforts to facilitate CBT for GAD response rates have focused explicitly on addressing patient resistance.

Regarding such facilitation, motivational interviewing (MI) is a person-centered treatment module that addresses ambivalence about change and treatment resistance by validating patients' inherent internal tensions about change (in this case, worry reduction/removal), and by supporting and preserving patients' autonomy about the direction of their treatment (Westra, 2012). This approach contrasts with the therapist siding with only the part of the patient that wants to reduce worry, which is often an inherent strategy used in change-oriented treatments like CBT. Specifically, responsive MI therapists are trained to work from a "spirit" of empathy, evocation, and support for patients' autonomy, while also using strategies designed to encourage patients to advocate for their own self-efficacy and change (Aviram & Westra, 2011; Westra & Constantino, in press). Thus, MI would appear to be a promising candidate to assimilate into CBT to improve response in patients with GAD.

Supporting this integrative notion, two randomized trials have demonstrated superior outcomes for GAD patients receiving an integrative form of MI and CBT compared to traditional CBT alone. In the first, patients who received a brief MI module prior to receiving CBT (MI+CBT) experienced significantly greater worry reduction than patients who received CBT without the MI pretreatment (Westra, Arkowitz, & Dozois, 2009). Moreover, this treatment effect was mediated by patient resistance in a theory-consistent manner; MI+CBT patients demonstrated less resistance early in treatment than CBT patients, which in turn promoted better posttreatment outcome (Aviram & Westra, 2011).

Addressing the limitations of this initial trial (i.e., unequal therapist contact between the conditions, exposure to two different therapists in the MI+CBT group, and use of MI solely as a preparatory vs. responsive intervention), the second trial compared 15 sessions of traditional CBT to 4 sessions of straight MI followed by 11 sessions of CBT with MI responsively integrated specifically in the face of patient resistance markers (MI-CBT). Although there were no differences between the two treatments at immediate posttreatment, MI-CBT patients experienced significantly greater worry and distress reduction across a 12-month follow up (Westra, Constantino, & Antony, 2016). In fact, whereas CBT patients' worry and distress tended to stay the same, or even worsen, following treatment, MI-CBT patients showed continued reductions in these symptoms. Further, and again consistent with MI's explicit additive focus, MI-CBT compared to CBT patients experienced less during-treatment resistance, which mediated the treatment effect on long-term worry (Constantino, Westra, Antony, & Coyne, 2019). Specifically, 76% of the additive effect of MI-CBT versus CBT on patients' worry level at 12-month

follow up was transmitted through reduced midtreatment resistance, even when controlling for patient-perceived therapist empathy.

In addition to addressing resistance – the behavioral manifestation of high ambivalence about change that characterizes GAD – the aforementioned mediational pathway is consistent with interpersonal change theory. Specifically, basic research suggests that GAD is marked by interpersonal problems of being overly nonassertive and overly accomodating in relationships (Eng & Heimberg, 2006; Gomez Penedo, Constantino, Coyne, Westra, & Antony, 2017; Przeworski et al., 2011; Salzer et al., 2008). Thus, when a patient with GAD resists the direction of the treatment or therapist, it may represent an atypical, yet relationally adaptive, risk-taking attempt to assert one's needs in response to one's own ambivalence about relinquishing worry. When such resistance emerges in CBT, and the CBT therapist adheres to the directive model (e.g., by reinforcing the rationale for and value of using cognitive and behavioral strategies to reduce worry), this pattern may unwittingly recapitulate a typical interpersonal pattern characteristic of GAD; that is, an important other invalidates the patient's ambivalence about change by pushing the patient to defer to the therapist's direction – a form of dominance to which the patient might typically subvert his or her own needs. However, because ambivalence about change can be powerful, the therapist's dominance in this context could be met with even more resistance from the patient who may be motivated and provoked to maintain what is familiar (worry), even if it is maladaptive. Put differently, the patient and therapist may now be embroiled in a contextualized power struggle given the therapist's failure to support the patient's risk-taking behavior, which has now facilitated even more of it (i.e., resistance). Thus, what was once a healthy

attempt to assert, may become a relational tension, marked by increased patient resistance that can be explicit or subtle (the latter of which may be more common for a GAD patient who tends toward behavioral passivity).

In contrast, using MI to address resistance is a more supportive, validating, and agency-enhancing response to the patient's risk-taking attempt to assert in support of his/her own momentary needs. Consequently, this interpersonal sequence (of patient risk-taking interpersonal assertiveness being met with important other [therapist] validation and support for such agency-taking) could represent a novel experience. Specifically, the therapist's attunement may disarm the patient's momentary need to resist, instead allowing the participants to work more collaboratively and effectively toward change that the patient defines and values (Westra & Constantino, in press). Moreover, across time, such exchanges can become interpersonally corrective; that is, patients who are typically deferent can learn that they can effectively balance influence and passivity in relationships with important others (Constantino & Westra, 2012; Westra & Constantino). With enough of these experiences, both in therapy and ideally generalized to relationships outside of it, a core interpersonal element of GAD pathology will be reduced. To date, though, no studies have directly tested this proposed theoretical pathway.

Thus, it seems important to test the theoretical notion that MI-CBT is also superior to CBT proper (the additive effect) in reducing the specific and etiological interpersonal problems of nonassertiveness and over accomodation in persons with GAD. This would represent a statistical replication of the previously established additive treatment effect on the primary worry outcome (Westra et al., 2016). Moreover, given

that patient resistance can be seen as an interpersonal event for which person-centered MI may be a more therapeutic response than directive CBT, it is plausible that this differential exchange would mediate the effect of treatment on the interpersonal outcomes. This would represent a statistical replication of the previously established indirect additive effect of treatment on the primary worry outcome, through midtreatment resistance (Constantino et al., 2019). Put differently, if worry changes via an interpersonal mechanism, then one might also expect interpersonal problems to change via the same interpersonal mechanism. That is, an interpersonally oriented and relationally responsive treatment module promotes an interpersonal mechanism (reduced resistance), which in turn facilitates interpersonal improvement.

In this study, I drew on the Westra et al. (2016) trial data to examine (1) the beneficial reach of MI-CBT for GAD (research question 1, or RQ1), and (2) a possible interpersonal mechanism that transmits any expansive effects on the condition-relevant interpersonal outcomes (research question 2, or RQ2). Consistent with Westra et al.'s primary trial outcomes, I hypothesized for RQ1 that MI-CBT patients compared to CBT patients will report steeper reductions in problematic nonassertiveness and over accomodation over the follow-up period. (Also consistent with the primary outcomes, I expected that the groups would be comparable in promoting interpersonal problem reduction during the *acute* treatment phase.) Finally, I hypothesized for RQ2 that lower midtreatment resistance in MI-CBT compared to CBT would mediate any direct effects of treatment on the interpersonal problems.

CHAPTER 2

METHOD

2.1 Participants

2.1.1 Patients

In the Westra et al. (2016) trial, patients were 85 adults (age 16 or older) who sought treatment at one of two clinics in Toronto, ON, Canada, and were randomly assigned to receive either MI-CBT (n = 42) or CBT (n = 43). To be included, these persons had to meet diagnostic criteria for principal GAD based on the *Diagnostic and Statistical Manual of Mental Disorders* versions IV, Text Revision (*DSM-IV-TR*; American Psychiatric Association, 2000) and 5 (*DSM-5*; American Psychiatric Association, 2013). Additionally, patients were required to score above a high worry severity cutoff of $\geq$ 68 on the *Penn State Worry Questionnaire* (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990; see Appendix A), a widely used and psychometrically sound measure of trait worry for which 16 items are rated on a scale of 1 to 5 (range = 16-80). To increase external validity, patients with most comorbid diagnoses were accepted, as were patients who were on antidepressant medication, provided that (a) their dose had been stable for at least 3 months prior to the study, and (b) they agreed to remain on this dose throughout treatment. Patients were excluded if they were receiving other concomitant psychotherapy, were taking benzodiazepines, and/or met criteria for any of the following comorbid conditions: bipolar or psychotic disorders, substance dependence within the last 6 months, severe suicidal ideation, or cognitive impairment.

2.1.2 Therapists

Study therapists were 21 female doctoral trainees.[1] To control for allegiance and crossover effects, the therapists were nested within condition, providing *either* MI-CBT (n = 9) or CBT (n = 12). Therapists did not differ significantly between the two groups in terms of clinical experience (total sample M = 276.08 clinical hours; SD = 371.62 clinical hours) or age (total sample M = 28.54 years; SD = 2.77 years). A CBT expert and an MI *and* CBT expert extensively trained clinicians in CBT only and MI-CBT, respectively, via workshops and pilot case feedback. Additionally, therapists were required to exhibit competency with at least one case before seeing trial patients. The respective trainers also supervised the therapists weekly during the trial. MI-CBT therapists saw a range of 1 to 13 cases (Mdn = 4), whereas CBT therapists saw a range of 1– 6 cases (Mdn = 4).

2.2 Treatments

Across both conditions (described in more detail below), patients received 15 sessions that were each 50-minutes long, plus two "booster" sessions at 1 and 3 months following treatment. In CBT alone, protocol-consistent interventions were applied immediately, with no training or supervision on prescribed shifts to MI. In MI-CBT, patients received up to four initial sessions of "pure" MI, followed by 11 sessions of the fully integrated MI-CBT. Independent observers rated each therapists' delivery of their self-selected treatment protocol for a random subset of 20% of sessions. Observer ratings of CBT competence were comparable between the treatment groups when the MI-CBT therapists were administering CBT interventions. As intended with this additive design, ratings of therapist MI fidelity appropriately discriminated between the treatment groups

[1] That all therapists were female was coincidental; it was neither a design nor selection feature.

(e.g., as a group, MI-CBT therapists demonstrated more MI spirit throughout treatment than CBT therapists; see Westra et al., 2016, for additional details). Thus, therapists maintained competently faithful CBT across both conditions, and assimilated MI strategies responsively in the MI-CBT condition only.

2.2.1 CBT

Standard CBT was adapted from several evidence-based GAD treatment manuals (Borkovec & Costello, 1993; Borkovec & Mathews, 1988; Borkovec, Newman, Pincus, & Lytle, 2002) that incorporate both behavioral and cognitive strategies aimed at reducing worry, including exposure, progressive muscle relaxation, thought monitoring, and psychoeducation. Drawing on recommendations in the CBT literature for addressing treatment noncompliance (e.g., Beck, 2005), CBT therapists were encouraged to address resistance by restructuring cognitive distortions that may form the basis of such resistance, and to attempt to reduce patient noncompliance through collaborative goal setting, reiterating the CBT rationale, and active problem solving. Thus, the response to resistance from therapists in this condition was explicitly more authoritative compared to the MI-CBT condition.

2.2.2 MI-CBT

The integrative treatment included the same CBT protocol, but also incorporated MI principles (Miller & Rollnick, 2002) adapted for GAD (Westra, 2012). MI is a patient-centered module used to help patients resolve their ambivalence about change and to address behavioral resistance to the treatment in which they are engaging. In the early "pure" MI sessions, therapists explored and validated patients' feelings about change. In the CBT portion of the integrative treatment, therapists integrated MI in two ways: (a) by

constantly embodying the MI spirit of evocation, empathy, and autonomy support as a foundational stance for delivering CBT, and (b) by explicitly shifting into primary MI strategies, and temporarily ceasing CBT, in response to patient resistance markers. Specifically, MI strategies focus on helping patients develop discrepancies between actual and valued experiences, validating or "rolling with" patients' resistance (vs. challenging it), and supporting patients' self-efficacy and autonomy about treatment directions and change decisions. Once a resistance episode was resolved, therapists shifted back into the foundational CBT with MI spirit. These shifts occurred as needed.

2.3 Measures

2.3.1 Interpersonal problems

To assess interpersonal problems, patients completed the *Inventory of Interpersonal Problems* circumplex scales (IIP-32; Horowitz, Alden, Wiggins, & Pincus, 2000), which includes 32 items rated on a 5-point scale ranging from 0 (*not at all*) to 4 (*extremely*; see Appendix B). The IIP-32 is based on a circumplex model that characterizes interpersonal problems according to the higher order interpersonal dimensions of *agency* and *communion*. The agency dimension (vertical axis) embodies the degree of influence on others, ranging from problematic domineering behaviors, on the positive pole, to problematic submissive behaviors, on the negative pole. Communion (horizontal axis) embodies the degree of connection with others, ranging from problematic caring and friendly behavior, on the positive pole, to cold and hostile behaviors, on the negative pole. The IIP-32 can be summed to create a total interpersonal distress score, which has shown satisfactory test-retest reliability (*rs* = .41 to 83) and adequate internal consistency (Cronbach's alpha = .68 to .89; Horowitz et al., 2000). For

the current sample, the average Cronbach's alpha for the IIP-32 total score across all measured time points was .91.

Most relevant to the present study, the IIP-32 also produces 8 subscales representing two-dimensional configurations of the agency and communion dimensions. I was most interested in the hypothesis-driven dimensions of nonassertiveness (under agentic, neutral communion) and over accomodation (under agentic, overly communal). The nonassertiveness subscale reflects the sum of the 4 items (e.g., "It is hard for me to be assertive with another person," "It is hard for me to be firm when I need to be"). The theoretical subscale range is 0 to 16, with higher scores representing greater problems of nonassertiveness. The average sample-specific Cronbach's alpha for this subscale across all time points was .87. The over accomodation subscale reflects the sum of 4 items (e.g. "It is hard for me to be assertive without worrying about hurting the other person's feelings," "I let other people take advantage of me too much"). The theoretical subscale range is again 0 to 16, with higher scores reflecting more problems of over accomodation. The sample-specific Cronbach's alpha for this subscale across all time points was .79.

2.3.2 Resistance

Resistance was coded according to the *Client Resistance Code* (CRC; Chamberlain et al., 1985; see Appendix C for brief manual overview), which has been adapted to capture resistance specifically in CBT for GAD (Westra, Aviram, Kertes, Ahmed, & Connors, 2009). Resistance, according to the CRC, is defined as an interpersonal process (as opposed to a stable trait) that inhibits, opposes, or blocks the therapist's direction. This impediment can be expressed directly (e.g., "I don't think this will do any good for me," "Homework isn't for me," "I hate thought records"), or

indirectly in process (e.g., ignoring, interrupting, talking over, intentional side tracking, withdrawing). In the adapted CRC, the 11 original categories were collapsed into one total, more general, resistance category. This adaptation has demonstrated adequate interrater reliability and predictive validity (Aviram & Westra, 2011; Aviram, Westra, Constantino, & Antony, 2016; Westra, 2011).

A video recording of a midtreatment session for each patient was broken down into 30-second segments, each of which was coded using the following scheme: 0 (no resistance), 1 (minimal resistance), 2 (clear resistance), or 3 (hostile or confrontational behavior). Three graduate students in clinical psychology and one doctoral-level psychologist coded the segments. Training on this adapted CRC involved a 2-day workshop and weekly independent coding practice (on non-study therapy material) over 10 months. Coders first independently rated these practice sessions, then met regularly to discuss and resolve discrepancies in ratings. This process was repeated until 85% interrater reliability was reached on independently rated practice material. Coders remained blind to treatment condition and treatment outcomes. Interrater reliability was calculated using 20% of the actual study session content. Weighted kappa coefficients for each pair of raters ranged from .70 to .98, with a mean of .85 (see Constantino et al., 2019). These values indicate good to excellent agreement on the study material.

Given that previous research suggests that only clear (a code of 2) and hostile (a code of 3) resistance are predictive of therapy outcomes (Aviram, Westra, & Eastwood, 2011), I adopted the approach used in previous research stemming from this dataset (Constantino et al., 2019) of restricting resistance calculations to these two codes. Specifically, I calculated the percentage of time that patients demonstrated resistance in

the rated session by dividing the number of 30-second time segments coded as 2 or 3 by the total number of 30-second time segments per session and multiplying by 100 (range = 0 to 100%).

2.4 Procedure

Participants were recruited to the trial via community advertisements posted in the greater Toronto area. Potential participants were phone screened. If they met initial inclusion/exclusion criteria, a trained graduate assessor administered the *Structured Clinical Interview for DSM-IV-TR Axis I Disorders* (SCID-I; First, Spitzer, Gibbon, & Williams, 1996) to determine clinical features and diagnostic eligibility. Patients that met full criteria for participation were then randomized to treatment group across two sites. This randomization protocol was delivered at a neutral third site by a co-investigator uninvolved in site procedures/therapist training and blind to patient clinical features. The IIP-32 was administered at baseline, sessions 5, 9, 13, and 15, as well as at 6- and 12-months posttreatment. Resistance was coded at a randomly selected midtreatment session (i.e., 5, 6, or 7), unless a patient dropped out of the trial before session 5 (in the eight cases for which this occurred, the last completed session was coded). The institutional review boards at the two data collections sites in Toronto approved the trial, as well as secondary analysis of de-identified data.

CHAPTER 3

RESULTS

3.1 Preliminary Analyses

For my first set of preliminary analyses, I conducted descriptive statistics to characterize the sample. Table 1 presents baseline sample descriptives by condition. Relevant to the present study, patients did not significantly differ at baseline on the two relevant IIP-32 scales of nonassertiveness and over accomodation, described below. They also did not differ on any other demographic variable other than gender; the CBT condition contained more women (n = 41 vs. n = 34) and fewer men (n = 2 vs. n = 8) than the MI-CBT condition, χ^2 (1) = 4.24, p = .039. The two conditions also differed on rates of medication use; the CBT (n = 14) condition had significantly more patients who were on antidepressant medication than the MI-CBT (n = 6) condition, χ^2 (1) = 3.94, p = .047. Furthermore, those in the CBT condition reported significantly higher baseline motivation for change than those in the MI-CBT group, as per the *Change Questionnaire* (CQ; Miller & Johnson, 2008; see Appendix D), which consists of 12 items that are each rated on a 0 to 10 scale (range = 0-120), t(83) = -2.55, p = .013. During the trial, attrition was low in both groups, though there was a trend toward a group difference, with 10 premature dropouts in CBT (23%) and 4 in MI-CBT (10%), χ^2(1) = 2.91, p = .09. Nevertheless, this differential attrition rate was not an issue across the follow-up period, as there was a 97% response rate across both conditions at 6- and 12-months posttreatment.

Next, given that the two treatment conditions differed at baseline on medication status and motivation, and that these between-group differences also varied by site, I

followed the method used in the main outcomes paper (Westra et al., 2016) and (a) residualized out the effect of site on medication status and motivation, and (b) residualized out the effects of medication status and motivation (the now residualized scores with the effect of site removed) on my primary outcome variables (i.e., IIP-32 nonassertiveness and over accommodation). These residualized variables were used as the outcome variables for my primary analyses.

I also considered the possibility that several baseline variables might have a significant effect on the mediator variable. Specifically, given its theoretical proximity to the resistance construct, I examined the correlation between baseline motivation for change and midtreatment resistance. The bivariate correlation was not significant, r = -0.09, p = 0.43. However, given that baseline motivation differed between the treatment groups, I also explored whether the unique variance in motivation not accounted for by treatment was associated with resistance (i.e., whether motivation was associated with resistance when controlling for treatment). The partial correlation was significant, partial r = -0.23, p = 0.04. Thus, I controlled for the effect of motivation on resistance in the mediational models. Also, social identities that are oppressed in the current sociopolitical climate (e.g., women or transgender individuals as compared to men, individuals of lower vs. higher socioeconomic status [SES]), could conceivably affect one's perceived ability or "power" to resist a person in a seeming position of authority. Thus, I also examined the associations between gender and resistance and education level (an SES proxy) and resistance. Gender was unrelated to resistance, $t(83) = -1.38$, p = 0.17; however, the homogeneity of variance assumption was violated, $F(1, 83) = 7.98$, p = 0.01. Thus, I conducted the nonparametric independent samples Mann-Whitney U test, which also

indicated that gender was unrelated to resistance ($p = 0.46$). Similarly, education level was unrelated to resistance ($r = 0.03$, $p = 0.82$). Thus, I did not control for these variables in the mediational models.

For my second set of preliminary analyses, I examined descriptive statistics for all study-relevant variables, testing for normality and outliers. All variables were acceptably normally distributed (i.e., $-2 <$ skewness < 2). Thus, no transformations were required.

Finally, given that most therapists in the trial treated more than one case, I tested for between-therapist effects on the nonassertiveness and over accomodation outcomes by calculating intraclass correlations (ICCs). This analysis informed whether I needed to control for the person of the therapist in the primary analyses. There were no significant therapist effects, based on established empirical cut-offs (i.e., an ICC of $\geq .05$; Preacher, Zyphur, & Zhang, 2010); specifically, therapists accounted for < 1% of the variance in these outcomes. Thus, I did not control for between-therapist therapist effects in the primary analyses.

Table 1: Participant Characteristics at Baseline by Treatment Condition

	CBT (n = 43)				MI-CBT (n = 42)			
Variables	*M*	*SD*	*n*	%	*M*	*SD*	*n*	%
Age	34.19	11.92			32.45	10.54		
Sex*								
Female			41	95.34			34	80.95
Male			2	4.65			8	19.05
Race								
Caucasian			32	74.42			31	73.81
Asian			5	11.62			6	14.29
Hispanic			2	4.65			1	2.38
Multiracial/other			4	9.30			4	9.52
Annual household income								
Less than 25,000			10	23.26			6	14.29
25,000-50,000			9	20.93			8	19.05
50,000-75,000			11	25.58			8	19.05
75,000-100,000			8	18.60			6	14.29
100,000 or more			5	11.63			13	30.95
Education								
High school or less			4	9.30			2	4.76
Some college/university			13	30.23			9	21.43
Completed college			18	41.86			19	45.24
Some graduate school			8	18.60			12	28.57
Marital status[a]								
Single			19	44.19			18	42.86
Cohabiting/married			23	54.76			24	57.14
Medication status*								
Yes			14	32.56			6	14.29
No			29	67.44			36	85.71
Outcome variables								
Nonassertiveness	10.93	4.17			10.93	3.67		
Over accomodation	10.26	4.24			10.55	3.25		
CQ motivation*	107.23	8.76			101.60	11.50		

Note. *M* = mean; *SD* = standard deviation; CQ = Change Questionnaire.
[a] Category sums to less than 43 for the CBT condition due to missing or unreported data.
* Groups differed significantly at baseline on this variable ($p < .05$; differences described in text)

3.2 Primary Analyses

To conduct my primary analyses, I used structural equation modeling (SEM) facilitated by the Mplus program (Version 8, Muthén & Muthén, 2017) given its ability to use full information maximum likelihood estimation to handle missing data; this approach allowed me to retain all 85 patients in all analyses. Overall model fit was

assessed using Kline's (2016) recommended fit indices and cut-offs. Specifically, models with a non-significant χ^2 statistic, root mean square error of approximation (RMSEA) values of < .08, standardized root mean residual (SRMR) values of < .10, and a comparative fit index (CFI) of > .90 were considered a close fit to the data.

3.2.1 Direct treatment effects (RQ1)

To test the main effect of treatment condition on the two interpersonal outcomes, I replicated the analytic plan from Westra et al.'s (2016) initial examination of the main effect of treatment on the primary outcome of worry. Specifically, I fit two distinct piecewise SEMs that allowed me to simultaneously estimate within-patient change in the relevant interpersonal variable during acute treatment (piece 1) and across follow up (piece 2). Time was coded in weeks and centered at posttreatment, or the point at which piece 1 and piece 2 intersected. Thus, the model intercept reflects the posttreatment level of the relevant interpersonal variable. I then added treatment group (coded as MI-CBT = 0; CBT = 1) as a predictor of between-patient differences in the interpersonal outcomes (level at posttreatment, and change across pieces 1 and 2).

For the piecewise model testing treatment condition as a predictor of change in nonassertiveness, most indices suggested that the model was an adequate fit to the data (RMSEA = 0.08; CFI = 0.94; SRMR = .07). Only the model chi-square indicated an unacceptable fit, χ^2 [29] = 46.56, *df* = 29, *p* = 0.02. However, given that the chi-square is a conservative estimate, I considered the model to have an overall adequate fit to the data, and I made no further adjustments. Based on this model, and as expected, the two treatments did not differ significantly on patients' during treatment changes in nonassertiveness (*B* = 0.02, *SE* = 0.06, *p* =0.67) or on their posttreatment level of

nonassertiveness (B = 0.33, SE = 0.83, p =0.69). However, in the predicted direction, patients in MI-CBT *approached* significantly greater weekly reductions in nonassertiveness compared to CBT patients across the follow-up period (B = 0.03, SE = 0.02, p = .09). Put another way, patients who received MI-CBT had a nonassertiveness rate of change over 52 weeks after treatment of -0.03 whereas those who received CBT alone had a nonassertiveness change rate of -0.002. Thus, at a trend level only, patients in the MI-CBT group tended toward continuing to improve their problematic nonassertiveness, whereas the CBT group tended toward a plateau. Figure 1 graphically depicts the full SEM, whereas Figure 2 visually shows the nonassertiveness change trajectories by treatment condition across pieces 1 and 2. To examine effect size in this model, I calculated the additional proportion of variance explained in follow-up nonassertiveness change by the addition of treatment group as a predictor (i.e., a pseudo r^2); in this case, 10% of additional variance was explained by treatment.

Figure 1. Piecewise SEM testing the treatment effect on problematic nonassertiveness.

Note. MI-CBT = 0, CBT = 1; SEM = structural equation model; NA = nonassertiveness

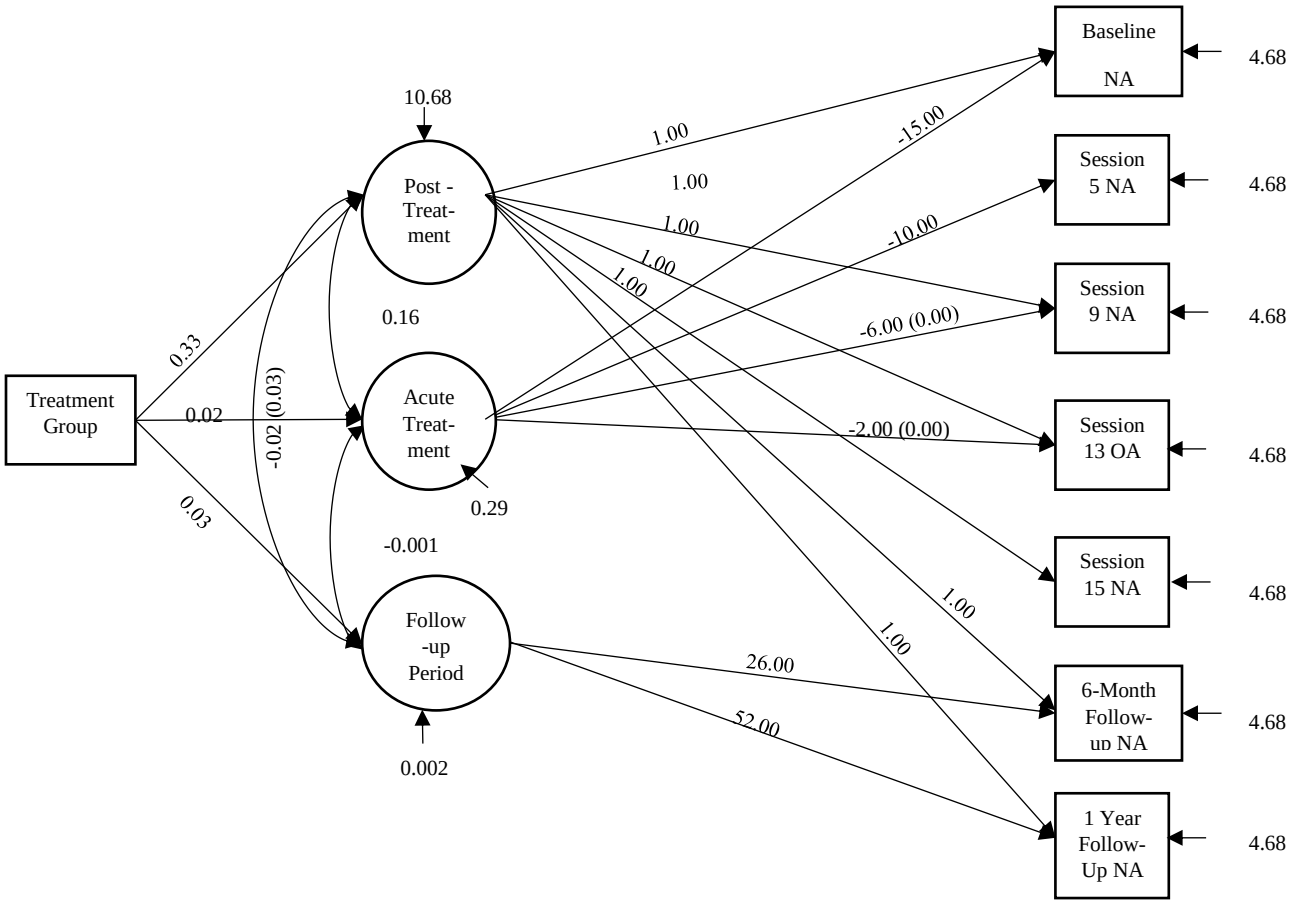
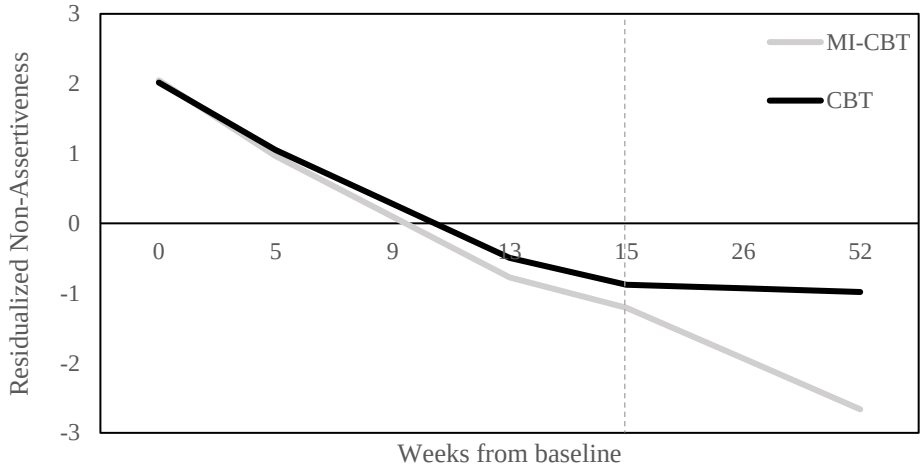


Figure 2. Nonassertiveness change over acute treatment (piece 1) and follow-up (piece 2) by treatment condition. CBT = cognitive-behavioral therapy; MI = motivational interviewing.



For the piecewise model testing treatment condition as a predictor of change in over accommodation, most indices suggested that the model was an adequate fit to the data (RMSEA = 0.097; CFI = 0.93; SRMR = .07). Only the model chi-square indicated an unacceptable fit, χ^2 [29] = 51.99, *df* = 29, *p* = 0.006. However, given that the chi-square is a conservative estimate, I again considered the model to have an overall adequate fit to the data, and I made no further adjustments. Based on this model, and as expected, the two treatments did not differ significantly on patients' during treatment changes in over accomodation (*B* = 0.04, *SE* = 0.05, *p* = 0.43) or on their posttreatment level of over accomodation (*B* = 0.06, *SE* = 0.78, *p* = 0.94). However, as predicted, patients in MI-CBT experienced significantly greater reductions in over accomodation compared to CBT patients across the follow-up period (*B* = 0.03, *SE* = 0.01, *p* = 0.02). Put differently, patients who received MI-CBT had an over accomodation change rate over 52 weeks after treatment of -0.03, whereas those who received CBT alone had an

over accomodation change rate of 0. Thus, the MI-CBT group showed continued reductions in their problematic over accomodation, whereas the CBT group tended toward maintaining, but not improving upon, their gains. Figure 3 graphically depicts the full SEM, whereas Figure 4 visually shows the over accommodation change trajectories by treatment condition across pieces 1 and 2. To examine effect size in this model, I calculated the additional proportion of variance explained in follow-up over accommodation change by the addition of treatment group as a predictor (i.e., a pseudo r^2); in this case, 50% of additional variance was explained by treatment.

Figure 3. Piecewise SEM testing the treatment effect (MI-CBT = 0; CBT = 1) on over accommodation.

Note. SEM = structural equation model; tx = treatment; i = posttreatment; s1 = acute treatment; s2 = follow up; roa1-7 = residualized over accomodation time points

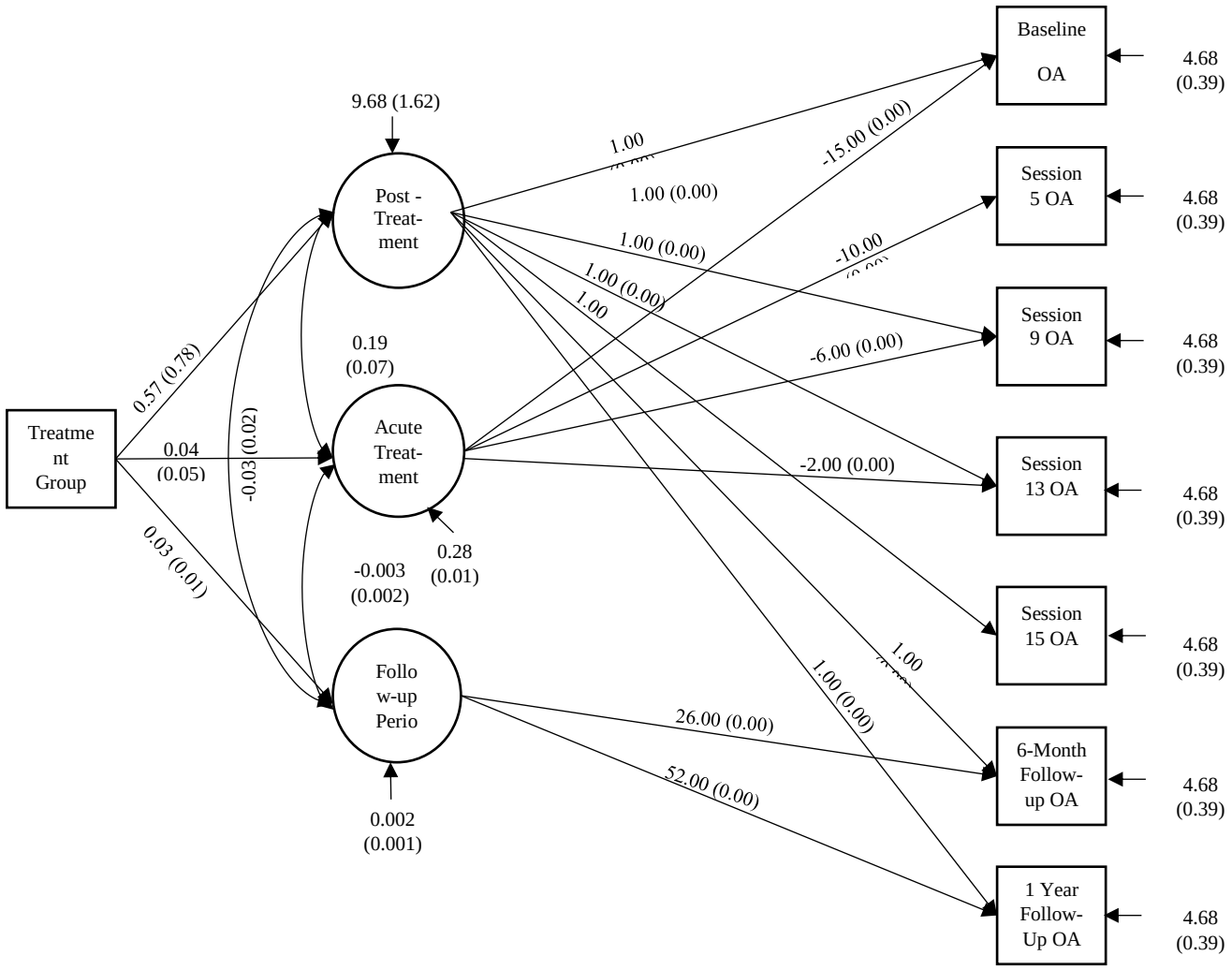
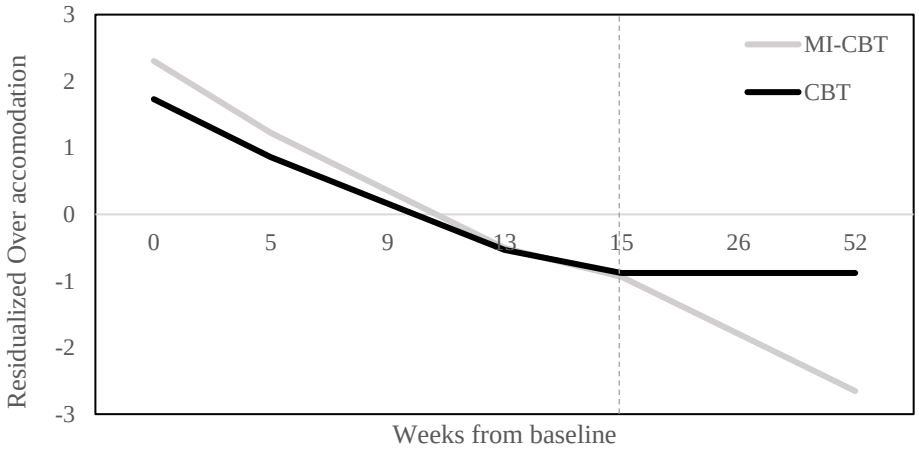


Figure 4. Over accomodation change over acute treatment (piece 1) and follow-up (piece 2) by treatment condition. CBT = cognitive-behavioral therapy; MI = motivational interviewing.



3.2.2 Indirect treatment effects (RQ2)

To test whether midtreatment resistance mediated any direct effects of treatment on the interpersonal outcomes, I replicated the analytic plan from Constantino et al.'s (2019) initial examination of mediators of the treatment effect on the primary long-term outcome of worry level at the trial's final time point (i.e., 12-months, or 52 weeks; note that Constantino et al. selected this outcome occasion given that it was the point at which the two treatment groups differed the most on their worry). Specifically, to test for indirect effects (mediation), I fit two path analyses (one for each outcome) to determine if the treatment effect on nonassertiveness and over accommodation operated through the putative mediator of patient resistance. The significance of the indirect effect was determined through the generation of bootstrapped confidence intervals (CIs; Hayes, 2009). Bootstrapping, which is the recommended method with small to moderate sample sizes (Hayes, 2013), estimates the indirect effect of a predictor (X) on an outcome (Y)

with statistical resampling (10,000 iterations in this study) through one or more intervening mediators (M). Bootstrapping is also recommended over alternative methods (e.g., the Sobel test) given that it makes no assumptions about the normality of the indirect effect sampling distribution (Hayes). Using this method, mediation is considered present when the bootstrapped CI does not contain zero.

For the first outcome, prior to testing mediation, I first tested a total effects model to further examine the long-term influence of treatment on 12-month nonassertiveness and to allow for calculation of an effect size for the indirect effect. This model was fully saturated (i.e., it had zero degrees of freedom), so it was not possible to assess model fit. As expected, MI-CBT vs. CBT patients exhibited significantly less problematic nonassertiveness at the 12-month follow-up time point (c path; B = 1.71, 95% CI = 0.05 to 2.66). Next, for the mediation model (testing resistance as a mediator of the treatment effect on nonassertiveness level at 12 months), most model fit indices suggested an acceptable fit to the data (χ^2 [1] = 2.75, p = 0.10; CFI = .93; SRMR = .06). However, the RMSEA suggested relatively poor fit (0.14). Overall, given that most model fit indices were acceptable, I made no further model adjustments. Based on this model, and as expected, MI-CBT patients exhibited significantly less midtreatment resistance than CBT patients, controlling for baseline motivation (a path; B = 11.88, SE = 2.38, 95% CI = 9.77 to 14.21), which in turn related to significantly less nonassertiveness at 12-month follow up (b path; B = 0.05, SE = 0.05, 95% CI = 0.03 to 0.14). Treatment group was unrelated to nonassertiveness when controlling for resistance (c' path; B = 1.19, SE = 1.3795% CI = -1.30 to 2.19). Finally, the indirect effect of treatment on 12-month nonassertiveness

through resistance was significant (indirect effect = 0.59, *SE* = 0.46, 95% CI = 0.28 to 1.60). Thus, mediation was present through the expected path (see Table 2 and Figure 5).

To estimate effect size in mediator models, if the total effect (of treatment on the interpersonal outcome) is larger than the indirect effect, and the total and indirect effects have the same sign (i.e., "consistent mediation"), then you can report effect size as a ratio of the indirect (through resistance) to total effect of treatment on the interpersonal outcome (Hayes, 2013). This nonassertiveness model met the parameters for consistent mediation, and 34% of the treatment effect on 12-month nonassertiveness was transmitted through midtreatment resistance.

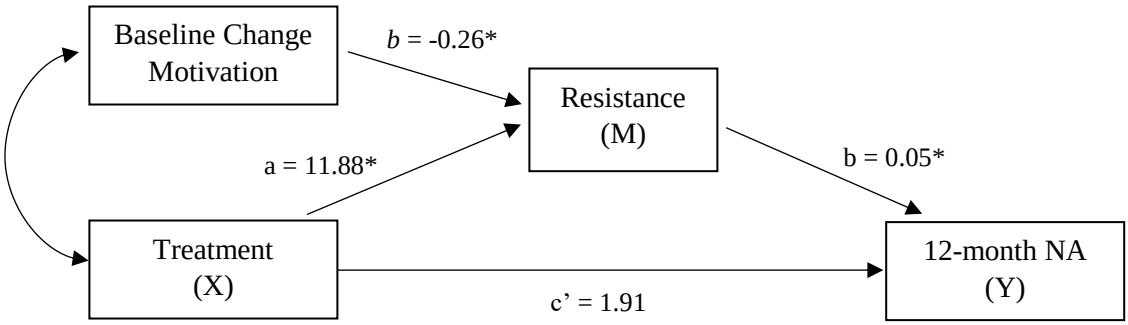
Table 2: Treatment Effects on Outcomes and Mediational Structural Equation Model Results

Treatment Effects			
NA	Coefficient (*SE*)	OA	Coefficient (*SE*)
Treatment → posttreatment NA	0.33 (0.83)	Treatment → posttreatment OA	0.06 (0.78)
Treatment → acute treatment NA Δ	0.02 (0.06)	Treatment → acute treatment OA Δ	0.04 (0.05)
Treatment → follow-up NA Δ	0.03 (0.02)	Treatment → follow-up OA Δ	0.03* (0.01)
Posttreatment intercept	-1.21* (0.57)	Posttreatment intercept	-0.94† (0.50)
Posttreatment variance	10.68* (2.22)	Posttreatment variance	9.68* (1.62)
Acute treatment intercept	-0.22** (0.04)	Acute treatment intercept	-0.22** (0.04)
Acute treatment residual variance	0.03* (0.01)	Acute treatment residual variance	0.03* (0.01)
Follow-up intercept	-0.03* (0.01)	Follow-up intercept	-0.03* (0.01)
Follow-up residual variance	0.00* (0.00)	Follow-up residual variance	0.00* (0.00)
Mediational Model			
NA	Coefficient (*SE*)	OA	Coefficient (*SE*)
CQ → resistance	-0.26* (0.11)	CQ → resistance	-0.26* (0.11)
Treatment → resistance (a path)	11.88* (2.38)	Treatment → resistance (a path)	11.88* (2.38)
Resistance →12-month NA (b path)	0.05* (0.05)	Resistance → 12-month OA (b path)	0.08* (0.04)
Treatment → 12-month NA (c' path)	1.19 (1.37)	Treatment → 12-month OA (c' path)	1.00* (0.90)
12-month NA intercept	-2.88* (0.45)	12-month OA intercept	-3.00* (0.55)
12-month NA residual variance	16.37* (2.59)	12-month OA residual variance	12.64* (1.73)
Resistance intercept	5.19* (1.34)	Resistance intercept	5.19* (1.34)
Resistance residual variance	119.68*(12.39)	Resistance residual variance	119.68* (12.39)

Note. CQ = *Change Questionnaire*; NA = nonassertiveness; OA = over accommodation; a = the treatment effect on the mediator; b = the effect of the mediator on outcome, controlling for the predictor variable; c' = the direct effect of treatment on outcome controlling for the mediator.
† p <.10; * p < .05; ** p < .001

Figure 5. Mediation model of the effect of treatment (X; MI-CBT = 0; CBT = 1) on 12-month non-assertiveness (Y) through midtreatment resistance (M). NA = non-assertiveness

*95% Confidence Interval does not include zero



Indirect effects:

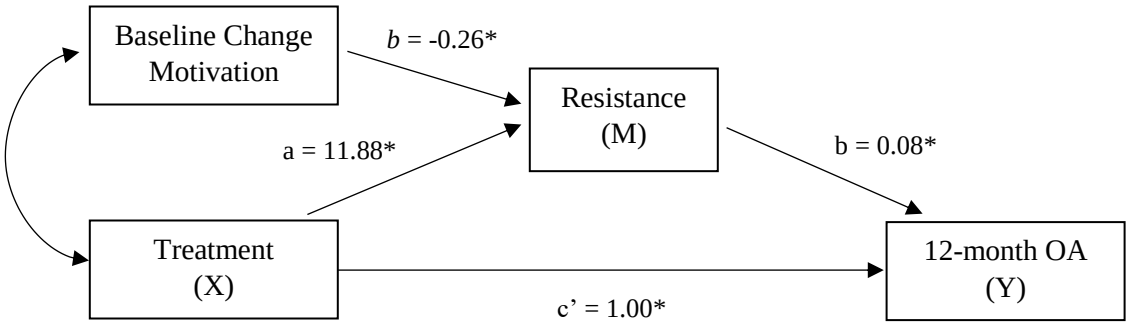
ab = 0.59, *SE* = 0.46; CI_{95} (0.28, 1.60)

For the second outcome, prior to testing mediation, I again first tested the total effects model to further examine the influence of treatment on 12-month over accomodation and to allow for calculation of an effect size for the indirect effect. As with nonassertiveness, the model was fully saturated, which precluded an examination of model fit. As expected, MI-CBT vs. CBT patients exhibited significantly less problematic over accomodation at the 12-month follow-up time point (c path; *B* = 1.82, 95% CI = 0.40 to 2.79). Next, the mediation model (testing resistance as a mediator of the treatment effect on over accommodation level at 12 months) was an excellent fit to the data (χ^2 [1] = 0.76, *p* = 0.38; CFI = 1.00; RMSEA < 0.001; SRMR = 0.03). Based on this model, and as expected, MI-CBT patients exhibited less midtreatment resistance than CBT patients, controlling for baseline motivation (a path; *B* = 11.88, *SE* = 2.38, 95% CI = 9.77 to 14.21), which in turn lead to significantly less over accomodation at 12-month follow up (b path; *B* = 0.08, *SE* = 0.04, 95% CI = 0.03 to 0.12). Treatment group remained a

significant predictor of 12-month over accommodation after controlling for resistance (c' path; *B* = 1.00, *SE* = 0.90, 95% CI = 0.56 to 2.14). Finally, the indirect effect of treatment on 12-month over accommodation through resistance was significant (indirect effect = 0.93, *SE* = 0.37, 95% CI = 0.30 to 1.41). Thus, consistent mediation was present through the expected path (see Table 2 and Figure 6). Expressed as an effect size, 51% of the total effect of treatment on over accomodation at 12 months was transmitted through the mediator of midtreatment resistance.

Figure 6. Mediation model of the effect of treatment (X; MI-CBT = 0; CBT = 1) on 12-month over accomodation (Y) through midtreatment resistance (M). OA = over accomodation

*95% Confidence Interval does not include zero



Indirect effects:

ab = 0.93, *SE* = 0.37; CI_{95} (0.30, 1.41)

CHAPTER 4

DISCUSSION

The goals of this study were, first, to examine the comparative, direct effect of MI-CBT vs. CBT alone on two interpersonal problems characteristic of persons with GAD and, second, to test whether during-session patient resistance mediated the expected treatment effect on the interpersonal problems at the trial's follow-up endpoint. As expected, and consistent with the primary worry outcome in this trial (see Westra et al., 2016), patients demonstrated comparable reductions in problematic nonassertiveness and over accomodation during acute treatment, and a comparable level of these problems at posttreatment. Also as predicted, and consistent with the previously tested worry outcome, MI-CBT vs. CBT patients demonstrated significantly greater reduction in over accommodation problems over the 12-month follow up; for nonassertiveness problems, MI-CBT patients *approached* significantly greater reductions than CBT patients over the long-term. Additionally, as expected, MI-CBT vs. CBT patients exhibited less midtreatment resistance, which in turn related to significantly fewer nonassertiveness and over accomodation problems at the trial's 12-month endpoint (as was also the case with the worry outcome; see Constantino et al., 2019).

Given that MI-CBT and CBT promoted comparable reductions in a primary symptom target (worry) during the active phase of treatment (Westra et al., 2016), it is not surprising that the same pattern held for the *secondary* interpersonal outcomes tested here. Both MI-CBT and CBT are either partially or fully rooted in an already efficacious treatment for GAD (i.e., CBT), and they both help patients to a clinically significant degree while they are actively engaged with their therapist and a treatment plan. For the

worry outcome, though, we know that there was an additive *long-term* benefit of responsively assimilating MI into CBT during precise moments when patients resisted the direction of the treatment or therapist. Westra et al. referred to this finding as a "sleeper effect," which was replicated here with the interpersonal outcome of over accommodation and, to a marginal degree, nonassertiveness. Thus, when the therapist is out of the picture, MI-CBT's superior effect reaches beyond worry to a reduction in GAD-specific interpersonal vulnerabilities. Of course, some caution is needed when interpreting the treatment effect on patients' problematic nonassertiveness given that the findings did not reach statistical significance. However, when considering both that the finding *approached* significance ($p = .09$) in the same direction as over accommodation, and that more power is often needed to detect predictors of *change* variables, it seems that tentatively considering the clinical implications on nonassertiveness is reasonable. And, certainly, this variable seems worthy of replication and other forms of relevant future research.

As Westra et al. (2016) noted in their primary report from this trial, the long-term effect of contextually administered MI may stem from its "patient-as-expert" stance that privileges patient agency and self-efficacy. Over the long-term, an increased sense of agency and efficacy can help patients feel better prepared to manage their GAD-relevant problems, whether cognitively, behaviorally, physiologically, and/or interpersonally-based, after the therapist and formal treatment are removed from the equation. Such delayed, or sleeper, effects are not uncommon in the MI/CBT literature. For example, a meta-analysis of 12 studies comparing combined MI/CBT to treatment-as-usual for comorbid depression and alcohol abuse found that the short-term superior effect of

MI/CBT was significantly enhanced over a 12-month follow-up to acute treatment (Riper et al., 2014). Combined with the present results, such findings point to something increasingly durable about MI's utility. Although therapists may not be present to see it, the validation and autonomy support inherent to the model, including when it is integrated into some other foundational treatment, can help patients downstream. Given this clinical predicament of the data pointing to something to which a clinicians' eyes may not bear witness, it seems important to further unpack, with clear theoretical guidance, the main effect findings presented in Westra et al. and replicated here with different outcomes. My mediational analyses were one approach to doing so, with interpersonal theory as the guide.

As noted, theory suggests that behavioral resistance is an interpersonal event for which person-centered MI may be a more therapeutic response than the perseverative use of CBT in such moments of tension or power struggle (Westra & Constantino, in press; Constantino, Boswell, Bernecker, & Castonguay, 2013). Supporting this theory-driven notion, patients in MI-CBT indeed demonstrated less midtreatment resistance than patients in CBT alone, which in turn promoted lower levels of the interpersonal outcomes at the 12-month trial endpoint. These results replicated Constantino et al.'s (2019) findings of a comparable indirect effect of treatment on worry through resistance. It is evident, based on the current study and similar previous works, that patients' ambivalence about change, and its behavioral manifestation of treatment resistance, can (and do) emerge as treatment progresses. Further, such resistance may be an especially important interpersonal event when treating patients with GAD.

In *content*, resistance may simply sound as if patients are expressing their distaste for the treatment or clinician. However, in the *context* of a specific pathology (GAD), these typically deferent and over accommodating individuals may be taking an adaptive and calculated risk by asserting their needs (e.g., to not yet relinquish their worry, which may serve a perceived protective function) and "sticking up" for themselves with important persons in their lives – something that their psychological condition typically precludes them from doing. When this occurred in the MI-CBT condition, it elicited validating, supportive, and autonomy granting responses from therapists. Such novel attunement seemed to disarm the patient's momentary need to resist, instead allowing the patient and therapist to work more collaboratively and effectively, at the patient's preferred pace, toward change that he or she defined. This exchange, as opposed to the CBT therapist who was trained to "double down" on the merits of CBT in the face of such resistance (which only seemed to increase it), facilitated less problematic nonassertiveness and over accomodation over the long run, specifically when the therapist was no longer in the patient's life.

To me, this represents the essence of a corrective interpersonal experience (Heatherington, Constantino, Angus, Friedlander, & Messer, 2012), whereby a patient's atypical risk is met with a novel response from an important other, which might allow the patient to take such risks more frequently in other relationships; that is, patients can become more adaptively assertive and have a more balanced focus on the needs of self and others. Doing so would represent a reduction in interpersonal vulnerabilities that typically promote and sustain GAD; thus, it is not surprising that across multiple studies from the Westra et al. (2016) trial, *both* interpersonal problems and worry reduced in a

similar manner over the follow-up period, with resistance management now established as a prime candidate mechanism of the effect of treatment on all of these symptom and interpersonal outcomes. And, in an important triangulation of method and data, several qualitative interview-based studies with the patients from Westra et al.'s trial have also supported this corrective experience notion (Khattra et al., 2017; Macaulay, Angus, Khattra, Westra & Ip, 2017; Morrison et al., 2017).

As alluded to throughout this report, the present results further inform clinical practice when treating patients with GAD. Clinicians should heed the utility of assimilating MI into CBT as a contextually responsive intervention. Not only should this improve long-term worry outcomes, but it may also influence adaptive interpersonal changes. Thus, based on the present work, it seems plausible that interpersonal problems should be considered as an explicit treatment goal, even in a treatment like CBT that centers on cognitions, behaviors, and the physiological aspects of anxiety. Perhaps especially for patients with pronounced problems of nonassertiveness and over accommodation, the emerging interpersonal process between patient and therapist could become the primary vehicle for change in the form of a novel, corrective experience, which should have a ripple effect on the typically privileged GAD symptoms of worry and distress.

Conversely, it is also important for therapists to understand the potential, albeit likely unintended, negative consequences of over adhering to a directive treatment when those vulnerable to problems of nonassertiveness and over accomodation take a stand. Although there may be times that maintaining a "therapist-as-expert" stance is warranted, this does not seem to be one of them. Rather, such perseverative adherence reduces the

likelihood of long-term response – a type of harmful effect in psychotherapy (Castonguay, Boswell, Constantino, Goldfried, & Hill, 2010). In this vein, it seems important that our training models adapt to such empirical findings. To me, training therapists to identify patient resistance, and not just how to deliver a sequenced treatment manual, seems essential (Constantino, Coyne, & Gomez Penedo, 2017). Moreover, therapists should learn to view resistance as an *opportunity* for their patients to have a corrective interpersonal experience rather than something to avoid or "power through" in process. Therapists' responses to resistance can be evidence-based interventions (in this context, MI) that are important for promoting change in various forms.

This study had several notable limitations. First, as noted, the effect of treatment group on change in nonassertiveness over the 12-month follow-up period only approached significance. Thus, it is possible that the direct and indirect effects of treatment on nonassertiveness problems are somewhat distinct from over accommodation problems, which necessitates future research to clarify more precisely. However, given that (a) the nonassertiveness finding approached significance in the expected direction, (b) nonassertiveness and over accommodation share features according to the circumplex measurement of the IIP-32, and (c) the indirect effects of treatment on both outcomes through resistance were significant and consistent, it likely that the non-significant main effect of treatment on nonassertiveness was an issue of statistical power or some other data anomaly. Replication can help to settle this issue.

Second, this study may have limited generalizability beyond patients with severe GAD receiving a form of CBT for their condition. Future research should center on patients with varying degrees of GAD severity, as well as MI's additive effect to other

foundational treatments beyond CBT. Third, the present sample was unintentionally restricted on certain cultural identities, given that both the patients and the therapists were largely White and female. To mitigate the potential influence of overrepresented (in this sample) social identities that are oppressed in the current sociopolitical climate, which could conceivably affect one's perceived ability or "power" to resist in therapy, we controlled for gender and education level in our primary analyses. However, it will be important for future research to replicate the present findings with a more culturally diverse and gender-balanced set of participants. Fourth, patient interpersonal problems were self-reported; thus, future research is needed to corroborate such interpersonal outcomes from multiple perspectives. Finally, resistance was only measured at one session. Future research is needed to examine fluctuations in resistance over the course of therapy, responsive MI use over time, and the related influence on interpersonal outcomes.

Limitations notwithstanding, the present findings add to the literature supporting the short-term efficacy of both CBT and MI-CBT for GAD. The results also support the additive benefit of the context-responsive, integrative condition (MI-CBT) over the long-term. In sum, this work highlights the reach of this additive effect, and further solidifies resistance management as the primary means through which MI-CBT outperforms CBT alone on multiple long-term outcome indices.

APPENDIX A

PENN STATE WORRY QUESTIONNAIRE

Enter the number that best describes how typical or characteristic each item is of you, putting the number next to the item.

1	2	3	4	5
Not at all typical		Somewhat typical		Very typical

_____ 1. If I don't have enough time to do everything I don't worry about it.

_____ 2. My worries overwhelm me.

_____ 3. I don't tend to worry about things.

_____ 4. Many situations make me worry.

_____ 5. I know I shouldn't worry about things, but I just can't help it.

_____ 6. When I am under pressure I worry a lot.

_____ 7. I am always worrying about something.

_____ 8. I find it easy to dismiss worrisome thoughts.

_____ 9. As soon as I finish one task, I start to worry about everything else I have to do.

_____ 10. I never worry about anything.

_____ 11. When there is nothing more I can do about a concern, I don't worry about it any more.

_____ 12. I've been a worrier all my life.

_____ 13. I notice that I have been worrying about things.

_____ 14. Once I start worrying, I can't stop.

_____ 15. I worry all the time.

_____ 16. I worry about projects until they are all done.

APPENDIX B

INVENTORY OF INTERPERSONAL PROBLEMS (32 ITEM VERSION)

People have reported having the following problems in relating to other people. Please read the list below, and for each item, consider whether it has been a problem for you with respect to **any** significant person in your life. Then, circle the number that describes how distressing that problem has been.

The following are things you find hard to do with other people.

It is hard for me to:	**Not at all**	**A little bit**	**Moderately**	**Quite a bit**	**Extremely**
1. Say "no" to other people	0	1	2	3	4
2. Join in on groups	0	1	2	3	4
3. Keep things private from other people	0	1	2	3	4
4. Tell a person to stop bothering me	0	1	2	3	4
5. Introduce myself to new people	0	1	2	3	4
6. Confront people with problems that come up	0	1	2	3	4
7. Be assertive with another person	0	1	2	3	4
8. Let other people know when I am angry	0	1	2	3	4
9. Socialize with other people	0	1	2	3	4
10. Show affection to people	0	1	2	3	4
11. Get along with people	0	1	2	3	4
12. Be firm when I need to be	0	1	2	3	4
13. Experience a feeling of love for another person	0	1	2	3	4
14. Be supportive of another person's goals in life	0	1	2	3	4
15. Feel close to other people	0	1	2	3	4
16. Really care about other people's problems	0	1	2	3	4
17. Put somebody else's needs before my own	0	1	2	3	4
18. Feel good about another person's happiness	0	1	2	3	4
19. Ask other people to get together socially with me	0	1	2	3	4
20. Be assertive without worrying about hurting other person's feelings	0	1	2	3	4

The following are things you do too much.

	Not at all	**A little bit**	**Moderately**	**Quite a bit**	**Extremely**
21. I open up to people too much.	0	1	2	3	4
22. I am too aggressive toward other people.	0	1	2	3	4
23. I try to please other people too much.	0	1	2	3	4
24. I want to be noticed too much.	0	1	2	3	4
25. I try to control other people too much.	0	1	2	3	4
26. I put other people's needs before my own too much.	0	1	2	3	4
27. I am overly generous to other people.	0	1	2	3	4
28. I manipulate other people too much to get what I want.	0	1	2	3	4
29. I tell personal things to other people too much.	0	1	2	3	4
30. I argue with other people too much.	0	1	2	3	4
31. I let other people take advantage of me too much.	0	1	2	3	4
32. I am affected by another person's misery too much.	0	1	2	3	4

APPENDIX C

CLIENT RESISTANCE CODE: BRIEF MANUAL OVERVIEW

Definition of Resistance is "going against, opposing, blocking, or impeding the direction set by the therapist"

This is a process coding system. Content is secondary. For this system, it is important to rely on what is being communicated beyond the words (i.e., ask yourself: "What is the intention of this client behavior?" irrespective of the words used).

Client statements of counter-change, lack of progress, hopelessness, or concerns with the therapy/therapist DO NOT automatically get coded as resistance. Whether or not resistance is inferred from client's statements depends on the context in which reservations are expressed (i.e., **"**Is the intent to go against the therapy/therapist, or not?")

Develop an interpersonal paraphrase. "What is the client saying to the therapist on an interpersonal level?"

Ask yourself: "Where is the therapist going?": The client`s response can then be assessed for whether or not it complies with this direction

Types of interpersonal resistance:

Disagree, Confront, Challenge, Doubt – Responses indicate dissatisfaction or skepticism about the therapy/therapist, disagreements with the therapist, or client's failure to comply with a session directive/homework. Must be clear from interpersonal context that the client's *intention is to oppose/disagree/challenge the direction set by the therapist*

Own Agenda, Sidetracking, Interrupting – Responses indicate the client wants to discuss an issue different from the direction set by the therapist, persists in discussing tangential issues, or interrupting in order to oppose/block therapist

Ignoring, Not Responding, Not Answering – Instances in which the client ignores the therapist by not responding/going in a different direction; withholding information by not responding, giving evasive, non-direct responses to a therapist's direct question; Short, highly abbreviated responses that are clearly non-cooperative

Questions about the Therapist/Treatment – Questions that stem from underlying skepticism and are meant to doubt/challenge the therapist/therapy; questions about treatment procedures. *Tone and intent must be clearly resistant* (i.e., questions for the purpose of clarifying/getting information are not considered resistance)

Quality of interpersonal resistance (assigning codes to time bins):

0 – Absence of resistance. Client is going along with therapist's direction**.** The default code is always 0**.**

1 – Minimal, Qualified resistance. Client is NOT going along with therapist's direction and/or is being skeptical, BUT the context is generally one of cooperation (i.e., sending a mixed interpersonal message of opposition along with a simultaneous intent to cooperate with the therapist); Qualified, tentative, apologetic-like statements/behaviours with a gentle tone; Ambivalent ("yes... but") responses (when the "Yes" part is not a throw-away response)

2 – Clear, Unequivocal resistance. Client does not qualify their response, but rather straightforwardly states their disagreements, doubts, or challenges/questions the therapist. Can occur in process (e.g., sidetrack, ignore, talk over therapist) and/or in content (i.e., responses that are clearly doubtful or are intended to oppose therapist's direction); nonverbal responses (i.e., vocal tone, behavioural gestures) that clearly send the message "I don't agree"; Interruptions that are meant to communicate resistance (i.e., ignoring, blocking the therapist)

3 – Hostile, combative resistance. Client's tone is clearly hostile, combative, or discrediting of the therapist; responses often directly address the therapist personally (e.g., criticizing, questioning therapist's competence); overly firm/emphatic responses; nonverbal behaviours that clearly indicate dismissal/dissatisfaction with the therapist

Codes are NOT mutually exclusive. You may assign *more than one code for each time bin* (Code 0 is an exception).
However, *each code may only be assigned once within the same time bin.*

Carryover (i.e., instances in which the client's resistance continues into the next time bin) continue to be coded at their initial form/quality of resistance, UNLESS the client did/said something that changes the quality of resistance.

Coding system is designed to **capture *quality* of resistance (as defined by 0-3 scale) as opposed to *type* of resistance** (e.g., Ignore vs. Disagree). However, type of resistance is important when providing rationale for your code.

APPENDIX D

CHANGE QUESTIONNAIRE

What is the change that you are considering? Write it here:
to_____

Now answer each of the following questions about this change that you are considering. Wherever there is a blank _____, think of the change that you have written above, and then circle the one number that best describes where you are right now. For example, if you had written "get a job" on the line above, then item 1 for you would "I *want* to get a job" and you would indicate hoe much you want to get a job.

1. I ***want*** to _____	0 1 2 3 4 5 6 7 8 9 10 Definitely Not Probably Not Maybe Probably Definitely
2. I ***could*** _____	0 1 2 3 4 5 6 7 8 9 10 Definitely Not Probably Not Maybe Probably Definitely
3. There are ***good reasons*** for me to _____	0 1 2 3 4 5 6 7 8 9 10 Definitely Not Probably Not Maybe Probably Definitely
4. I ***have*** to _____	0 1 2 3 4 5 6 7 8 9 10 Definitely Not Probably Not Maybe Probably Definitely
5. I ***intend*** to _____	0 1 2 3 4 5 6 7 8 9 10 Definitely Not Probably Not Maybe Probably Definitely
6. I am ***trying*** to _____	0 1 2 3 4 5 6 7 8 9 10 Definitely Not Probably Not Maybe Probably Definitely

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