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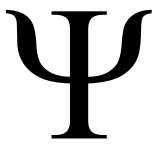

MOTIVATIONAL INTERVIEWING AND COGNITIVE-BEHAVIOUR THERAPY IN THE TREATMENT OF ANXIETY DISORDERS: A SYSTEMATIC REVIEW

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Foreword

The idea of writing about the combination of Motivational Interviewing (MI) and Cognitive-Behaviour Therapy (CBT) stems from my personal interest in these approaches and the field of psychotherapy integration. The topic first garnered my interest during the autumn of 2014, after joining a supervision team using Motivational Interviewing Treatment Integrity (MITI) to evaluate and give feedback on health practitioners' use of MI.

A year later, during the autumn of 2015, I started working on a review of studies investigating the combination of MI and CBT in treating anxiety disorders. Later the same autumn, I presented my idea to Dr. Helge Molde as possible project for my final paper due the next year. Dr. Molde enthusiastically received the idea, and became my supervisor on the spot. In November 2015, I mailed Dr. Henny A. Westra, who has published extensively on this field, and received early drafts and findings that further fuelled my inspiration. Supervision with Dr. Molde began in earnest during the spring of 2016, with a goal of producing an article for publication in a scientific journal.

During the summer of 2016, however, a review emerged in press with quite a similar aim as my own. Albeit somewhat disheartened by this development, I resolved to make mine a more comprehensive and in-depth review with a broader focus. I discarded the idea of publishing my text, and focused instead on producing something larger in scale that could serve as a foundation for later works. The result is the present systematic review.

I would like to thank my supervisor Dr. Molde, who has provided an unprecedented amount of supervision and support, as well as university librarian Kjersti Aksnes-Hopland, who provided invaluable help in developing my search strategy. I would also like to thank friends and family for both feedback and support.

Supervisor: Helge Molde, University of Bergen

Abstract

Cognitive-behaviour therapy (CBT) is an evidence-based approach to treating a wide range of anxiety disorders. However, several clients drop-out of treatment prematurely, lack engagement in therapy, or do not achieve optimal symptom improvement. One reason for these sub-optimal responses may be issues of motivation and ambivalence. Motivational interviewing (MI) is designed specifically to address such issues, and may be particularly effective when combined with other treatments. The present study systematically reviews the literature on combining MI with CBT for anxiety disorders to increase engagement and symptom improvement in therapy. Qualitative as well as quantitative research published between the range of 2003 and 2016 in peer-reviewed journals is reviewed for a total of 24 publications. This literature suggests that MI may increase both engagement in treatment and symptom improvement of CBT for a range of anxiety disorders. However, the findings are not unitary, and important limitations characterize the literature. These limitations attenuate the conclusions of this literature, but also suggest several avenues for future research. In particular, more coherent frameworks for integrating MI and CBT may be warranted in advancing this field of research further.

Key words: Motivational interviewing, cognitive-behaviour therapy, anxiety disorders, psychotherapy integration

Sammendrag

Kognitiv atferdsterapi (KAT) er en evidensbasert tilnærming til å behandle et bredt spekter av angstforstyrrelser. Samtidig er det flere klienter som dropper ut av terapi, mangler engasjement i behandlingen, eller ikke oppnår optimal symptomforbedring. En grunn for disse utfallene kan være problemer knyttet til motivasjon og ambivalens. Motiverende intervju (MI) er utarbeidet spesifikt for å adressere slike problemstillinger, og kan være særlig effektivt i kombinasjon med andre behandlingstilnærminger. Denne teksten er en systematisk gjennomgang av litteratur der MI kombineres med KAT for å styrke engasjement og symptomreduksjon i behandling av angstforstyrrelser. Kvalitativ og kvantitativ forskning på dette temaet publisert mellom 2003 og 2016 gjennomgås, totalt 24 publikasjoner. Denne litteraturen tilsier at MI kan styrke klienters engasjement i behandling samt bidra til økt symptombedring i KAT for pasienter med en rekke angstforstyrrelser. Samtidig er ikke funnene entydige, og det er flere begrensninger som karakteriserer litteraturen. Disse begrensningene svekker muligheten til å trekke sikre konklusjoner, men peker samtidig ut områder for fremtidig forskning. Behovet for å benytte helhetlige rammeverk for å integrere MI og KAT fremstår særlig relevant for å utvikle dette forskningsfeltet videre.

Nøkkelord: Motiverende intervju, kognitiv atferdsterapi, angstforstyrrelser, psykoterapi-integrasjon

MOTIVATIONAL INTERVIEWING AND COGNITIVE-BEHAVIOUR THERAPY IN THE TREATMENT OF ANXIETY DISORDERS

Cognitive-behaviour therapy (CBT) has been established as an effective treatment for patients with anxiety disorders, a claim supported by a number of meta-analyses (Hofmann & Smits, 2008; Ishikawa, Okajima, Matsuoka, & Sakano, 2007; Stewart & Chambless, 2009). For instance, Hofmann and Smits (2008) found moderate to large effect sizes of CBT on a broad range of adult anxiety disorders in their meta-analysis of randomized and placebo-controlled studies. Stewart and Chambless' (2009) meta-analysis found that CBT for adult anxiety disorders yielded large effect sizes also in clinically representative conditions. Finally, a meta-analysis by Ishikawa et al. (2007) concluded that CBT is an effective treatment for anxiety disorders among children and adolescents. These results are of great value, considering the vast personal, social, and economic burdens of anxiety disorders (Dozois & Westra, 2004).

At the same time, CBT for anxiety disorders has room for improvement. Indeed, studies have suggested that approximately 15-30% of clients withdraw prematurely from CBT (Arch & Craske, 2009; Bados, Balaguer, & Saldana, 2007; Hans & Hiller, 2013). Furthermore, among those who complete CBT, not all clients with anxiety disorders have been found to respond optimally. For example, a Cochrane review by Hunot, Churchill, Teixeira, and Silva de Lima (2007) found that only 46% of clients with generalized anxiety disorder (GAD) demonstrate clinically significant improvement following psychological therapies based on CBT principles. Similarly, using intention-to-treat criteria with samples of children and adolescents, a meta-analysis by James, Soler, and Weatherall (2005) found that about half of participants with anxiety disorders did not respond to CBT.

As such, while CBT has shown promising results for anxiety disorders, some clients may not engage with or profit from CBT as well as others. Understanding and addressing

these different responses is of great importance, due to the significant popularity and continuing dissemination of this form of therapy.

Motivation and CBT

One reason for why clients differ in their response to CBT may be their different levels of motivation for change (Aviram & Westra, 2011; Lombardi, Button, & Westra, 2014; Westra, Aviram, & Doell, 2011). Indeed, in their review of empirical studies, Keijsers, Schaap, and Hoogduin (2000) concluded that client motivation significantly affects outcome in CBT for anxiety disorders. Huppert, Barlow, Gorman, Shear, and Woods (2006) found that client motivation interacted with therapist adherence to CBT in predicting outcome for panic disorder. As such, some clients may possess significant intrinsic motivation to address their anxiety, even prior to coming to therapy. With its clear focus on challenging maladaptive thoughts and behavioural patterns, CBT can quickly engage such clients and their therapists in a productive alliance.

However, other clients are not necessarily motivated for treatment, and low levels of motivation may be related to the abovementioned issues in engagement and response. For instance, one survey found that minimal client motivation at the outset of evidence-based therapy for panic disorder was identified as a problem by 67% of the therapists surveyed (American Psychological Association, 2010). Studies by Haan et al. (1997) and Keijsers, Kampman, and Hoogduin (2001) found that low motivation for CBT correlates with drop-out, and a study by Bados et al. (2007) concluded that low motivation was actually among the most common reasons for drop-out in CBT, rivalling reasons such as external difficulties and clients' perception of improving or not. Finally, Helbig and Fehm (2004) found that therapists most often attributed clients' noncompliance with homework to clients' level of motivation for therapy.

How therapists handle different levels of motivation, then, seems important to understand. Beutler, Harwood, Michelson, Song, and Holman (2011) have suggested that therapists need to adjust the directiveness of therapy to clients' degree of cooperation in treatment. That is, the more cooperative clients are, the more they will profit from directive treatments. As such, clients who are experiencing hesitation and ambivalence about a therapeutic project may be in need of more supportive interventions.

CBT being a directive therapy (Beck, 2011) this would necessitate a certain degree of flexibility from therapists adhering to this model. However, research by Castonguay, Goldfried, Wiser, Raue, and Hayes (1996) has suggested that cognitive therapists are prone to adhere *more* to treatment strategies in response to alliance issues. Such strategies may stem from a focus in cognitive approaches on adequately socializing patients to the cognitive model in face of resistance or doubts (Beck, 2011). Castonguay et al. (1996) have argued that this focus may lead to a negative cycle between therapist adherence to treatment procedures and clients' unresponsive behaviour, ultimately resulting in increased rather than decreased resistance. Alternative approaches, then, may be warranted.

Motivational Interviewing

Motivational interviewing (MI) is "a collaborative conversation style for strengthening a person's own motivation and commitment to change" (Miller & Rollnick, 2013, p. 29). Its central goal is to make the client, rather than clinician, the advocate for change (Arkowitz & Westra, 2004; Miller & Rollnick, 2013). MI and adapted versions of it, such as Motivational Enhancement Therapy (MET), have been developed and supported as evidence-based interventions for improving addictive and health behaviours, (Hettema, Steele, & Miller, 2005).

According to MI, people can experience conflicting motivations, and as such be in a state of ambivalence (Miller & Rollnick, 2013), or "stuckness" (Constantino, Boswell,

Bernecker, & Castonguay, 2013). For instance, clients can be motivated to both change their anxiety disorder *and* be motivated to uphold their current functioning without going through treatment. Poor handling of such ambivalence is assumed to result in both overt and covert signs of resistance in therapy, for example noncompliance with treatment procedures or drop-out (Miller & Rollnick, 2013).

MI encompasses a set of both relational and technical skills to deal with such ambivalence and resistance (Miller & Rose, 2009). The relational component of MI is the so-called "MI-Spirit" (Miller & Rollnick, 2013). This advices clinicians to maintain a collaborative, empathic, and autonomy-supportive attitude (Miller & Rose, 2009). This component has strong connections with Rogers' (1957) necessary and sufficient conditions for fostering change in therapy. It is assumed to contribute to a healthy alliance in which clients can explore their ambivalence without feeling pressured from the therapist to change. Without this spirit, the developers of MI argue that it becomes a "cynical trick, a way of trying to manipulate people" (Miller & Rollnick, 2013, p. 14).

The technical component of MI is directed towards managing what clients are talking about in therapy (Miller & Rose, 2009). More specifically, clinicians will strive towards increasing the levels of clients' *change talk* and decrease their levels of *counterchange talk* (Lombardi et al., 2014). Change talk refers to the clients' explicit articulation of arguments for carrying through a change, such as one's desire, ability, reason, need and commitment to change (Miller & Rollnick, 2013). Counterchange talk, or sustain talk, is the clients' explicit articulation against change and for maintaining the status quo (Lombardi et al., 2014). Such arguments include "My anxiety disorder makes life predictable and reduces immediate discomfort" or "Treatment will be too difficult, I'll never be rid of my anxiety disorder". To foster change talk, clinicians apply strategies such as supporting the clients' self-efficacy and

rolling with resistance (e.g. reflecting counterchange talk, agreeing with a twist), rather than confronting the client or arguing (Miller & Rollnick, 2013).

MI and CBT in the Treatment of Anxiety

MI and CBT seem to contain different principles and methods that are valid and relevant to clients at separate points in time (Arkowitz & Westra, 2004). MI is focused on increasing clients' intrinsic motivation for change and enhancing the outcomes of such change efforts through increased commitment. Furthermore, strategies and principles from MI are tailored to address issues of ambivalence and resistance in optimal ways. CBT, on the other hand, provides an evidence-based framework for actually carrying out changes in cognition and behaviour that are relevant to anxiety disorders.

The stage seems to be set then, for combining MI and CBT to address issues of motivation and ambivalence. In line with this, MI has been shown to be particularly effective in combination with other treatment modalities (Hettema et al., 2005) and researchers have proposed several ways of achieving an integration with CBT (Westra, 2012). Three such approaches are described below.

MI as a pre-treatment to CBT. In the transtheoretical model of change (Prochaska & DiClemente, 2005), MI is understood to be relevant at certain stages of a clients' change process. In this framework, MI might seem particularly relevant during early stages of therapy, even before committing to treatment. MI applied in these phases may contribute to increased engagement in therapy by dealing with issues of ambivalence that would not have been adequately addressed in standard CBT (Westra, 2012). Such issues may include low expectations about therapy, conflicting motivations, or fear of treatment procedures (Constantino et al., 2013).

MI as a marker-based intervention in CBT. However, the founders of MI have argued that it should not be restricted to particular stages of change (Miller & Rollnick, 2009).

Clients can have sessions or moments where motivational issues are salient even *after* committing to change, and as such, MI might be valuable beyond the early stages of change. More specifically, clinicians can shift out of an action-oriented approach towards MI in the face of motivational impasses at any point in therapy (Westra, 2012).

This view is consistent with *context-responsive psychotherapy integration* (Constantino et al., 2013; Constantino, DeGeorge, Dadlani, & Overtree, 2009). This framework "proposes an if-then structure for therapists to respond to clients' personal characteristics and emerging clinical scenarios with context-relevant, evidence-based therapeutic strategies" (Constantino et al., 2013, p. 1). It advocates elucidating empirically derived *markers* in therapeutic processes, and developing evidence-based strategies to address these. In context-responsive psychotherapy integration, change ambivalence is regarded as one such marker and MI as its adequate intervention (Constantino et al., 2009).

Notably, in her textbook on CBT, Beck (2011) adviced therapists to evaluate whether there are issues in terms of alliance or goal agreements with the client when facing "stuck points" *before* addressing issues of socialization to the cognitive model. This prioritization seems to align well with the abovementioned approach as well as principles in MI.

MI as a foundational platform in CBT. Finally, MI carries with it a relational attitude, described above as the "MI-spirit". This client-centred platform seems to expand upon the collaborative relationship emphasized by Beck (2011) in her original conceptualization of CBT. Westra (2012) has argued for the possibility of letting this spirit permeate treatment of anxiety to facilitate therapy, for example by increasing therapists' sensitivity to how clients talk about change, as well as their moment-to-moment engagement in therapy. In this final approach, «*MI can serve as a foundational framework into which other treatments can be integrated*» (Westra, 2012, p. 15).

In sum, motivation and ambivalence about therapy may be relevant to understand why some patients have suboptimal responses to CBT for anxiety disorders, such as drop-out or lack of improvement. Furthermore, there are several potential ways of accomplishing a combination of MI and CBT that may address these issues. Importantly, there are principles in CBT that seem to align with MI (Beck, 2011), meaning that this may be a question of expanding existing ideas rather than fundamentally altering CBT.

The idea of combining MI with CBT for anxiety disorders has received increased research focus the past decade. A critical review by Randall and McNeil (in press) covered 17 articles on this topic published between 2005 and 2012, and concluded that this combination is both feasible and promising. Furthermore, a meta-analysis of quantitative studies by Romano and Peters (2015) suggested that MI can, indeed, increase engagement in treatment among clients with mental health problems such as anxiety, depression and psychosis. To date, however, no systematic review has provided an extensive overview of all the published literature on this field.

The Present Study

This systematic review will review studies that investigate whether MI can provide relational and technical tools to address issues of motivation and ambivalence in CBT for anxiety disorders. It will expand upon Randall and McNeil's (in press) review by including research published both before and after their range. The present study will also describe relevant procedures and findings from each study in more detail, attempting at a more extensive and in-depth overview of the available literature. Furthermore, the findings of the present study will be discussed in the context of how future research can be informed through coherent frameworks for integrating MI and CBT.

Method

To find relevant literature, systematic searches of PsycInfo, Medline, and Web of Science were performed using the following search criteria: (MI OR "motivation* interview*" OR "motivation* enhanc*") AND (CBT OR "cognitive behavio*" OR expos*) AND (anxi* OR phobi* OR "obsessive compulsive" OR OCD or "post-traumatic" OR posttraumatic OR PTSD).

To control and expand search terms within their respective brackets, *Controlled vocabulary* (i.e. subject headings) was used in PsycInfo and Medline. The following terms were used in this process: Motivational Interviewing, Cognitive Behavior Therapy, Obsessive Compulsive Disorder, Posttraumatic Stress Disorder, Anxiety Disorders, Phobias. Supplementary searches were conducted in Pubpsych and Google Scholar. Searches were limited to peer-reviewed journals with no restriction on date or language. The search ended on 22.09.2016.

The following criteria were used for finding eligible research:

- Anxiety disorders had to be a focus of treatment
- The study had to apply either a quantitative (e.g. randomized controlled trial [RCT], mediator-analysis) or a qualitative approach (e.g. case studies, qualitative analysis)
- The study investigated consequences of applying principles and strategies from MI for engagement and/or symptom outcome in CBT
- Principles and strategies from MI had to be conceptualized as core elements in the relevant interventions

Studies were excluded if a primary focus of treatment was substance disorder, pathological gambling, psychosis, or bipolar disorder, or if MI was included only as a component to ≥2 add-ons (e.g. relaxation training, anger-control strategies, sleep scheduling).

The search resulted in 256 articles. Based on title and abstract, 111 articles were excluded due to not focusing on MI and CBT, 74 articles were excluded due to focusing on other disorders than anxiety (e.g. substance disorder, problem gambling), and 33 articles were excluded due to not conducting quantitative or qualitative research (e.g. reviews, commentaries). The remaining 38 articles were deemed relevant from title and abstract alone.

After reviewing the full text of these 38 articles, another 14 were excluded: 12 due to focusing on MI or CBT alone rather than their combination, 1 due to not being a quantitative or qualitative study, and 1 due to not focusing on treatment of anxiety disorders. The final result was 24 articles that were judged adequate for this review. In line with the statement on Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; Moher, Liberati, Tetzlaff, & Altman, 2009), the search strategy is displayed in Figure A1, Appendix A and the full list of search terms used in PsycInfo is included in Appendix B.

Results

The 24 studies included in this review are summarized in Appendix C. Below, each study is reviewed within its respective diagnostic category. Where available, effect size is indicated by Cohen's *d*. As described by Cohen (1988), the size of each effect can be evaluated as follows: small (0.2), medium (0.5), and large (0.8).

Mixed Anxiety Disorders

Two reports of case studies (Westra, 2004; Westra & Phoenix, 2003) as well as three RCTs (Barrera, Smith, & Norton, 2016; Dean, Britt, Bell, Stanley, & Collings, 2016; Westra & Dozois, 2006) were found that examined the combination of MI with CBT for a sample with mixed anxiety disorders.

Early case studies. Westra and Phoenix (2003) described two adult clients who did not respond to traditional CBT, and how MET was used as an alternative treatment intervention for these clients. The first client was a woman with panic disorder and GAD. Her panic disorder was readily treated with traditional CBT, yet symptomology associated with GAD did not improve. The therapist and client agreed, in line with MI, to focus more on her ambivalence on whether to change cognitive and behavioural patterns associated with GAD or not. This shift of focus proved effective for this client, who within 5 sessions scored within the normal range on symptom scores.

The second client, diagnosed with generalized social anxiety disorder, was described as having a poor prognosis for therapy given a largely pessimistic attitude towards treatment. Homework compliance, engagement, and outcome were all low during CBT, and a shift towards motivational interventions was undertaken. However, strategies and principles from MI yielded little extra therapeutic gains. The authors argued that, despite not improving engagement or response, MI still provided a valuable springboard for discussing termination and future treatment options for this client.

Westra (2004) presented three more cases in which the author applied strategies and principles from MI following various issues in clients' response to CBT. The three clients suffered from different anxiety disorders in addition to major depressive disorder (MDD). Every client had suboptimal responses at different stages of CBT, including unwillingness to go through homework tasks at the outset of therapy and pessimism about treatment outcomes due to former CBT nonresponse.

The clients were offered the opportunity to engage in a more MI-focused treatment, involving strategies such as exploring ambivalence about change as well as core values in their lives. These MI-related strategies seemed to build discrepancy between the clients' current state of functioning and their self-concepts. Furthermore, they seemed to preserve the

therapeutic relationship through difficult times in the treatment course. For a client who expressed unwillingness to go through CBT tasks, MI-focused strategies were used to help her commit to and profit from CBT. For two clients who did not respond optimally to CBT, MI seemed to be a better treatment option in terms of symptom outcome. All clients evidenced treatment gains on measures of psychopathology at the end of their courses.

MI as a pre-treatment to CBT for multiple anxiety disorders. Following these case studies, Westra and Dozois (2006) conducted an RCT to explore the effect of adding MI as a pre-treatment to CBT. They randomized 55 participants with at least one anxiety disorder (panic disorder with or without agoraphobia, PDA; social anxiety disorder, SAD; or GAD) to receive either three sessions of MI (n = 25) or no pre-treatment (NPT; n = 30). All participants then received group CBT for anxiety.

After MI pre-treatment, but prior to CBT, the authors found that participants' expectations of improvement increased significantly compared to baseline. No such pattern was evident among participants the NPT group. However, participants from the MI group did not report less anxiety symptoms than those from the NPT group after the pre-treatment phase.

After group CBT, both groups achieved clinically significant improvements. Participants from the MI group, however, had significantly greater reductions on primary outcome measures of anxiety (d = 0.38) compared to those from the NPT group. Notably, preliminary examinations of outcome effect sizes for different diagnoses suggested a particularly large effect on GAD (d = 1.29).

Significantly more participants from the MI group were also classified as responders to CBT; that is, scoring below clinical cut-off on symptom measures. Among those in the MI group, 75% were classified as responders, compared to 50% of those in the NPT group. While 10% of participants from the MI group were classified as non-responders, the same was true

for 44% from the NPT group. The authors also found that increased expectancy of improvement prior to CBT was strongly and significantly correlated with actual change.

Participants from the MI group completed significantly more self-reported homework than the NPT group (d = 0.96). Preliminary analyses suggested that effect sizes of MI on homework compliance varied with diagnostic group, with PDA and GAD displaying particularly large effect sizes. There was however no significant between-group difference for therapist-rated homework compliance. At six months follow-up, treatment gains were maintained, suggesting that the enhanced CBT-response among participants from the MI group was durable.

The impact of a single session of MI combined with CBT for mixed anxiety disorders. Barrera et al. (2016) examined the impact of a single 50 minute session of MI prior to transdiagnostic group CBT for anxiety. The authors' primary aim was to see whether this single pre-treatment session could result in increased engagement among participants. They also examined whether MI could impact symptom outcome measures.

The authors randomized 39 participants to receive either a single MI session (n = 20) or NPT (n = 19). Among these participants, 18 were diagnosed with SAD, 10 with PDA, 8 with GAD, 2 with OCD, and 1 anxiety disorder not otherwise specified (NOS).

Concerning treatment engagement, participants from the MI group were significantly more likely to initiate treatment compared to participants from the NPT group. Participants from the MI group also attended significantly more CBT sessions than participants from the NPT group. However, when restricting the analysis to only those who actually initiated CBT, the difference in number of attendances was no longer significant. 75% of those from the MI group were classified as treatment completers (i.e. attended $\geq$ 7 CBT sessions) versus 53% in the NPT condition. However, this difference in degree of retention was not statistically significant.

Measures of expectancies and motivation for change did not provide significant results. A single exception was that participants in the MI condition had greater expectancies about improvement in anxiety symptoms in the year after CBT. Furthermore, there were no statistically significant differences in terms of homework compliance, and the authors found no statistically significant difference in outcome of anxiety symptoms following treatment between the two groups.

MI combined with group CBT for an adolescent sample with anxiety and/or mood disorders. Dean et al. (2016) examined the effect of adding MI to group CBT, aiming to enhance treatment engagement among adolescents with anxiety and/or mood disorders. The authors randomized 96 adolescents between the age of 13 and 18 to receive either MI as a brief engagement session (n = 46) or a *befriending* control group (n = 50) prior to CBT. The befriending procedure was based on a protocol for control groups in psychotherapy research by Bendall, Killackey, Jackson, and Gleeson (2003) and involved equal contact time as the MI intervention. This condition was included to see whether MI could enhance engagement for treatment when compared to an active control group.

The authors found that participants in the MI group attended significantly more sessions of group CBT. More specifically, participants from the MI group attended a mean of 4.0 out of 5 sessions compared to 2.7 out of 5 sessions for the control group. Participants from the MI group were also significantly more likely to initiate group CBT than participants in the control group. While 96% of those in the MI group attended at least one session, the same could be said for 80% of those in the control group. Following pre-treatment, participants from the MI group also rated themselves as significantly more ready for treatment on a readiness scale.

Social Anxiety Disorder

The literature search resulted in one case study (Buckner, 2009) and two RCTs (Buckner & Schmidt, 2009; Titov et al., 2010) that examined the combination of MI and CBT for social anxiety disorders.

Using MI to increase willingness to seek CBT for SAD. Research fronted by Julia D. Buckner has focused on using MET as an intervention to increase willingness to seek CBT among individuals with SAD who do not seek treatment. In a case study, Buckner (2009) described one such client. The client was described as being ambivalent about her ability as well as her willingness to change her social anxiety. She received three sessions of MET, in which the focus was to explore the impact of her anxiety disorder on her life, pros and cons of seeking CBT, and how her values conflicted with her current situation. Measures of motivation indicated that both her confidence and willingness to enter therapy increased over these sessions. At the third and final session, the client expressed intention to begin CBT, and did so.

The authors note that, while not the explicit intention of the MET sessions, the client had begun taking steps towards exposing herself to anxiety provoking situations prior to beginning CBT, and her social anxiety scores were in the non-clinical range when entering therapy. Therefore, the goal of therapy was to focus on relapse prevention and maintenance of the therapeutic gains she had already made. At the end of CBT, her SAD was deemed to be in full remission.

Buckner and Schmidt (2009) have published an RCT on the same issue: Can MET increase the probability that people with SAD will seek CBT? The authors randomized 27 participants with SAD who were not seeking treatment for their disorder into two conditions. One received MET (n = 12) while the other served as a control group (n = 15).

Both groups received information about CBT as an effective treatment for anxiety disorders, a basic introduction to Beck's (2011) cognitive model, as well as information on how to engage in CBT. Afterwards, both groups went through three evaluation-sessions. The MET group also received motivational enhancement therapy, resulting in about 3.5 hours more interaction with a therapist. The primary dependent variable was what group was more likely to seek CBT, and also secondary variables related to measures of motivation.

The authors found that participants who received MET were significantly more likely to initiate CBT, with 58.3% from the MET group attending a CBT appointment compared to 13.3% from the control group. Willingness to schedule a CBT appointment increased at a significantly greater rate in the MET group than in the control group. This measure was also significantly and positively related to attending a first CBT appointment among all participants, and agreeing to be contacted by a therapist schedule an appointment. Among participants from the MET-group, confidence to change social-anxiety related behaviour also increased at a significantly greater rate. However, other indices of motivation were not significantly affected by MET in this study.

MI applied in internet based CBT for SAD. In a separate strand of research, Titov et al. (2010) investigated the effect of adding material based on MI to a self-guided internet-based CBT-programme (iCBT) for SAD. Their study sought to replicate earlier positive effects on iCBT for SAD (Titov, Andrews, Choi, Schwencke, & Mahoney, 2008) while increasing improvement and attendance with MI-strategies. The authors randomized 113 participants to receive either the MI + iCBT programme (n = 56), or the iCBT programme alone (n = 57). Participants in the MI + iCBT group received MI-related material (lessons and homework derived from MI manuals) in combination with two educational lessons at the beginning of the programme, while the iCBT-only group received the two educational lessons only.

In terms of attendance, significantly more participants from the MI + iCBT group (75%) completed all lessons within the required time frame compared to those who received iCBT alone (56%). However, the MI procedure did not seem to contribute significantly to increasing participants' levels of motivation or determination about treatment. Adding to this, the authors found no significant differences between the groups in terms of improvement on symptom measures. Both groups attained large and comparable mean within group-effect sizes following treatment, with 42% of the MI + iCBT participants achieving clinically significant and reliable change compared to 38% of the iCBT-only group. These gains were maintained at follow-up. Both forms of treatment were also rated as equally highly acceptable.

Generalized Anxiety Disorder

Combining MI with CBT for GAD has been the focus of two RCTs fronted by Henny A. Westra (Westra, Arkowitz, & Dozois, 2009; Westra, Constantino, & Antony, 2016). The literature search also found a number of qualitative and quantitative research publications related to these RCTs, two of which qualified for this review (Aviram & Westra, 2011; Kertes, Westra, Angus, & Marcus, 2011).

MI as a pre-treatment to CBT for GAD. Westra et al. (2009) randomized 76 participants with GAD into two groups. Similar to their earlier design (Westra & Dozois, 2006), one group received four sessions of MI as pre-treatment to CBT (n = 38) and the other group received no pre-treatment (n = 38).

After completing CBT, both groups showed significant decreases in anxiety symptoms, but the authors found that participants from the MI group scored significantly lower on degree of worry as measured by Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990) than those from the NPT group at a moderate effect size (d = 0.53). Reduction of worry occurred both after MI *and* CBT for participants from the MI

group. The effect was judged clinically significant, with 92% of the MI group falling below clinical cut-off on this measure post treatment. There were zero (0%) non-responders from the MI group. The comparable results for the NPT group were 71% and 21%. However, no significant results were found on other measures of psychopathology.

Participants from the MI group completed significantly more homework than those in the NPT group as rated by the therapists, at a moderate effect size (d = 0.59). However, there were no significant differences between groups on client-rated homework compliance, though there was a small effect size (d = 0.26) in favour of the MI group. Increased homework compliance also seemed to mediate the relationship between receiving MI as a pre-treatment and lower levels of worry post CBT.

The authors found that low levels of intrinsic motivation interacted with MI in predicting post-treatment worry. For participants with low levels of intrinsic motivation, those in the MI group (n = 13) improved more on PSWQ following CBT than those in the NPT group (n = 17) at a large effect size (d = 0.90). No such relationship emerged at high levels of intrinsic motivation. Furthermore, this interaction was not detected on other symptom measures.

The impact of MI was also moderated by the severity of worrying among participants. The authors found that the majority of those who were less prone to worry following CBT were those who had the highest worry at baseline in the MI group. For this group of participants with severe GAD (PSWQ score $\geq$ 68), the MI-CBT procedure had a large effect on degree of worrying (d = 0.96) compared with CBT alone. People with severe GAD also had significantly better outcomes from four hours of MI alone than participants in the NPT group had from four hours of CBT alone. The reverse was true for participants with moderate degree of worry.

At 6 and 12 months follow-up, between-group differences on PSWQ scores were no longer evident. The same conclusion applied to diagnostic status at 12 months follow-up. Analyses suggested that these patterns varied based on worry severity, with a trend towards more maintenance of treatment gains among participants with severe GAD who had received MI-CBT at 12 months follow-up. More specifically, 81% of those in the MI group with severe GAD no longer met the criteria for GAD after 12 months compared with 56% of those in the NPT group.

Does resistance mediate the impact of MI on outcome after CBT for severe GAD? Aviram and Westra (2011) investigated how MI influences levels of resistance early in CBT, and how resistance mediates outcome post-treatment among those with severe GAD in Westra and colleagues' (2009) study. Based on videotapes of participants with severe GAD from both the MI-CBT group (n = 18) and the NPT group (n = 17), trained coders assessed levels of resistance during the first session of CBT.

The authors found that participants who received MI as a pre-treatment displayed significantly reduced resistance compared to no pre-treatment during their first session of CBT. More specifically, the pre-treatment condition could account for 36% of the variance in observed resistance at a large effect size (d = 1.45). They also found that participants who received four sessions of MI as a pre-treatment displayed significantly reduced resistance compared to four sessions of CBT with no pre-treatment, accounting for 21% of the variance in resistance at a large effect size (d = 1.00).

Using a path-analytic model, the authors found that levels of resistance during the first session of CBT correlated significantly with levels of worry after CBT. Contrary to the authors' hypothesis, however, the effects of resistance on outcome were not mediated by homework compliance in this model. Rather, resistance displayed direct effects on both symptom outcome *and* homework compliance. Indeed, no direct effects between homework

compliance and levels of worry after CBT emerged in this model when early levels resistance were included.

How does MI affect the experience of CBT for GAD? In a qualitative research publication, Kertes et al. (2011) investigated how 10 participants with severe GAD from Westra and colleagues' (2009) study experienced CBT following either MI as a pre-treatment or NPT. Five participants from each group were selected and matched for CBT therapist, gender, and level of intrinsic motivation. The authors used semi-structured narrative interviews to interview participants about their experience with CBT immediately following treatment, and analysed the data using grounded theory and consensual qualitative research methods. The authors found four core categories that could represent the data material: (1) Experience of the Therapist, (2) Experience of the Therapy Process, (3) Experience of Self, and (4) Theory of Therapy.

Participants from the MI group more often reported the therapist to be an evocative guide who facilitated them in their exploration of themselves. Participants from the NPT group more often reported their therapists to be directive and instructive. In line with this, participants more often described themselves as active and engaged during CBT following MI, than following NPT. Participants from the NPT group more often described themselves as being passive and even non-compliant.

Furthermore, participants in the MI group described complementary and synergistic aspects of receiving both MI and CBT. MI was generally described as more horizontal and exploratory, while CBT was described as more vertical and goal-oriented. Both groups described CBT-specific techniques (homework, exposure, thought records) as well as common factors as being helpful aspects of therapy. However, participants' experience of exposure differed between the groups: While no participant who received MI described exposure as unhelpful, this was the case for four out of five participants in the NPT group.

MI as a pre-treatment to CBT for severe GAD. In a recently published RCT, Westra et al. (2016) randomized 85 participants with severe GAD to receive either 4 sessions of MI and 11 sessions of CBT integrated with MI (n = 42) or 15 sessions of CBT alone (n = 43). The authors predicted that participants from the MI group would display greater and more clinically significant improvements on primary outcome measures and diagnostic status. They also predicted that the same group would be less likely to drop out of treatment prematurely. A measure of motivation for change was also administered. Despite randomization, participants in the control condition reported significantly higher levels of motivation at baseline (d = 0.55).

At post-treatment, there were no immediate significant differences between the groups on outcome measures. Twice as many participants dropped out of the CBT alone group compared with MI group (23%, n = 10 versus 10%, n = 4), yet statistically this difference was only a trend. During the 6 and 12 months of follow-up, however, significant differences emerged. On both self-reported worry as measured by PSWQ and general distress as measured by the Depression Anxiety Stress Scales (DASS; Lovibond & Lovibond, 1995), participants from the MI group displayed significantly steeper rates of improvement. More specifically, treatment condition could account for 7.84% and 19.05% reduction of unexplained variance in rate of worry and distress change respectively across the follow-up period in favour of the MI group.

Participants from the MI group also displayed significantly higher rates of recovery and clinically significant change. At 12 months follow-up, participants in the MI group had 5.49 times greater odds of no longer meeting diagnostic criteria for GAD than participants who received CBT alone. They also had 7.43 and 5.50 times greater odds of meeting criteria for clinically significant change on PSWQ and DASS respectively. The authors concluded that, while participants in the CBT-alone group generally maintained their gains, participants

who received CBT integrated with MI both maintained and continued to improve after treatment.

Obsessive Compulsive Disorder

OCD has been the focus of several articles investigating the combination of MI and CBT. One case study (Riccardi, Timpano, & Schmidt, 2010), one open pilot trial (Simpson, Zuckoff, Page, Franklin, & Foa, 2008) and five RCTs were found that qualified for this review (Maltby & Tolin, 2005; Merlo et al., 2010; Meyer, Shavitt, et al., 2010; Meyer, Souza, et al., 2010; Simpson et al., 2010).

MI applied to increase acceptance of OCD treatment among treatment refusers. Maltby and Tolin (2005) developed a 4-session readiness intervention (RI) designed to increase the acceptance of exposure and response prevention (ERP) CBT for OCD. This intervention was developed to combine both psychoeducation about OCD and MI elements. Participants watched a videotape of ERP, spoke with a person who had underwent ERP on the phone, and constructed a sample hierarchy. MI was used explicitly in 2 out of 4 RI-sessions, but MI principles were also used to guide the entire RI. Symptom outcome was measured through the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS; Goodman et al., 1989).

12 participants were randomly assigned to either receive the RI (n = 7) or a wait list condition (WL; n = 5). These participants had a primary diagnosis of OCD of at least moderate severity (score of $\geq$ 16 on Y-BOCS) and refused ERP for other reasons than logistical ones. The authors found that the majority of participants reported that they were contemplating or ready for change, suggesting that ambivalence was not a determining factor in their refusal of ERP. They also rated themselves as moderately confident that ERP was an efficient treatment for their disorder. However, *fear* of ERP was high, with the average participant rating fear at 75 out of 100.

At the end of the pre-treatment phase, the authors found that a significantly greater number of participants in the RI condition agreed to begin ERP compared to the WL condition (6/7 vs. 1/5 respectively). The only significant change in measurements from baseline to post pre-treatment was a greater reduction in fear of ERP in favour of the RI condition.

3 of the 6 participants from the RI condition dropped out prematurely from ERP, while the one remaining participant from the WL condition completed ERP. The small number of participants that completed ERP (n = 4) precluded statistical analysis. The authors note, however, that the average Y-BOCS score of participants from the RI condition dropped from severe at baseline to mild post RI. Their average rate of improvement matched the rates seen in clients who do not initially refuse ERP (59% reduction in total Y-BOCS score). However, the rate of drop-out from ERP among participants in the RI condition was higher than that expected among non-treatment refusers (50% vs. 20-30%). The sole WL-participant remaining did not profit from ERP in this study.

Combining MI with exposure and response prevention for OCD. In an open pilot trial, Simpson et al. (2008) investigated the effects of combining MI with exposure and ritual prevention (EX/RP) in treating six participants with at least moderate OCD. Their aim was to improve outcome from EX/RP through increased retention and adherence. The authors chose to integrate MI and standard early EX/RP procedures (e.g. information about therapy) in the first three sessions, before offering participants 15 sessions of standard EX/RP. However, in a marker-based fashion, the therapists also switched to MI-methods in moments of client resistance during EX/RP.

The authors described the six case studies with attention to the effects of integrating MI with EX/RP. There were several instances in which the therapists chose to apply MI-strategies rather than standard procedures (e.g. psychoeducation or confidence boosting). The

examples often occurred during episodes of resistance, and resolved in constructive ways in line with predictions from MI theory. Overall, the combination of MI with ERP seemed fruitful in five out of six cases.

Building on the results from this open trial with an RCT, Simpson et al. (2010) randomized 30 participants with OCD and at least moderate symptoms on Y-BOCS to either EX/RP alone (n = 15) or EX/RP with MI (n = 15). EX/RP and MI were integrated in the same fashion as in Simpson et al. (2008). Their aim was to see whether this integration was successful (i.e., EX/RP + MI could be identified as closer to MI than standard EX/RP) and whether EX/RP + MI could lead to better client adherence.

The authors found that the EX/RP + MI condition could indeed be identified as more congruent with MI than the EX/RP alone condition. However, MI-competence was generally suboptimal among therapists in this study, both during the first three sessions and throughout EX/RP. There was no difference between therapists in their adherence to EX/RP.

In terms of symptom outcome, this study did not find any significant differences between the groups. Participants from the MI and the EX/RP alone condition both attained clinically meaningful improvement in OCD severity, and their rates of improvement were not significantly different. Furthermore, no difference was found for between-session client adherence to EX/RP.

MI and thought mapping as pre-treatment to enhance cognitive behavioural group therapy for OCD. Elizabeth Meyer and her colleagues have published two articles investigating the impact of adding MI and thought mapping (TM) as pre-treatment interventions to cognitive behavioural group therapy (CBGT) for OCD (Meyer, Shavitt, et al., 2010; Meyer, Souza, et al., 2010). TM involves writing down thoughts, behaviours and consequences related to OCD and connecting these visually (Meyer, Shavitt, et al., 2010). In both articles, MI + TM were provided during two 60-minute sessions before 12 sessions of

CBGT. The control groups received two 60-minute lectures on general health information such as smoking and physical exercise

In their first publication, Meyer, Souza, et al. (2010) randomized 90 participants with at least moderate OCD as measured through Y-BOCS to either the MI + TM group (n = 48) or the control condition (n = 42). Following treatment, they found that participants from the MI + TM group achieved significantly greater symptom reduction when compared to those from the control group, both post-treatment (72.5% reduction in symptoms vs. 56.3%, d = 0.73) and at 3 month follow-up (77.4% vs. 59.4%, d = 0.80). Furthermore, significantly more participants in the MI + TM group achieved full remission compared to those in the control group, again both post-treatment and at 3 months follow-up.

In their second publication, Meyer, Shavitt, et al. (2010) measured six different dimensions of OCD through the Dimensional Yale-Brown Obsessive-Compulsive Scale (DY-BOCS; Rosario-Campos et al., 2006). They also measured general OCD through Y-BOCS. The authors wanted to investigate whether the MI + TM intervention could impact CBGT outcomes on specific dimensions of OCD as well as general OCD. 40 participants were randomized to receive either the MI + TM intervention (n = 20) or the abovementioned control condition. (n = 20) prior to CBGT.

Following treatment, the authors found that both conditions were effective in reducing the global DY-BOCS score, as well as five of the dimension scores, the exception being sexual/religious OCD. However, participants from the MI + TM group improved significantly more on the dimensions of aggression and contamination compared to CBGT alone. Furthermore, statistical trends towards more improvement were found for the hoarding dimension as well total DY-BOCS score when comparing scores from the MI + TM group to the control condition. Finally, compulsion scores on Y-BOCS were significantly improved among participants in the MI + TM group compared those who had received CBGT alone.

Total Y-BOCS scores and Clinical Global Impression (CGI; Kadouri, Corruble, & Falissard, 2007) displayed statistical trends for differences in favour of the MI + TM group.

MI used within CBT to enhance outcome for paediatric obsessive-compulsive disorder. Merlo et al. (2010) investigated the impact of combining MI with 14 sessions of family-based CBT for a paediatric sample of 16 children and adolescents between 6 and 17 years of age (M = 13.3, S*D* = 3.0). All subjects had a primary diagnosis of OCD with Children's Yale-Brown Obsessive-Compulsive Scale (CY-BOCS; Scahill et al., 1997) score $\geq$ 16. Subjects were randomized to either three sessions of MI (*n* = 8) or three control sessions of psychoeducation (*n* = 8). These sessions took place before CBT sessions 1, 4, and 8, lasting between 20 and 30 minutes.

At session 5, subjects from the MI group had significantly lower mean CY-BOCS score than subjects from the psychoeducation group at a large effect size (*d* = 1.34). The reduction from baseline to session 5 was also significantly steeper for the subjects from the MI group. After session 9, the difference was still significantly greater in favour of the subjects from the MI group with a large effect size (*d* = 1.18), and a statistical trend suggesting a steeper CY-BOCS reduction from baseline to session 9 among those in the MI group compared to those in the control condition. At posttreatment, however, there were no longer significant differences between the conditions on CY-BOCS.

Notably, there was also a significant difference between the groups in terms of number of therapy sessions attended. Subjects from the MI group attended on average 10.8 sessions, while those in the psychoeducation group attended 13.8. The authors note that no subjects in the MI-condition discontinued against their therapists' advice. Rather, early termination among some subjects was to save costs after achieving optimal treatment gains.

MI combined with CBT to treat severe OCD. The above research has primarily focused on OCD of at least moderate severity. Riccardi et al. (2010) described a case of a 39-

year-old man with severe OCD (Y-BOCS score of 29), in which the therapist used MI-interventions as an adjunct to ERP. The client also presented with symptoms of social anxiety and dysthymia.

Principles and interventions from MI were applied during phases of resistance and at times when the client was considering discontinuing treatment. This strategy built discrepancy between central values the client held and his current state of functioning. At one point, the therapist set aside an entire session devoted to MI to resolve ambivalence about continuing or discontinuing treatment. The client achieved clinically significant results, with all self-report measures of symptoms below clinical level. These results were maintained at follow-up 6 months after treatment termination. The authors concluded that the inclusion of MI-techniques strongly enhanced the CBT protocol for this client.

Post-Traumatic Stress Disorder

Only one publication was found related to post-traumatic stress disorder (PTSD). In an RCT by Murphy, Thompson, Murray, Rainey, and Uddo (2009), the authors developed a PTSD Motivational Enhancement (PME) intervention for veterans to be combined with 12 months of group CBT for PTSD. 114 participants were randomized to receive either PME (n = 60) or psychoeducation (n = 54). These interventions were applied over four sessions in the second month of treatment. The authors investigated whether PME could aid veterans in willingness to accept PTSD-related problems and go through group CBT.

Participants from the PME group had significantly higher attendance overall (d = 0.37), and stayed in treatment on average 1.5 months longer than control participants (d = 0.47). Due to a large portion of the sample dropping out at the 12th and last month of treatment, the authors investigated how many completed the program at 11 months. Among those who completed 11 months of treatment, significantly more participants came from the PME group.

In terms of accepting PTSD-related problems, the authors found that participants who underwent PME rated significantly more problems as ones they "Definitely have", rather than "Might have". They also rated two out of three subscales on a measure of working alliance significantly higher than the control condition. However, there were no significant differences between the groups on measures of motivation.

Anxiety Following Traumatic Brain Injury

The findings on combining MI with CBT to treat anxiety disorders in a sample with traumatic brain injury (TBI) were comprised of one case study (Hsieh, Ponsford, Wong, Schonberger, McKay, et al., 2012) as well as two RCTs (Hsieh, Ponsford, Wong, Schonberger, Taffe, et al., 2012; Ponsford et al., 2016) that qualified for this review.

MI as a pre-treatment to CBT for clients with anxiety disorders after TBI. In a case study, Hsieh, Ponsford, Wong, Schonberger, McKay, et al. (2012) described a man in his forties with an anxiety and depressive disorder following a severe traumatic brain injury. This client had suffered impairment in both cognitive and motor functioning. While articulating strong motivation for psychological treatment, he had simultaneously unrealistic goals and limited self-efficacy regarding his own ability to cope. The authors developed a treatment programme including three sessions of manualized MI prior to nine sessions of CBT. Both interventions were tailored to meet common needs in clients with TBI.

The therapist utilized MI to empathize with, rather than confront, the client's unrealistic goals. This provided a foundation for refocusing towards strategies for managing his anxiety. The client's levels of anxiety decreased both after MI and CBT as measured by the anxiety subscale of the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983), from moderate at baseline to mild after MI, and to normal after CBT. The client no longer met criteria for diagnoses of anxiety or depressive disorder following

treatment. He also reported increased levels of confidence in his ability to cope, better self-awareness regarding goal settings, and a high working alliance with his therapist.

Following this case study, Hsieh, Ponsford, Wong, Schonberger, Taffe, et al. (2012) recruited 27 participants with an anxiety disorder who had sustained moderate to severe TBI to conduct an RCT. The authors compared MI (n = 9) to no-direct counselling (NDC, n = 10) prior to CBT, and also included a treatment as usual (TAU) condition without CBT (n = 8). NDC involved reflective listening to establish and maintain a therapeutic alliance. TAU involved standard care, such as physiotherapy neuropsychological assessment, and rehabilitation.

The authors found that adding both MI and NDC prior to CBT resulted in significantly more effective treatment of anxiety than TAU for participants with TBI as measured by the HADS-Anxiety measure. This effect size was small for the NDC group (d = 0.24) compared with TAU, but moderate for the MI group (d = 0.50). However, neither group showed significant reductions on the DASS-Anxiety measure compared to TAU, though participants from the MI group displayed a trend towards more improvement. Comparing the MI and NDC groups against each other, the authors found that participants from the MI group displayed a significantly greater reduction of anxiety symptoms on HADS-Anxiety after completing CBT. The same was true for dimensions of anxiety and stress on DASS, but not measures of depression on either HADS or DASS.

MI as a pre-treatment to CBT for clients with both anxiety and mood disorders following TBI. In a more recent RCT, Ponsford et al. (2016) investigated the effects of adding a three-session MI pre-treatment intervention prior to a 9 week CBT program for reducing anxiety and depression among clients with TBI. 75 participants were randomized to receive either MI + CBT (n = 26), NDC + CBT (n = 26) or waitlist (WL; n = 23).

Adding a pre-treatment intervention, MI or NDC, did not enhance symptom reduction in a clinically significant way compared to baseline immediately after CBT on measures of anxiety or depression. However, after receiving three booster-sessions at 30 weeks follow-up, large and significant effects could be observed for participants from both the MI and NDC groups. At this point, 55.2% and 65.5% of the participants in the MI and NDC groups scored in a lower severity category on HADS-Anxiety and DASS-Depression respectively compared to baseline. The comparable numbers for the WL group were 33% and 20%. Higher symptom severity was significantly associated with greater treatment response.

The differences between the NDC and MI groups were, however, nonsignificant. The MI group did not show significantly greater reductions in scores of anxiety or depression, nor significant improvements in measures of self-efficacy or motivation to change when compared to the NDC group.

Health Anxiety

A single publication on health anxiety was found that qualified for this review. McKay and Bouman (2008) described three cases in which they combine MI and CBT in treating monosymptomatic hypochondriasis (MSH). The authors described MSH as "a form of hypochondriasis that is typically considered delusional in nature" (McKay & Bouman, 2008, p. 164), making up a group of clients that are typically challenging to engage in treatment. The cases presented various beliefs regarding health problems such as cancer and bad odours. MI strategies were applied at different points in therapy, such as questioning advantages and disadvantages of one's beliefs and "agreeing with a twist" - that is, agree with the client in a manner that opens up for change.

All clients experienced a "critical session" where their belief convictions were reduced, and they were invited to shift from MI focused treatment to a more CBT focused one. All clients further improved on measures of anxiety, depression, and conviction of their

beliefs concerning health problems. In conclusion, the authors argued that this series of case studies supported the combination of MI and CBT for treating MSH.

Discussion

Overall, a number of studies suggest that MI may have some positive influences on standard CBT for anxiety disorders. MI can enhance engagement in CBT through increased rates of initiation and attendance (Barrera et al., 2016; Buckner & Schmidt, 2009; Dean et al., 2016; Maltby & Tolin, 2005; Merlo et al., 2010; Murphy et al., 2009; Titov et al., 2010; Westra et al., 2009; Westra et al., 2016; Westra & Dozois, 2006), increased homework compliance (Westra et al., 2009; Westra & Dozois, 2006) as well as reduced resistance early in therapy (Aviram & Westra, 2011).

These findings from quantitative studies resonate with qualitative research, where subjects have been found to experience themselves as more active and engaged in CBT following MI (Kertes et al., 2011). Case studies also point in the same direction: MI seems to provide principles and strategies applicable in moments of resistance and conflict that may otherwise jeopardize a therapeutic project (Hsieh, Ponsford, Wong, Schonberger, McKay, et al., 2012; McKay & Bouman, 2008; Riccardi et al., 2010; Westra, 2004; Westra & Phoenix, 2003). Notably, however, Simpson et al. (2010) did not find increased treatment engagement in their RCT, despite reporting positive effects from MI in their initial open pilot trial (Simpson et al., 2008).

Some studies also suggest that MI can enhance improvement in anxiety symptoms following CBT. Enhanced improvement have been found both immediately after MI (Westra et al., 2009), immediately after CBT (Hsieh, Ponsford, Wong, Schonberger, Taffe, et al., 2012; Meyer, Shavitt, et al., 2010; Meyer, Souza, et al., 2010; Westra et al., 2009; Westra & Dozois, 2006) and at follow-up (Ponsford et al., 2016; Westra et al., 2016). Even if they

achieve similar outcomes post-treatment, participants who've had MI-interventions combined with CBT have been found to improve at a faster rate (Merlo et al., 2010).

The findings on increased improvement rates in anxiety symptoms are, however, somewhat mixed. Not all studies find additional effects on symptom outcome from including MI (Barrera et al., 2016; Simpson et al., 2010; Titov et al., 2010), and among the studies that do find such effects, not all measures are equally affected (e.g. Westra et al., 2009). Furthermore, one study suggests that adding NDC as an active control condition, reduces the specific effects of MI (Ponsford et al., 2016) while other studies find that the effects of MI endure with active control conditions (Dean et al., 2016; Hsieh, Ponsford, Wong, Schonberger, Taffe, et al., 2012;).

Two studies suggest that MI may have sleeper effects (Ponsford et al., 2016; Westra et al., 2016). That is, the effects of combining MI for CBT on outcome measures may increase at follow-up compared to immediately after treatment. As Westra et al. (2016) describe, this is not an uncommon finding for MI interventions combined with CBT (Riper et al., 2014).

A recent qualitative investigation of two participants from the different conditions in Westra et al. (2016) may shed some light on this process. Khattra et al. (2016) found that the participant from the MI-CBT group reported increased confidence in her own ability to maintain treatment gains post-treatment, as well as greater sense of agency. The same was not reported by the participant from the CBT-only group. Contrary to these findings, however, Westra et al. (2009) found that extra treatment gains among participants from the MI group were no longer evident at follow-up. These findings highlight the need for extensive follow-up periods in this research field.

Several of the reviewed studies that measure motivation or constructs related to motivation, such as stages of change (Prochaska & DiClemente, 2005), do not find significant effects from MI interventions on these measures (Barrera et al., 2016; Buckner & Schmidt,

2009; Maltby & Tolin, 2005; Murphy et al., 2009; Ponsford et al., 2016; Titov et al., 2010). This finding may have several explanations. First, self-report measures of motivation used in these and other studies have been criticized for not sufficiently tapping the construct of motivation – that is, they may lack construct validity (Fulmer & Frijters, 2009; Lombardi et al., 2014; Miller & Johnson, 2008). Second, many participants in these studies may already be quite motivated to go through treatment, yet struggle with other experiences such as fear of treatment procedures (Maltby & Tolin, 2005).

Notably, Westra et al. (2009) found that participants who *do* report low levels of intrinsic motivation had more effect from four sessions of MI alone than four sessions of CBT alone, while the opposite was true for those with high levels of intrinsic motivation. The same study also found that MI could be particularly effective for patients with severe GAD, a finding further supported by Westra et al. (2016). Other findings also suggest that clients with more challenging characteristics may profit more from MI than standard CBT procedures (Maltby & Tolin, 2005; Ponsford et al., 2016; Westra, 2004). These findings are important in addressing the question of "what works for whom" in psychotherapy research (Fonagy, 2010).

Strengths and Limitations of the Literature

The literature on combining MI with CBT to treat anxiety disorders is characterized by a number of strengths, but also important limitations.

Sample characteristics. Most RCTs state explicit exclusion criteria, typically excluding suicidal ideation, bipolar disorder, and active psychotic symptoms. Furthermore, randomization procedures are generally reported to be successful, or addressed when they are not (e.g. Westra et al., 2016). These procedures are important in producing replicable studies. However, small sample sizes are a pervasive issue throughout this literature, and few studies included in this review have sufficient power to detect statistically significant results with

effect sizes that are in the small to moderate range. Without larger studies, meta-analyses or replications, it is difficult to assess the reliability and validity of these findings.

Case studies. A number of the reviewed publications are case studies. Such studies may provide valuable insights into the process of combining MI and CBT, yet are naturally limited in their generalizability. All the reviewed case studies describe assessment procedures and/or provide data on psychometric measures, normally with thorough case conceptualizations that also take account of participants' context.

Measures and analyses. The publications in this review generally use well-established measures of psychopathology, with common primary outcome measures including PSWQ, Y-BOCS, DASS, and HADS. However, some studies use a number of additional measures that are less documented (e.g. Murphy et al., 2009) or apply many statistical analyses (e.g. Buckner & Schmidt, 2009; Murphy et al., 2009; Westra et al., 2009), sometimes post hoc or without correcting *p*-values for multiple comparisons. Such procedures may be understood as parts of explorative processes that characterize the early phases of a young research field. However, they also increase the chance of finding false positives (i.e. type I errors).

Diagnoses. It is evident that some diagnoses are more subject to research than others. While there are several publications on GAD and OCD, there are only a few related to disorders such as SAD and PTSD. Some anxiety disorders have no publications that are specific to them. One example of the latter issue is PDA, even though findings by Westra and Dozois (2006) suggest that PDA may be more responsive to MI as a pre-treatment to CBT than SAD on both symptom outcome measures and homework compliance.

Blinding. Several publications report procedures for blinding assessors and evaluators. Some studies also attempt at blinding therapists to treatment conditions by having separate therapists delivering MI and CBT (Barrera et al., 2016; Dean et al., 2016; Meyer, Shavitt, et

al., 2010; Westra & Dozois, 2006) This may be a relevant effort. Therapists who know they are working with participants who have had MI may behave differently than they would towards participants who they know have not.

As Westra et al. (2009) note, however, the extent to which blinding of therapists is possible in these trials is a matter of discussion. For example, Meyer, Shavitt, et al. (2010) discouraged participants from reporting the content of their individual sessions to their CBT-therapists. However, one preliminary analysis by Westra et al. (2009) suggests that CBT therapists detect whether participants have received MI regardless of whether clients report it or not. This signals that blinding of therapists may be easily penetrated.

Furthermore, most studies comparing MI with passive control conditions do not report blinding participants in the MI condition to knowing that they receive additional treatment rather than no pre-treatment (e.g. Barrera et al., 2016; Merlo et al., 2010; Westra & Dozois, 2006). This means that participants in such studies may have known that they receive extra treatment, which may in turn bias the results.

Control conditions. Another important limitation is the lack of robust active control conditions in this literature. When MI is compared to no pre-treatment or no extra intervention (e.g. Westra et al., 2016), it is difficult to know whether additional effects is due to MI in particular or associated with factors such as increased contact time. Some studies do include control groups that receive interventions (Dean et al., 2016; Hsieh, Ponsford, Wong, Schonberger, Taffe, et al., 2012; Ponsford et al., 2016), yet these conditions are often of a limited nature, such as non-directive counselling, psychoeducation, or befriending. Such interventions have been labelled as credible “placebo-conditions” (Öst, 2008). While certainly more active than nothing, it is difficult to evaluate whether MI truly is a superior addition to CBT without comparing it to equally rigorous interventions. This is particularly relevant in

terms of evaluating the mechanisms of change assumed to operate in MI, such as change talk and MI-spirit (Miller & Rose, 2009).

Quality of MI. There is a great heterogeneity in how and whether studies report the quality of their MI interventions. Some studies (Barrera et al., 2016; Buckner & Schmidt, 2009; Dean et al., 2016; Simpson et al., 2010; Westra et al., 2009; Westra et al., 2016) use the Motivational Interviewing Treatment Integrity (MITI) which has been developed as a reliable tool for evaluating therapists' MI-competence (Moyers, Martin, Manuel, Hendrickson, & Miller, 2005). However, other studies simply cite experience or training among its therapists (e.g. Merlo et al., 2010). Other studies do not report assessing the quality of their MI-interventions at all (e.g. Murphy et al., 2009). This is an important issue, both to address whether the implementation of MI was at all successful, and whether MI specifically is effective. Several studies that do include MITI report good quality with one exception being Simpson et al. (2010). More information on MI quality is displayed in Appendix C.

Ways of combining MI and CBT. Finally, there are several approaches to combining MI with CBT for anxiety disorders. The reviewed publications cover a range of these. Some studies use MI only as a pre-treatment (Westra & Dozois, 2006), others use it in response to certain therapeutic markers such as resistance (Simpson et al., 2008) and others use it at specified intervals (Merlo et al., 2010). Some use an integrated approach where therapists are free to apply principles of MI as they see fit during therapy (Westra et al., 2016) while others use manualized or highly specific MI-interventions (Murphy et al., 2009; Simpson et al., 2010; Titov et al., 2010). Some studies also combine MI with other interventions without collecting data necessary to control for the individual effects of the interventions (Maltby & Tolin, 2005; Meyer, Shavitt, et al., 2010; Meyer, Souza, et al., 2010). This heterogeneity in how and when MI is used makes it difficult to compare research in this literature, and evaluate the reliability and validity of its results.

In sum, this literature is limited due to several studies having small sample sizes, some relevant diagnoses being understudied, and heterogeneity in how MI is applied and evaluated. These limitations signal a field of research still in development, and should engender caution in suggesting MI as a standard addition to CBT for anxiety disorders at this point in time.

Strengths and Limitations of the Present Study

This systematic review provides an up-to-date overview of a complex, yet important research field. By including both qualitative and quantitative research and describing these studies in detail, it represents an in-depth perspective on combining MI and CBT to treat anxiety disorders. The level of detail at which studies are described grants readers the opportunity to evaluate the findings and conclusions of this literature and the present review. This review also includes a systematic and replicable search strategy.

A number of issues should be addressed, however. Several studies that focus on samples with depression have been excluded from the current review due to its focus on anxiety disorders. At the same time, more recent research (Barrera et al., 2016; Dean et al., 2016) is leaning towards a transdiagnostic approach of treating emotional disorders (Barlow et al., 2010). While studies investigating samples with both anxiety and depressive disorders have been included (e.g. Dean et al., 2016; Ponsford et al., 2016) , relevant perspectives and findings may have been lost by excluding research on depression alone.

Most studies in this review provide some support for the combination of MI and CBT in treating anxiety disorders. However, the field may be subject to common issues in psychotherapy research that may skew the conclusions of this review. These issues include researcher allegiance effects (Munder, Brütsch, Leonhart, Gerger, & Barth, 2013) and file drawer problems (Rosenthal, 1979). While it is somewhat possible to control for these effects in meta-analyses (e.g. Rosenberg, 2005), this review of both quantitative and qualitative

literature cannot. The reader should therefore keep these in mind while evaluating the conclusions of this review.

Implications for Future Research: Towards an Integration of MI and CBT

This review has examined publications attempting to combine MI and CBT. Several potential approaches were listed earlier in this text, and a great variety of these are, as mentioned, represented in this literature. However, few of the reviewed publications explicitly attempt to *integrate* MI and CBT within coherent frameworks. Rather, MI is often used as an adjunct or supplement to CBT without explicit theoretical underpinnings.

For example, most studies included in this review use MI as a pre-treatment to CBT. This is in line with the transtheoretical model of change (Prochaska & DiClemente, 2005) which advocates using MI at early stages. However, while some of these publications do measure stages of change (e.g. Barrera et al., 2016; Buckner & Schmidt, 2009; Maltby & Tolin, 2005), few authors explicitly attempt to frame their research questions within the theoretical framework of this approach. Furthermore, results for these measures are mixed and MI's relationship to the transtheoretical model has been questioned (Miller & Rollnick, 2009).

Another approach discussed earlier is to respond to markers such as ambivalence and resistance *across* CBT with MI-consistent behaviour. The relevance of resistance is supported by the findings of Aviram and Westra (2011), who found that MI could contribute to lower levels of resistance during early CBT for GAD, which in turn predicted reduced levels of worry post CBT. More recent research adds further support to this approach. Aviram, Westra, Constantino, and Antony (2016) found that more MI-consistent responses from therapists to moments of disagreement in CBT predicted lower levels of resistance and post-treatment worry in a sample with severe GAD. MI-consistent responses at random moments of therapy did not have a similar impact.

In line with these findings, a few publications (Riccardi et al., 2010; Simpson et al., 2010; Westra et al., 2016) extend the pre-treatment approach by also allowing therapists to respond to moments of resistance and ambivalence with MI-consistent behaviour. These strategies are in line with the context-responsive perspective on MI presented earlier in this text (Constantino et al., 2013). However, while some of the research described earlier has been regarded as bellwethers of this particular approach (Constantino et al., 2009), no publication to date has integrated this framework explicitly.

As such, future research should attempt to develop more coherent forms of responding to resistance across therapy in a context-responsive fashion. There are at least two strategies can guide future research towards this goal: training therapists in detecting markers of resistance, and investigating different methods of applying MI strategies in response to these markers.

Detecting resistance. Research by Hara et al. (2015) suggests that therapist assessments of resistance levels in CBT do not predict engagement and response to treatment, while client assessments do. This is not a unique finding – the same has been found for levels of experienced alliance (Horvath, Del Re, Flückiger, & Symonds, 2011) and empathy (Elliott, Bohart, Watson, & Greenberg, 2011). This suggests that strategies for detecting resistance in CBT are warranted.

There are at least two ways of addressing this problem. First, therapists may be trained in detecting resistance and ambivalence by using observational measures designed for research purposes (e.g. Lombardi et al., 2014). Second, self-report measures may be applied in therapy where clients rate or describe their degree of experienced resistance, either after every session or at key intervals. These measures may then be handed in to therapists, who can evaluate the clients' experience of the resistance. Such measures are receiving increased research focus and empirical support (Duncan & Reese, 2015).

Responding to resistance. Having detected resistance, therapists are faced with the challenge of how to act according to MI principles in order to reduce it. One approach may be providing manual-based interventions designed to address markers of ambivalence and resistance. One example of this approach is described in Simpson et al. (2008). This strategy has the benefit of making empirical investigations more feasible; however, research suggests that MI is less effective when applied in manualized formats (Hettema et al., 2005).

An alternative approach is suggested in Westra and colleagues' (2016) study on subjects with severe GAD. In this study, therapists were trained in MI, used MI as a pre-treatment for CBT, and also responded to moments of resistance during CBT with MI as a foundational platform across therapy. Future research should address these different ways of responding to resistance in a context-responsive fashion, and attempt to develop procedures for maximizing the potential of MI as a context-responsive intervention.

Conclusions

While CBT seems to be an effective approach to treating many clients with anxiety disorders, it also has room for improvement both in terms of clients' engagement in therapy and therapeutic response. This review suggests that principles and strategies from MI can be combined with CBT to provide a more robust treatment alternative than CBT alone. Indeed, findings from a number of quantitative and qualitative studies indicate that adding MI to CBT may increase treatment engagement and response among clients with a number of anxiety disorders. Overall, these findings are in line with Randall and McNeil's (in press) review as well as Romano and Peters' (2015) meta-analysis, suggesting that it is both feasible and promising to combine CBT and MI for anxiety disorders.

While these conclusions generally support the idea of combining MI and CBT, the literature has a number of important limitations. These limitations include small sample sizes, some anxiety diagnoses being understudied, and heterogeneity in how MI is combined with

CBT and - if at all - evaluated. The number and gravity of these limitations should be kept in mind when evaluating the conclusions of this review. Though promising, more research is warranted on a number of important issues in this field of research before MI can be recommended as a standard addition to CBT for anxiety disorders in clinical practice.

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Westra, H. A., & Dozois, D. J. A. (2006). Preparing clients for cognitive behavioral therapy: A randomized pilot study of motivational interviewing for anxiety. *Cognitive Therapy and Research, 30*, 481-498. doi:10.1007/s10608-006-9016-y

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Zigmond, A. S., & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica, 67,* 361-370. doi:10.1111/j.1600-0447.1983.tb09716.x

Appendix A

Figure Illustrating the Search Strategy and Results of This Review

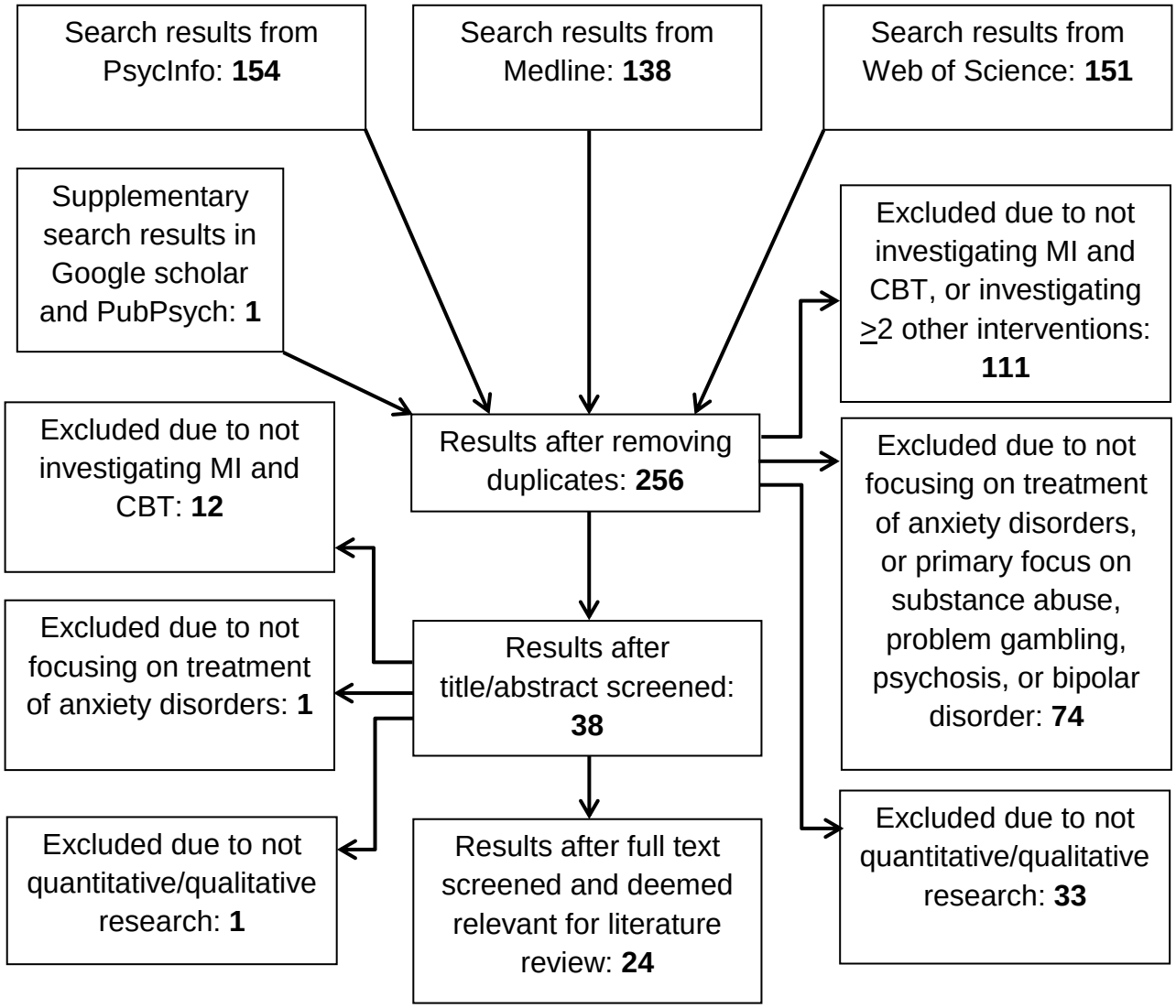

Figure 1A. Search strategy and results of this review

Appendix B

Search Terms Used for This Review in PsycInfo

The complete search strategy used in PsycInfo to find literature for this review is included below.

1. MI.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
2. "motivation* interview*".mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
3. "motivation* enhanc*".mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
4. 1 or 2 or 3
5. motivational interviewing/
6. 4 or 5
7. CBT.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
8. "cognitive behavio*".mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
9. expos*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
10. 7 or 8 or 9
11. cognitive behavior therapy/
12. 10 or 11
13. anxi*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
14. phobi*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
15. "obsessive compulsive".mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
16. OCD.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
17. "post-traumatic".mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
18. posttraumatic.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
19. PTSD.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
20. 13 or 14 or 15 or 16 or 17 or 18 or 19
21. obsessive compulsive disorder/
22. exp posttraumatic stress disorder/

23. exp phobias/
24. exp anxiety disorders/
25. 20 or 21 or 22 or 23 or 24
26. 25 not 20[1]
27. 6 and 12 and 25
28. limit 27 to peer reviewed journal
29. ((MI or "motivation* interview*" or "motivation* enhanc*" or motivational interviewing) and (CBT or "cognitive behavio*" or expos* or cognitive behavior therapy) and (anxi* or phobi* or "obsessive compulsive" or OCD or "post-traumatic" or posttraumatic or PTSD or obsessive compulsive disorder or posttraumatic stress disorder or phobias or anxiety disorders)).ti,ab.
30. ((MI or "motivation* interview*" or "motivation* enhanc*" or motivational interviewing) and (CBT or "cognitive behavio*" or expos* or cognitive behavior therapy) and (anxi* or phobi* or "obsessive compulsive" or OCD or "post-traumatic" or posttraumatic or PTSD or obsessive compulsive disorder or posttraumatic stress disorder or phobias or anxiety disorders)).ti,ab,id.
31. limit 30 to peer reviewed journal

[1] Stage 26 (25 not 20) is included to control whether controlled vocabulary (i.e. the “subject headings” option in PsycInfo; stage 25) provided additional results to the original search (stage 20) of relevant disorders.

Appendix C

Table of Publications Included in This Review

First author and year	Sample	Design	*N*	Conditions [a]	Symptom outcome measures [b]	MI dedicated-sessions	Key findings	MI-quality control	Follow-up
Westra & Phoenix (2003)	Mixed anxiety disorders	Case studies	2	MI + CBT	n/a	n/a	Principles and strategies from MI seemed to facilitate treatment for one client with GAD who failed to respond to traditional CBT, but not for a second client with generalized social anxiety.	n/a	n/a
Westra (2004)	Mixed anxiety and depression	Case studies	3	MI + CBT	n/a	n/a	All three clients, who had various issues with engaging in CBT, seemed to profit from MI principles and strategies	n/a	n/a
Maltby & Tolin (2005)	OCD, treatment refusers	RCT	12	MI → ERP (*n* = 7) WL → ERP (*n* = 5) (Passive)	Y-BOCS	2	86% of participants in the MI + ERP condition agreed to begin ERP, compared to 20% of participants in the WL + ERP condition. Participants in the MI + ERP conditions also demonstrated a decrease in OCD symptoms comparable to OCD patients who do not initially refuse ERP.	n/a	n/a
Westra & Dosoiz (2006)	Mixed anxiety	RCT	55	MI → gCBT (*n* = 25) NPT → gCBT (*n* = 30) (Passive)	ASI FNEB PSWQ	3	Participants in the MI condition had higher expectancies of reduced anxiety, completed more homework, and had a higher response rate to CBT than participants in the NPT condition	Training	6 months

McKay & Bouman (2008)	Severe health anxiety	Case study	3	MI → CBT	n/a	n/a	All three cases seemed to improve on symptom measures and dysfunctional beliefs concerning health problems.	n/a	6 months
Simpson et al. (2008)	OCD	Open pilot trial	6	MI + ERP	n/a	3	MI principles and strategies could efficiently be applied in moments of resistance and ambivalence for five out of six cases.	Training and supervision	n/a
Buckner (2009)	SAD, not seeking treatment	Case study	1	n/a	n/a	n/a	MET was effective both in engaging the participant in CBT, and motivating the participant to confront her anxiety prior to entering CBT.	n/a	1 month
Buckner & Schmidt (2009)	SAD, not seeking treatment	RCT	27	MET → CBT (*n* = 12) Control → CBT (*n* = 15) (Passive)	n/a	3	Participants in the MET condition were more likely to seek CBT for their social anxiety than participants in the control group	Training MITI (High quality 6.45/7)	1 month
Westra et al. (2009)	GAD	RCT	76	MI → CBT (*n* = 38) NPT → CBT (*n* = 38) (Passive)	PSWQ DASS	4 (50m)	Participants in the MI condition had higher homework compliance and responded more to CBT than participants in the NPT condition in terms of worry. MI seemed especially effective for participants with severe GAD, who had more effect of four hours of MI alone than the NPT group had from four hours of CBT alone. Participants with moderately severe GAD did not seem to have extra treatment gains	Training and supervision MITI (good quality, ca. 5/7)	6 and 12 months

Murphy et al., (2009)	PTSD	RCT	114	MET + gCBT (*n* = 60) Psychoed. + gCBT (*n* = 54) (Placebo)	n/a	4	Participants in the MET condition had a higher attendance rate, stayed in treatment longer than participants in the control condition, and rated more problems as ones they definitely have rather than might have. MET did not impact stages of change in a significant way.	n/a	10 months
Simpson et al. (2010)	OCD	RCT	30	MI - ERP (*n* = 15) ERP alone (*n* = 15) (Passive)	Y-BOCS	3 (90m)	No significant differences were observed between the groups in terms of patient adherence or outcome.	Training MITI (generally low, always < 4/5. Highest in introductory sessions)	n/a
Meyer et al. (2010)	OCD	RCT	90	MI + TM → gCBT (*n* = 48) Info → gCBT (*n* = 42) (Placebo)	Y-BOCS	2 (60m)	The MI + TM group achieved significantly greater symptom reduction both post-treatment and at 3 month follow-up compared to the control condition. Significantly more participants in the MI + TM group also achieved full remission.	Therapist with extensive experience	3 months
Meyer et al. (2010)	OCD	RCT	40	MI + TM → gCBT (*n* = 20) Info → gCBT (*n* = 20) (Placebo)	DY-BOCS Y-BOCS	2 (60m)	The rate of reduction on some individual dimensions of OCD was significantly greater for participants in the MI + TM condition compared to the control condition.	n/a	n/a

Riccardi et al. (2010)	OCD	Case study	1	MI + ERP	n/a	n/a	A client with severe OCD achieved clinically significant results that were maintained at 6 months follow-up.	n/a	6 months
Titov et al. (2010)	SAD	RCT	113	MS + iCBT (n = 57) iCBT alone (n = 56) (Passive)	SIAS SPS	n/a	Participants in the MI condition had increased completion rates compared to the control group, but there were no significant differences in outcome between the groups.	n/a	3 months
Merlo et al. (2010)	OCD (pediatric sample)	RCT	16	MI + CBT Psychoed. + CBT (Placebo)	CY-BOCS	3 (20-30m)	Participants in the MI condition improved faster than the control group, completing treatment three or fewer sessions before the control group with similar outcomes.	Therapist with extensive experience and training	(n/a)
Aviram & Westra (2011)	Severe GAD	Secondary data analysis from Westra et al. 2009 RCT	35	MI→CBT (*n* = 18) NPT→CBT (*n* = 17) (Passive)	n/a	4 (50m)	Participants who received MI had significantly reduced levels of resistance during their first CBT session compared to the control group, and also had lower levels than the control group had after four sessions of CBT. Levels of resistance during the first session of CBT correlated significantly with worry levels post CBT.	See Westra et al. 2009	n/a
Kertes et al. (2011)	Severe GAD	Qualitative research w/ participants from Westra et al. 2009 RCT	10	MI→CBT (*n* = 5) NPT→CBT (*n* = 5) (Passive)	n/a	4 (50m)	Participants from the MI group more often reported the therapists to be an evocative guide, and themselves as more active and engaged. They described complementary aspects of receiving both MI and CBT.	See Westra et al. (2009)	n/a

Hsieh et al. (2012)	MDD and Anxiety NOS (with TBI)	Case study	1	MI → CBT	n/a	3 (50-60m)	The patient's levels of anxiety and depression decreased to normal values following MI→CBT. The patient no longer met criteria for diagnoses post-CBT.	Training	9 weeks
Hsieh et al. (2012)	Mixed anxiety (with TBI)	RCT	27	MI → CBT (*n* = 9) NDC → CBT (*n* = 10) TAU (*n* = 8) (Placebo & passive)	HADS	3 (50m)	Compared to both TAU and the NDC group, participants in the MI condition displayed a significantly greater reduction of anxiety symptoms after completing CBT.	Training Expert opinion with idiographic quality measure. (3.93/7)	9 weeks
Westra et al. (2016)	GAD (Severe)	RCT	85	MI → CBT&MI (*n* = 42) NPT → CBT (*n* = 43) (Passive)	PSWQ DASS	4	At post-treatment, there were no significant differences between the groups. At 12-months-follow up, the participants in the MI condition displayed significantly higher rates of recovery and clinically significant change compared to the NPT → CBT group. They had 5.49 times greater odds of no longer meeting diagnostic criteria for GAD.	Training and supervision MITI, high quality (ca. 4/5)	6 and 12 months
Dean et al. (2016)	Anxiety and mood disorders (Adolescents)	RCT	96	MI → gCBT (*n* = 46) Befriending → gCBT (*n* = 50) (Placebo)	n/a	1	Participants in the MI condition both attended significantly more group therapy sessions and displayed greater treatment initiation than participants in the befriending condition .	Training MITI (4.4/5)	n/a

Barrera et al. (2016)	Mixed anxiety	RCT	39	MI → gCBT (*n* = 20) NPT → gCBT (*n* = 19) (Passive)	STAI-S	1	Participants in the MI condition were significantly more likely to initiate CBT, and also attended significantly more CBT sessions than participants in the NPT condition. Measures of expectancies and motivation for change, homework compliance, and outcome did not differ significantly between the conditions.	Training MITI (3.73/5)	n/a
Ponsford et al. (2016)	Anxiety and depression (with brain injury)	RCT	75	MI → CBT (*n* = 26) NDC → CBT (*n* = 26) WL → CBT (*n* = 23) (Placebo & Passive)	HADS	3	While there were no significant differences between the groups post treatment, large and significant effects were observed for both the MI and NDC conditions compared to WL at 30 weeks follow-up. The differences between the MI and NDC groups were not significant.	Training Expert opinion with idiographic quality measure, (ca. 5/7)	30 weeks

Note. RCT = Randomized controlled trial; OCD = Obsessive Compulsive Disorder; SAD = Social Anxiety Disorder; GAD = Generalized Anxiety Disorder; PTSD = Post-Traumatic Stress Disorder; MDD = Major Depressive Disorder; NOS = Not Otherwise Specified; TBI = Traumatic brain injury; MI = Motivational interviewing; MET = Motivational enhancement therapy; CBT = Cognitive behaviour therapy; gCBT = group CBT; iCBT = internet CBT; ERP = Exposure/response prevention; WL = Wait list; Y-BOCS = Yale-Brown Obsessive Compulsive Scale; ASI = Anxiety Sensitivity Inventory; FNEB = Fear of Negative Evaluation Scale – Brief Version; PSWQ = Penn State Worry Questionnaire; DASS = Depression, Anxiety and Stress Scale; DY-BOCS = Dimensional Yale-Brown Obsessive Compulsive Scale; SIAS = Social Interaction Anxiety Scale; SPS = Social Phobia Scale; CY-BOCS = Children's Yale-Brown Obsessive Compulsive Scale; HADS = Hospital Anxiety and Depression Scale; STAI-S = State-Trait Anxiety Inventory.

[a] MI → CBT = MI as a pretreatment to CBT; MI + CBT = MI as a separate intervention during CBT; M – CBT = MI strategies applied at relevant moments in CBT; MI & CBT = MI spirit and technique integrated with CBT; Placebo = Control condition with active elements, but not *bona fide* treatment; Passive = Control condition with no active elements [b] Only symptom outcome measures that relate to anxiety disorder and used in statistical analyses included