Løberg, Susanne Lia
Hjertaas, Ingrid

Patients' Change- and Sustain Talk as Predictors of Symptom Change

Results from a Randomized Waiting List Controlled Trial of Metacognitive Therapy for Depression

Graduate thesis in Psychology
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Ingrid Hjertaas & Susanne Lia Løberg

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Department of Psychology, Norwegian University of Science and Technology

Trondheim, Norway

Acknowledgments

This graduate thesis is our penultimate chapter of the Clinical Psychology program at the Norwegian University of Science and Technology and is the last theoretical piece of work needed to finish our degree. The process leading up to this thesis has been long and consisted of multiple challenges. However, it has also been exciting and rewarding considering everything we have learned. Writing this thesis gave us the opportunity to watch a great number of therapy sessions, giving us a unique insight into metacognitive therapy and the experience of watching four skilled therapists in action. We have gained experience using the Motivational Interviewing Skill Code (MISC), analyzing data and extracting and presenting the key points from a pool of information.

We have devoted many hours to this paper. Watching and coding approximately 90 hours of therapy videos have at times been challenging and frustrating, but it has most importantly left us with a huge sense of achievement. Overall, this process has given us a unique insight into important aspects of clinical psychology, but also knowledge about how psychological research is conducted. We will most certainly bring these insights with us into the next chapter of our lives as clinical psychologists.

Throughout this process there have been several important supporters, which deserve our gratitude. First of all, we are very grateful to the Norwegian University of Science and Technology for the resources they have made available to us during our soon to be six years as students. We also want to express our outmost gratitude towards our supervisor, Stian Solem, who has been encouraging, supporting and provided us with thorough feedback in every step of this process. Furthermore, we wish to thank Roger Hagen with colleagues for giving us the opportunity to use their data, which has been a great basis for this thesis. Lastly, we want to express our deepest gratitude towards each other. During this period of excitement, frustration and uncertainty we have been a linchpin to each other, getting each other to the finish line which is this thesis. The great cooperation between us have facilitated interesting discussions, which most certainly have greatly improved our thesis.

Abstract

The importance of patient motivation in psychological treatment has long been acknowledged, but research on how observed motivation can be assessed and affect treatment outcome has been lacking. This study investigated the role of motivation amongst 37 patients receiving 10 sessions of metacognitive therapy for depression. The data consisted of video tapes from session 1 and 4, which were coded for motivational utterances categorized as change- or sustain talk using the Motivational Interviewing Skills Code (MISC). Treatment outcome was measured using the Beck Depression Inventory (BDI). Changes in change talk from session 1 to session 4 was the only significant predictor of BDI scores at 3-year follow-up, predicting 9% of the variance beyond pre- and post-treatment BDI scores. Increases in change talk from session 1 to 4 was associated with reduced depression severity at 3-year follow-up. Sustain talk and specific MISC categories did not significantly predict outcome, however utterances of sustain talk in session one and change talk in session four (particularly taking steps) showed significant associations with treatment outcome. There were no significant differences in motivational utterances between the immediate treatment group and the waitlist group. This study is the first of its kind in a growing, and quite important field of research. Future research should strive to elaborate the findings of the current study to further investigate whether motivational utterances are important for treatment outcome, irrespective of treatment approach and primary diagnosis.

Keywords: Depression; Metacognitive therapy; Motivation; MISC

Sammendrag

Betydningen av en pasients motivasjon for psykologisk behandling har lenge vært anerkjent, men det har vært gjennomført få studier som har undersøkt hvordan observert motivasjon kan påvirke behandlingsutfall. Denne studien undersøkte betydningen av motivasjon blant 37 pasienter som fikk 10 timer med metakognitiv terapi for depresjon. Datamaterialet var videoer fra time 1 og 4, som ble kodet for motivasjonsutsagn, kategorisert som enten "change talk" eller "sustain talk" ved bruk av Motivational Interviewing Skills Code (MISC). Behandlingsutfall ble målt ved bruk av Beck Depression Inventory (BDI). Endring i "change talk" fra time 1 til time 4 var den eneste signifikante prediktoren for variasjon i BDI-skårer ved 3-års oppfølging, og kunne predikere 9% av variansen utover pre- og post-behandling. En økning i "change talk" fra time 1 til time 4 var assosiert med redusert alvorlighetsgrad av depresjon ved 3-års oppfølging. "Sustain talk" og spesifikke MISC kategorier kunne ikke signifikant predikere utfall, men ytringer av "sustain talk" i time 1 og "change talk" i time 4 (nærmere bestemt "*taking steps*") viste seg å korrelere signifikant med behandlingsutfall. Resultatene viste videre at det ikke fantes signifikante forskjeller mellom gruppen som fikk behandling umiddelbart og venteliste-gruppen. Denne studien er den første av sitt slag i et voksende og viktig forskningsfelt. Videre forskning bør forsøke å utdype funnene fra denne studien for å videre undersøke om motivasjonsutsagn er viktig for behandlingsutfall, uavhengig av behandlingstilnærming og primærdiagnose.

Patients' Change- and Sustain Talk as Predictors of Symptom Change:
Results from a Waiting List Randomized Controlled Trial of Metacognitive Therapy for
Depression.

Depression is one of the most common psychiatric disorders. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (American Psychiatric Association, 2013) describes several classifications and subtypes of depression. The symptoms occurring during a depressive episode are not pathognomonic, meaning they are not characteristic only for depression (Malhi & Mann, 2018). Therefore, depression as a disorder is based on several symptoms being present more days than not, for a period of at least two weeks, causing severe impairment in everyday function. Cardinal symptoms are depressed mood, anhedonia, feelings of worthlessness or guilt, change in sleeping patterns, loss of interest, energy or concentration, suicidal ideation, fatigue, weight change and psychomotor agitation or retardation (American Psychiatric Association, 2013).

A cross-national study from 2011 found that the lifetime prevalence of depression is somewhere between 15-18%, which implicates that approximately one in five people will experience at least one episode of depression in their lifetime (Bromet et al., 2011). The World Health Organization (WHO) ranked major depression as the third largest global burden of disease in 2008, with predictions that it will rank first by 2030 (WHO, 2008). Additionally, depression has a high relapse-rate, which may implicate that current treatment approaches need to be more effective or more long-lasting (e.g., Beshai et al., 2011). According to the National Institute for Health and Care Excellence (NICE, 2009), cognitive-behavioral therapy (CBT) is one of the recommended psychological treatment options for adults with depression. A review of meta-analyses where CBT was used to treat a range of different psychological disorders, depression amongst them, supported the efficacy of this treatment approach (Butler et al., 2006).

Although CBT is the recommended treatment approach, previous studies have shown that 40-58% of patients classifies as recovered post-treatment (e.g., Dimidjian et al., 2006). Also, clinical trials have shown that relapse rates are relatively high, at about 40-60% at 2-year follow-up (Hollon et al., 2006; Vittengl et al., 2007). In addition, a meta-analysis found that a moderate number of patients did not attend their first or following treatments of CBT (Fernandez et al., 2015). Furthermore, dropout rates increased during treatment. The total rate was about 35%, including both no shows and dropout. The meta-analysis also found that the dropout risk from CBT is significantly higher for depressed patients compared to a range of

other mental health disorders, such as eating disorders and anxiety (Fernandez et al., 2015). A more recent meta-analysis found steady and linearly decreasing effects of CBT for depressed patients, which may imply that CBT does not provide sufficient improvement from depressive symptoms when compared to seminal studies (Johnsen & Friborg, 2015). However, this study did receive criticism (Cristea et al., 2017; Ljótsson et al., 2017), and the results must be treated accordingly.

Considering that new evidence suggests that CBT is not as efficient as previously assumed, this has provided a potential need for advancing research on other psychological treatments for depression. Metacognitive therapy (MCT) is a relatively new, short-spanned treatment approach, which is based on a metacognitive model. In this model the patient's psychological disorder is thought to be caused by activation of a maladaptive response to cognitive events, which is known as Cognitive Attentional Syndrome (CAS; Wells, 2009). CAS can include worry, rumination, threat-monitoring and maladaptive coping strategies. Metacognition refers to the internal cognitive factors that control, monitor and appraise thinking. Rumination is thought to be the main feature of depressed patients' CAS and the rumination is mainly focused on the fact that one is depressed, one's symptoms of depression, and on the causes, meaning behind, and consequences of their depression. Worrying about the future is also an important aspect of the CAS and may thus maintain depression. A patient's depression is therefore understood as a result of overthinking (e.g., rumination and worry) and maladaptive coping strategies, such as a reduction in activity or withdrawal from social situations. These cognitive processes are thought to be sustained by the patient's metacognitive beliefs. An important aspect of MCT is therefore to address these beliefs, which are either classified as positive or negative. Positive metacognitive beliefs can be thoughts such as "worrying makes me prepared" and "analyzing will give me answers". Negative metacognitions can be beliefs like "I have no control over my thoughts" and "my thoughts can drive me crazy" (Wells, 2009, p.16). It is thought that these negative beliefs can cause ambivalence for change amongst depressed patients. The main goal in MCT is therefore for the patient and therapist to assess and change maladaptive metacognitions and reduce rumination and worrying (Wells, 2009).

Although MCT is a relatively new treatment approach, studies show promising effects, especially for symptom reduction in depression and anxiety disorders (e.g., in meta-analyzes by Normann et al., 2014; Normann & Morina, 2018). The study which this thesis is based on found that patients receiving MCT improved significantly more than the patients who waited for treatment to be administered to them (Hagen et al., 2017). Approximately 70–80% of

patients who received MCT could be classified as recovered at post-treatment and six-month follow-up. In comparison, studies of CBT show that 40-58% of patients can be classified as recovered post-treatment (e.g., Dimidjian et al., 2006), indicating greater evidence for the effect of MCT. Furthermore, studies which reports both one-year follow-up and three-year follow-up results based on Hagen and colleagues' (2017) study have been conducted. At one-year follow-up, 67% were classified as recovered, 13% improved, and 20% were unchanged (Hjemdal et al., 2019). At three-year follow-up, 60% of the patients had not experienced any new depressive episodes in this period, despite experiencing negative life events (Solem et al., 2019). Furthermore, relapse rates were low (11-15%) and only one patient fulfilled diagnostic criteria for depression at this point. It should be mentioned that 26% of the patients had received other treatment between post-treatment and three-year follow-up (Solem et al., 2019). Although MCT seems to be a promising treatment approach, no studies have yet examined the effects of motivation in MCT treatment for depression.

The contextual model of psychotherapy suggests that the outcome of therapy is not necessarily fully determined by the specific technical procedures associated with each individual style of psychological treatment, but by the common factors that are present in all styles of treatment (Wampold, 2001; WHO, 2003). There is agreement among clinicians that patients' motivation for change is a crucial precondition for a successful therapy outcome (Philips & Wennberg, 2014). A meta-analysis showed that patient motivation was an important predictor for therapy outcome and patient drop-out (Sharf, 2008). Considering this, it has been suggested that waiting time, defined as the time between being referred and receiving treatment, is associated with negative effects on treatment engagement (Westin et al., 2014). However, the literature is inconsistent when assessing the effects of waiting time on ongoing treatment engagement, such as the number of sessions attended or treatment drop out (e.g., Carr et al., 2008; Snell-Johns et al., 2004). For example, some studies show that waiting time negatively impacts no-show rates for adults seeking treatment for mental health problems (Loumidis & Shropshire, 1997), while other studies have found no association between waiting time and drop-out rates among adult patients (Alterman et al., 1994; Russell et al., 1987). Since patient motivation is suggested to be an important predictor for patient drop-out and premature termination (Sharf, 2008), one might assume based on previous research findings that being on a waitlist could possibly affect a patient's treatment motivation.

The importance of motivation for therapy outcome can also be seen by looking at the effects of Motivational Interviewing (MI; Miller & Rollnick, 2002). Several meta-analyses imply strong evidence for the methods' efficacy in improving both physical and psychological

health outcomes (e.g., Lundahl et al., 2010; Lundahl et al., 2013; Rubak et al., 2005). Although MI show promising effects as a stand-alone treatment, it may also be effective as a prelude to other treatments, including treatment of depression (Keeley et al. 2016; Lundahl & Burke, 2009). This may indicate that patient motivation can have predictive capacity for treatment outcome for patients seeking treatment for depression.

Traditionally, patient motivation is often measured by using self-report questionnaires. However, some research indicates that self-report questionnaires, such as the University of Rhode Island Change Assessment Scale (McConnaughy et al., 1983) are not related to treatment outcome (e.g., Vogel et al., 2006). Additionally, self-report questionnaires are also vulnerable to social desirability bias and acquiescence bias, which can be problematic for the validity and predictive capacity of the questionnaire. Despite this, one study (Lombardi et al., 2014) found that the Change Questionnaire (Miller & Johnson, 2008) could significantly predict treatment outcome in their study. However, early in-session utterances against change was an even stronger predictor of treatment outcome. The study implies that observed motivation and self-reported motivation assess different aspects of motivation. Thus, one measure does not exclude the other in the terms of predicting treatment outcome, but the findings implicate that a patient's motivational language has a greater predictive value than self-report questionnaires (Lombardi et al., 2014). This provides a foundation for advancing research on the predictive capacity of patient motivational langue.

A different approach for assessing treatment motivation can be by using the Motivational Interviewing Skill Code 2.5 (MISC 2.5; Houck et al., 2010). MISC is a method which identifies a patient's motivation for treatment by coding and evaluating a patient's in-session utterances. An independent coder applies the MISC coding system to videos of therapy and evaluates and applies codes to the utterances spoken by the patient. Originally, MISC was developed to measure treatment integrity (Miller & Rollnick, 2002), but the MISC 2.5 (Houck et al., 2010) is more structured than previous versions, where both the patient and therapist utterances are coded. The patient's utterances are divided into two main groups, change talk and sustain talk. These are coded in several different sub-categories that have emerged from the theoretical basis of MI which are meant to capture different aspects of a patient's motivation and ambivalence.

Several studies have provided evidence for the relationship between patient treatment motivation assessed with MISC and treatment outcome. MISC has successfully predicted treatment outcome within the field of lifestyle-problems and dependence (e.g., Amrhein et al., 2003; Campbell et al., 2010). Studies which have assessed motivational language by using

MISC have also provided support for the significance of treatment motivation for psychological therapy outcome. To our knowledge there are no existing published studies where MISC have been used to assess motivation in treatment of depressed patients and none that have investigated the predictive capacity of depressed patients' motivational utterances using MISC. In addition, previous studies have mainly investigated the role of motivation when other treatment approaches than MCT have been provided. Most of the existing studies regarding psychological therapy outcome have focused on assessing motivation for treatment for patients with generalized anxiety disorder (GAD) and results from these studies were the best available research background for the current study. However, GAD and depression are disorders with a great deal of overlap which makes it reasonable to compare results to some extent (e.g. Hong & Cheung, 2015; Kendler et al., 2007; Solem et al., 2018).

Regarding existing literature, one study measured motivation using MISC in a study of GAD patients receiving CBT (Lombardi et al., 2014). They found that patients' motivational utterances in early sessions (first or second) could significantly predict treatment outcome. Sustain talk alone, which is commonly referred to as counter-change talk (CCT), was an even greater predictor and could predict non-favorable post-treatment worry scores (Lombardi et al., 2014). Although the study lacked strength due to a small number of participants ($N = 37$), it could still indicate that motivation may be a valid predictor of treatment outcome. Similar results were obtained in a study of patients with GAD who received CBT in two conditions, one with MI pre-treatment and one without (Poulin et al., 2018).

Another study utilized CBT and MI-CBT to patients with GAD and found that patients with a higher amount of change talk had a greater likelihood of responding to treatment and also a faster treatment response than patients expressing more sustain talk utterances (Goodwin et al., 2019). Further, they found that a higher frequency of sustain talk corresponded with a lower likelihood of treatment response and slower response time to therapy. These effects were present in both treatment groups which may indicate that the patient's motivation for change is more important than the treatment being provided (Goodwin et al., 2019). Yet another study investigated the predictive capacity of change talk and sustain talk using MISC (Joramo, 2019). The sample was patients with GAD related problems and the study included both a CBT and MCT condition. Positive *commitment* utterances during session one and positive utterances of *taking steps* during session four emerged as important factors for predicting treatment outcome. This might indicate that a patient's motivation to commit to change and act are especially important for a favorable treatment outcome.

The aim of the current study is to investigate whether treatment motivation can predict therapy outcome for depressed patients receiving 10 sessions of MCT, and if differences in patient motivation can have a long-term effect on symptom reduction. We chose to operationalize utterances from session one and four because this makes it possible to investigate a cogitable change in motivation from the first session to a session later in the treatment process. We chose to compare session one to session four because we believe that patients still have a need for treatment in session four, but some changes in motivation may have occurred since session one, which could be interesting to examine. In addition, if either session one or four has a greater predictive capacity than the other this could provide valuable insight for clinicians. The term "change" in the current study refers to patients changing their maladaptive strategies and beliefs, which is referred to as target behavior in the MISC manual. According to metacognitive theory these are mechanisms expected to maintain the depressive disorder, and change in these are thought to lead to symptom reduction. Based on traditional theorizing, motivational deficits are attributable to negative beliefs and generalized pessimistic control beliefs which are especially present in depressed patients which can further lead to low motivation in this group (Kuhl, 2000). During MCT treatment the goal is to decrease the patient's negative believes, thus, based on traditional theorizing, one might assume that patient motivation will increase along the course of treatment as negative believes decreases.

Previous research has provided preliminary evidence for the predictive capacity of patient motivational language. Our first hypothesis is that the patients' observed change talk and/or sustain talk during either or both session one and four can predict treatment outcome of MCT for depressed patients. More specifically, based on findings from previous research (Joramo, 2019) we believe that positive utterances of *commitment* in session one and *taking steps* in session four can predict greater symptom reduction compared to other categories of motivational language, this conceptualizing a sub-hypothesis based on our first hypothesis. Based on traditional theorizing (Kuhl, 2000) one might assume that patient motivation will increase along the course of treatment as negative believes decreases, thus, our second hypothesis is that observed change in motivation from session one to four can predict treatment outcome. Ultimately, a meta-analysis suggested patient motivation to be an important predictor for patient pre-treatment drop-out and premature termination (Sharf, 2008). One might therefore assume that being on a waitlist could affect a patient's motivation for treatment. Thus, our third and final hypothesis is that being in the waitlist group affects the strength of motivational utterances and furthermore treatment outcome in a negative way.

To our knowledge there are no existing published studies where MISC have been used to assess treatment motivation in depressed patients and none that have investigated the predictive capacity of depressed patients' motivational utterances using MISC. In addition, previous studies have mainly investigated the role of motivation when other treatment approaches than MCT have been provided. If treatment motivation can predict therapy outcome this may imply that motivation is an important factor for recovery and that clinicians need to be more aware of the effect treatment motivation can have on therapy outcome. Thus, this could also give valuable insight into the role of motivation in treatment for depression.

Method

Participants

The therapy videos and other data, such as treatment outcome, were obtained from Hagen et al. (2017). A total of 39 participants, with a mean age of 33.86 ($SD = 10.52$), received either immediate treatment ($n = 20$) or were in a waitlist group for 10 weeks ($n = 19$). Two of the participants in the waitlist group dropped out of the study during the 10-week waiting period. Therefore, there was a total of 37 participants with the necessary video recordings. Hence, in the current study two sessions for each of these 37 participants were coded. The participants demographic and diagnostic characteristics is displayed in Table 1.

Table 1

Patients Demographic and Diagnostic Characteristics

Measure	Sample ($N = 37$)
	% (n)
Female	59.5 (22)
Education	
Compulsory education	5.4 (2)
High school	45.9 (17)
College/University	48.6 (18)
Marital status	
Single	37.8 (14)
In a relationship	13.5 (5)
Married/Domestic relationship	40.5 (15)
Axis-I comorbidity	
GAD	24.3 (9)
Hypochondria	2.7 (1)
Panic disorder	5.4 (2)
Social phobia	2.7 (1)
Trichotillomania	2.7 (1)
Binge eating disorder	2.7 (1)
EDNOS	2.7 (1)
Total	*43.2 (16)*
Axis-II comorbidity	
OCPD	27.0 (10)
APD	8.1 (3)
Total	*35.1 (13)*

Note: APD: Avoidant Personality Disorder, EDNOS: Eating Disorder Not Otherwise Specified, GAD:

Generalized Anxiety Disorder, OCPD: Obsessive Compulsive Personality Disorder.

Treatment

The patients in both treatment groups were offered 10 sessions of MCT. Session one mainly consisted of information about the study and the MCT model. Furthermore, the therapist focused on getting a reference about the patients' CAS and together they composed a temporary case formulation. The case formulation was then shared to make the patient aware of their maladaptive strategies and thoughts. Additionally, attention training (Wells, 2009) was

introduced and implemented. At the end of session one, patients were often given one or more tasks to do at home between sessions.

Session four consisted of continued awareness of maladaptive strategies and thought processes where the therapist took an active part in challenging these. Attention training was mostly a part of session four. Motivation was not directly assessed in either session one or four and motivation enhancement was not a part of the treatment program. However, addressing the patients' positive and negative metacognitive beliefs was essential in all sessions. It is thought that these metacognitive beliefs cause ambivalence to change and by addressing this one can increase awareness of a patients' motivation (Wells, 2009).

Therapists

The treatment was administered by one of four available specialized therapists whom received training in MCT beforehand. The creator of the MCT manual, Adrian Wells, monitored the treatment and provided guidance. The therapists also met in groups to discuss and monitor each other once every month. There were no significant differences between the therapists when considering BDI scores post-treatment (F [3, 33] = 2.39, p = .089) and at three-year follow-up (F [3, 33] = 2.05, p = .127). Concerning motivational language, an analysis of variance showed no significant difference between therapists for change talk/sustain talk in either session one (F [3, 33] = 0.45, p = .72) or session four (F [3, 33] = 1.01, p = .40).

Measures

Motivational Interviewing Skills Code (MISC) version 2.5

MISC 2.5 consists of improvements from earlier versions (Houck et al., 2010). The coding is originally performed in three separate rounds. The coder is coding for global ratings initially, followed by parsing and ultimately behavior coding. In the current study we focused on the latter. Originally both the therapists and the patient's utterances are coded when using MISC 2.5. However, due to the research questions in the present study only the patient's motivational utterances were of interest. The 2.5 version categorizes all patient utterances, also the utterances not having to do with changing the target behavior. Target behavior is a term that embody the behavior thought to maintain a patient's symptoms. Target behavior in the current study concerns reducing worrying and rumination and furthermore reducing the metacognitive believes involving these. The patient's utterances not concerned with target behavior are categorized as Follow/Neutral/Ask (F/N/A), but these have not been utilized in this study.

Motivational utterances were categorized as either change- or sustain talk, and furthermore categorized as either: *reason, ability, need,* t*aking steps, desire, commitment* or *other*. *Reason* regards utterances about specific reasons for change or opposing change. For instance, utterances about symptoms such as sadness, fatigue and social isolation were coded as *positive reasons*. Positive meta-beliefs, such as "It [worrying and rumination] is how I gain control" and "I feel like it [rumination] is a part of my personality and I won't get rid of it" were coded as *negative reasons*. *Ability* concerns the patient's believes about his or her ability or capacity to change the target behavior. For example, when asked on a scale from 1 to 100 how confident the patient was about their ability to change the target behavior, a low number was coded as *negative ability* whereas a high number was coded as *positive ability*. Utterances regarding the need for change were categorized as *need*, with "need" often being the necessary wording. "I *need* to change" or "I don't *need* to change" were examples of positive and negative utterances of *need*, respectively. *Taking steps* refers to recent action associated with the target behavior. Doing homework assignments between sessions were examples of *positive taking steps*, whereas not doing them or giving in to the target behavior were examples of *negative taking steps*. *Commitment* regards utterances that explicitly states or implies that the patient was making a commitment to changing or sustaining behavior or offering alternatives to the target behavior. For instance, when a patient made plans to do attention training before next session this was coded as a *positive commitment*. If a patient argued against a task the therapist suggested for the patient to do at home this was coded as a *negative commitment*. Utterances about changing or maintaining the target behavior that were not well fitted into the previous were categorized as *other*. These include indirect statements and hypotheticals. For example, utterances regarding problem recognition were coded as *positive other*, and utterances where the patient downplayed their problems were coded as *negative other*. Each utterance that dealt with changing (change talk) or maintaining (sustain talk) the target behavior was placed into one of these seven categories and marked with the appropriate valence (+/-) and strength using a 5-point Likert scale (Houck et al., 2010). The scores from the different categories of MISC were added to create an overall change- or sustain talk score, based on their either positive (change talk) or negative (sustain talk) valence. These two overall scores of patient motivation were operationalized as positive scores (e.g., higher sustain talk scores indicated lower motivation).

Beck Depression Inventory (BDI)

BDI was used to assess patients' depression (Beck et al., 1961). BDI is a self-report questionnaire consisting of 21 different items, where the patient rates a statement from 0 to 3 based on their experienced symptoms. BDI provides a total score based on these symptoms, which implicates the severity of the depression. A BDI score between 10 and 29 indicates that the patient has a mild to moderate depression. A score over 30 indicates a severe form of depression. In scientific research patients with pre-scores below 10 are usually not included due to the lack of present symptoms.

Procedure

The original study by Hagen and colleagues (2017) was conducted at the university outpatient clinic at the Norwegian University of Science and Technology (NTNU) in Trondheim. The data collection period lasted from 2013 to 2015. The study was registered at ClinicalTrials.gov (NCT01608399) and approved by the Regional Committee for Medical and Health Research Ethics in Norway (ref.nr. 2011/1138). Participants were recruited between 2013 and 2015. Information were distributed to general practitioners through letters, and hence some were referred by their general practitioner. The study was also broadcasted on radio and social media, leading to several participants referring themselves (Hagen et al., 2017). Participants underwent a brief screening by telephone initially. Potential participants were summoned to conduct further interviews with the goal of identifying if they met the inclusion criteria (primary depression disorder, written informed consent and a minimum age of 18) and possible exclusion criteria. The diagnostic screening consisted of Structured Clinical Interview for the DSM-IV axis I (SCID-I; First et al., 2002), Structured Clinical Interview for DSM-IV axis II (SCID-II; First et al., 1997), and also the Hamilton Rating Scale for Depression (HRSD-17; Hamilton, 1967). These were conducted both pre- and post-treatment (Hagen et al., 2017).

The coders in the current study were two students from NTNU who were on their fifth year of the clinical psychology-program. Both started the training process of learning how to use the coding manual by getting familiar with the MISC 2.5 and 1.1 manuals. This was done by discussing the manual with two fellow coders from different projects and with the supervisor of this project. The group used the manual to code one video together initially. Next, the two coders coded the same video from another data sample together. In the next step they coded another video separately to compare codes. The coders discussed issues that arose during the learning process amongst themselves, with the two other coders and with the project supervisor. At this point the coders experienced that the obtained codes were coherent and started to work

with the data sample in the current study. They coded four videos together (two patients, sessions one and four) and when the level of coherence was satisfying, they began to code the videos individually. However, the coding was almost exclusively executed simultaneously and in the same room. This improved the quality and similarity of the codes because they could discuss and solve issues immediately and show the other coder relevant footage to help determent the category and strength of a code. The supervisor was also available for questions during this period. The coders were kept blind to the treatment outcome of the specific patients they were observing.

Patient utterances were coded while watching the videos of the therapy sessions once. Each patient's session one and session four were coded for motivational utterances, leading to a total of 74 sessions coded. For two patients session one was unavailable and for seven patients session four was unavailable, due to broken or missing videos. In these situations, the best available session was coded instead.

Data Analyses

The variables used in the data analyses where composed by the total sum of utterance strength in each category of motivational language. The individual scores from the different categories were added together, based on their either positive (change talk) or negative (sustain talk) valence, to create an overall change- or sustain talk score for each patient. The strength of utterances can provide meaningful information about a patient's motivation and may unveil a more accurate representation of the patient's motivation compared to ratio or frequency. Change variables were created to enable testing of our second hypothesis (the observed change in change talk and sustain talk from session one to four could predict treatment outcome). Change variables were computed for all the observed motivational variables and were calculated by subtracting the sum of each category in session four to the sum in session one (session one – session four). To examine whether there was a significant alteration in change- and sustain talk scores from session one to four we conducted an ANOVA.

To test our third hypothesis (being waitlisted could affect the strength of motivational utterances and furthermore treatment outcome in a negative way), an independent samples t-test was conducted in order to compare the means of the motivational language variables and treatment outcome for the immediate treatment group and the waitlist group. Correlation analyses was conducted to investigate the relations between the motivational language variables and treatment outcome. Several multiple linear regression analyses were carried out to investigate the predictive capacity of the observed patient motivation whilst controlling for

other relevant variables (pre- and post-treatment depression severity). These analyses were used to investigate both the first and second hypothesis (that change- and/or sustain talk or changes in these variables from session one to four, could predict treatment outcome). A collinearity analysis was conducted to assess multicollinearity, and the variance inflation factor (VIF) and the tolerance statistic was inspected. VIF values have no clear cut-offs, however, there is consensus that there may be reason to worry if the largest VIF exceeds 10 and if the average VIF is substantially greater than 1 (Bowerman & O'Connel, 1990; Myers, 1990). Additionally, the tolerance should be greater than 0.2 (Menard, 1995).

Two linear regression models were obtained with the aim of predicting depression scores at post-treatment and three-year follow-up using change- and sustain talk as the predicting variables. In both models the patients' BDI scores at pre-treatment were regressed on the outcome measure to control for baseline depression. In the second model the patients BDI scores at post-treatment was regressed on the outcome measure as well. The results of the correlation analyses were used to determinate which MISC variables to include in the second step of the linear regressions. A stepwise linear regression was used to explore which motivational scores were most important.

Out of the 37 patients, two participants allocated to the waitlist did not meet with the assessment team for a post-treatment interview. Therefore, self-reported BDI from their last treatment session was used as post-treatment results. At three-year follow-up, 34 patients attended assessment, resulting in missing data for three patients. Scores from last observation carried forward were used for these patients.

Results

Table 2 displays mean depression scores and the mean strength of all change talk (CT) and sustain talk (ST) utterances. Both the immediate treatment group and the waitlist group had a reduction in depression scores, measured with BDI, at post-treatment and three-year follow-up. An independent samples t-test showed that were no significant differences between the two groups in any of the variables shown in Table 2, disproving our third hypothesis regarding whether being waitlisted affects motivation. Furthermore, the participants total strength of CT ($M = 57.03$) was considerably higher than the total strength of ST ($M= 18.03$). For the total sample there were greater change in CT ($M = 15.22$) compared to the change in ST ($M = 1.35$) between session one and four, where CT decreased ST stayed stable. The ANOVA showed that the negative change in CT appeared to be significant ($F [1, 36] = 12.77, p = .001$). The change in ST was not significant. In session one, the participants had a high score of *reason* ($M_1 =$

14.59) and *other* ($M_1 = 19.32$) utterances, compared to session four (M_4= 1.49, $M_4 = 6.95$). The only category that had a negative sum in session one was *ability* ($M_1 = -3.11$) and in session four the sum of *ability* utterances increased slightly ($M_4 = -0.65$). *Taking steps* utterances in session four was considerably higher than in session one (M_1= 0.54, $M_4 = 6.19$).

Table 2

Depression Scores and Motivational Language in Immediate Treatment and Waiting List Groups

Measure	Total sample ($N = 37$) M (*SD*)	Immediate ($n = 17$) M (*SD*)	WL ($n = 20$) M (SD)	*t*	*p*
BDI					
Pre	27.41 (6.22)	26.88 (5.56)	27.85 (6.85)	-0.47	.64
Post WL			23.89 (7.05)		
Post-treatment	5.54 (6.48)	4.53 (6.06)	6.4 (6.84)	-0.88	.38
3-year f-u	7.89 (6.83)	7.82 (6.01)	7.95 (7.27)	-0.06	.95
Session 1					
CT	57.03 (22.56)	60.82 (17.65)	53.8 (26.04)	0.97	.34
ST	18.03 (7.08)	17.94 (7.39)	18.10 (7.00)	0.07	.95
Session 4					
CT	41.81 (22.67)	46.59 (25.46)	37.75 (19.76)	1.19	.24
ST	19.38 (13.95)	17.12 (12.60)	21.30 (15.04)	0.92	.36
Change between session 1 and 4					
CT Cha	15.22 (25.9)	14.24 (24.61)	16.05 (27.55)	-0.21	.83
ST Ca	-1.35 (15.08)	0.82 (15.12)	-3.20 (15.19)	-0.81	.43

Note: 3-year f-u: Three-year follow-up BDI scores, BDI: Beck Depression Inventory, CT/ST: Total strength of all change talk/sustain talk utterances, CT/ST Cha: Changes in total strength of change talk/sustain talk utterances from session 1 to session 4, Immediate: Immediate treatment group, Post WL: post-treatment BDI scores for waiting list group, Pre: Pre-treatment BDI scores, WL: Waiting list group.

Correlations between the main categories of patient motivational language and depression scores are displayed in Table 3. Cohen's standards have been used to evaluate the correlation coefficient to determine the strength of the relationship (Cohen, 1988). We found no significant correlations between CT and ST in either session one or session four. However, CT in session one had a moderate positive significant correlation with CT in session four.

Higher BDI scores at post-treatment and three-year follow-up was associated with a high score of sustain talk in session one. Low BDI scores at three-year follow-up was associated with high scores of CT in session four. When patients had an increase in CT utterances from session one to four this was associated with lower BDI scores at three-year follow-up. These results showed an association between motivational language and depression scores which is relevant for our first and second hypothesis regarding whether the patients' observed change- or sustain talk utterances, or changes in these variables could predict treatment outcome.

Table 3

Correlations Between Motivational Language and Depression Scores

Measure	BDI pre	BDI post	BDI 3-year f-u
CT session 1	.04	.08	.18
ST session 1	.15	**.35***	**.43****
CT session 4	-.19	-.21	**-.35***
ST session 4	.21	.28	.15
CT Cha	.21	.25	**.46****
ST Cha	-.13	-.09	.07

Note: 3-y follow-up: three-year follow-up BDI scores, BDI: Beck Depression Inventory, CT/ST: Total strength of all change talk/sustain talk utterances, CT/ST Cha: Change in the total strength of change talk/sustain talk utterances from session one to session four.

*$p < 0.05$, **$p < 0.01$.*

Table 4 presents the correlations between each MISC-category in session one and four and the patients' BDI-scores at pre-, post- and three-year follow-up. There were no significant correlations between utterances in any category in session one and treatment outcome. High scores of *taking steps* utterances in session four were correlated with lower BDI scores at three-year follow-up. An increase in *taking steps* utterances from session one to session four was associated with lower BDI-scores at three-year follow-up. When patients had an increase in *desire* utterances from session one to session four this was associated with a decrease in BDI scores at three-year follow-up.

Table 4

Correlations between MISC categories and Depression Scores

	MISC Session 1		MISC Session 4 (change 1-4)	
	BDI post	BDI f-u	BDI post	BDI f-u
Reason	.08	-.03	-.02 (.08)	-.10 (.03)
Commit.	-.26	-.07	-.00 (-.13)	-.13 (.08)
Ability	-.25	-.18	-.24 (.08)	-.09 (-.04)
Take steps	.06	-.09	-.31 (.31)	**-.40* (.39*)**
Desire	.09	.24	-.08 (.16)	-.13 (**.34***)
Need	.19	.27	-.08 (22)	.10 (.14)
Other	.04	.10	-.24 (.18)	-.30 (.28)

Note: BDI: Beck Depression Inventory, BDI f-u: BDI scores at three-year follow-up, BDI post: BDI scores at post-treatment, Change 1-4: Numbers in parenthesis are change in total strength of change talk/sustain talk utterances from session 1 to session 4, Commit.: Commitment, F-u: Three-year follow-up, MISC: Motivational Interviewing Skills Code, Post: Post-treatment, Take steps: Taking steps. *$p < 0.05$, **$p < 0.01$*

Two linear regression models were computed with the aim of predicting depression scores at post-treatment and three-year follow-up using CT and ST as the predicting variables. Table 5 displays these linear regression models. In both models the patients' BDI scores at pre-treatment was regressed on the outcome measure to control for baseline depression.

Baseline BDI-scores was a significant predictor for post-treatment in the first step of the analysis, predicting 16% of the variance. In the second step, ST during session one appeared to be important in predicting depression scores at post-treatment, explaining an additional 9% of the variance. However, this predictor was borderline significant *(p = .054).*

At three-year follow-up BDI scores at pre- and post-treatment emerged as a significant predictor in the first step, explaining 45% of the variance. In the second step, change in the total strength of CT from session one to four appeared as a significant predictor for depression scores at three-year follow-up, explaining an additional 9% of the variance. BDI scores at post-treatment and the change in CT were unique predictors for BDI scores at three-year follow-up, partially affirming our second hypothesis, which postulated that observed changes in CT and ST from session one to four, could predict treatment outcome.

Collinearity analysis assessing multicollinearity showed that VIF was 1.02 for post-treatment and 1.23 for three-year follow-up. The lowest tolerance for post-treatment was .98 and .92 for three-year follow-up. This indicates that the predictors were not correlated with other variables and that multicollinearity was not an issue. There were no significant findings when the different categories of MISC was used as the predicting variables. This disproved our sub-hypothesis stating that *commitment* utterances in session one and *taking steps* utterances in session four had predictive capacity.

Table 5

Predicting Treatment Outcome Using Change Talk and Sustain Talk

	BDI post-treatment			BDI follow-up	
	R^2 Cha	Sig F Cha		R^2 Cha	Sig F Cha
Step					
1. BDI pre	.16	.016	BDI pre and post	.45	<.001
2. MISC	.09	.054	MISC	.09	.018
Final step	β	p		β	p
BDI pre	.35	.026	BDI pre	.09	.517
ST session 1	-.30	.054	BDI post	.55	<.001
			CT Cha	.31	.018

Note: BDI: Beck Depression Inventory, BDI follow-up: BDI scores at three-year follow-up, BDI post: BDI scores at post-treatment, BDI pre: BDI scores at pre-treatment, CT Cha: Change in total strength of change talk utterances from session one to session four, MISC: Motivational Interviewing Skills Code, ST: Total strength of all sustain talk utterances.

Discussion

The aim of this study was to investigate whether observed patient motivation could predict the treatment outcome of MCT for depression. Our results suggest that high levels of motivation were associated with more favorable treatment outcome, even at three-year follow-up, affirming our first hypothesis which postulated that patients' observed change- or sustain talk utterances could predict treatment outcome. Specifically, the results suggested that there were significant correlations between motivation (sustain talk session 1, change talk session 4, and taking steps session 4) and treatment outcome. Patients' sustain talk during session one could predict some of the variance in post-treatment outcome of MCT for depressed patients, however this predictor was borderline significant. Change talk in neither session one or four appeared to be a significant predictor for treatment outcome. Similarly, the specific subcategories of motivation were not significant in the regression analyses, which disproved our sub-hypothesis stating that *commitment* utterances in session one and *taking steps* utterances in session four had predictive capacity. Our second hypothesis anticipated that the change in motivation from session one to four could predict treatment outcome. The results concluded that change in the total strength of change talk from session one to session four significantly predicted variation in BDI scores at three-year follow-up, explaining 9% of the variance beyond pre-treatment and post-treatment. Our third and final hypothesis postulated that being in the waitlist group could affect the strength of motivational utterances and thus treatment outcome in a negative way. However, the results revealed no significant differences in motivation between the two groups, thus disproving our third hypothesis.

Initially, several significant correlations were discovered which could preliminarily elaborate the relations between motivation and treatment outcome. There was a significant negative correlation between change talk in session four and BDI scores at three-year follow-up. This might indicate that higher motivation in session four is associated with greater symptom reduction. However, no previous research (Joramo, 2019; Lombardi et al., 2014; Poulin et al., 2018) have found change talk to be significantly associated with treatment outcome. This discrepancy with previous findings may be explained by the differences in treatment approach, but one study (Joramo, 2019) did however include a MCT condition and still found no significant correlations between change talk and treatment outcome. Furthermore, one could argue that the differences in the patients' primary diagnosis may explain the discrepancy in results, but this explanation may be insufficient when considering that several studies have suggested that the key mechanisms of depression and GAD are similar (Hong &

Cheung, 2015; Kendler et al., 2007; Solem et al., 2018). Since the current study is the first where MISC have been used to assess motivation in treatment of depressed patients, and furthermore, since previous studies have mainly investigated the role of motivation in other treatment approaches than MCT, we are not able to compare these findings with any previous ones directly. Thus, the source of the discrepancy remains unclear.

Additionally, we found that sustain talk in session one was significantly associated with higher BDI scores at post-treatment and three-year follow-up. The correlation coefficients found represented a moderate association. This accords with previous findings (Joramo, 2019; Lombardi et al., 2014; Poulin et al., 2018) who all found sustain talk in early sessions to be significantly associated with higher levels of worry at post-treatment and one-year follow-up. The associations found in these studies were all moderate, which accords with our findings. This could indicate that patients with lower motivation could have poorer treatment outcome.

The regression analysis concluded that sustain talk utterances in session one had a predictive capacity for BDI-scores at post-treatment. This variable predicted 9% of the variance beyond pre-treatment. However, this result was borderline significant. Both Lombardi et al. (2014) and Poulin et al. (2018) found sustain talk to be a robust predictor of treatment outcome, hence these findings do not perfectly accord with our results. There may be several reasons for the non-significant results in the current study. Sample size could be a potential explanation, where it is plausible to believe that a greater sample size could have resulted in significant results. As discussed, we found a significant association between sustain talk in session one and BDI scores at post-treatment and three-year follow-up. This indicates that utterances against change in session one could be important for treatment outcome regardless of the results from our regression analysis. In addition, there are differences between MCT and CBT as treatment approaches, and it is possible that CBT could facilitate more sustain talk than MCT. Furthermore, there could be cultural differences affecting the studies.

Regarding our sub-hypothesis, we predicted that positive utterances of c*ommitment* in session one and *taking steps* in session four had a greater predictive capacity for symptom reduction than other categories of motivational language. None of these were significant in the regression analysis and therefore their predictive capacity is unclear. However, our research concluded that there were several significant correlations that could give insight into these relations. There was a moderate negative correlation between the sum of *taking steps* utterances in session four and BDI at three-year follow-up. Hence, low BDI scores at three-year follow-up were significantly associated with a high sum of *taking steps* utterances in session four. This result accords somewhat with previous research which found that utterances of *taking steps* in

session four explained significant variation in symptom improvement (Joramo, 2019). Additionally, the correlation analyses indicated that an increase in the sum of *taking steps*-utterances from session one to session four were significantly associated with lower BDI scores at three-year follow-up.

     Taking steps is a category which codes for utterances of concrete actions moving the patient either toward or away from the target behavior. These findings may therefore indicate that the patient's motivation to act is especially important for treatment outcome. This may be related to treatment adherence, a term defined by the WHO as "the extent to which a person's behavior ... corresponds with the agreed recommendations from a health care provider." (WHO, 2003, pp. 3). The definition of treatment adherence does to a large extent describe the utterances coded as *taking steps* in the current study. Treatment adherence is thought to have a great impact on symptom improvement (WHO, 2003) which accords with our finding of *taking steps* utterances being important for treatment outcome.

     Our research did not replicate the previous finding of *commitment* utterances in session one being an important predictor (Joramo, 2019), which we predicted in our sub-hypothesis. There may be several reasons for this. The previous study involved patients with a different primary diagnosis (GAD) and the study also involved both a condition of CBT and one of MCT (Joramo, 2019). Since the study did not differentiate between *commitment* utterances in the two conditions, it may be possible that the majority of these utterances can be traced to the CBT condition and therefore we were not able to fully compare these findings. In addition, the variables were operationalized by frequency of utterances instead of strength, which we argue captures the quality rather than quantity of utterances.

     In our second hypothesis we anticipated that the change in motivation from session one to four could predict treatment outcome. An interesting, significant negative correlation was discovered between alterations in change talk from session one to four and BDI scores at three-year follow-up, unveiling an association between decreases in change talk and increases in BDI scores at three-year follow-up. The results of the regression analysis concluded that change in the total strength of change talk from session one to session four was the only motivational language variable which could significantly predict variation in BDI scores at three-year follow-up, explaining 9% of the variance beyond pre-treatment and post-treatment. These results indicated a predictive capacity which were not found in a previous study of GAD patients (Joramo, 2019). Neither did this study find any significant associations between alterations in change talk and treatment outcome. This discrepancy in results are particularly interesting considering that this previous study included a MCT condition, making it reasonable

to assume that the results would be somewhat similar. However, when investigating the predictive capacity for alterations in change talk in the previous study the change variable was calculated by combining scores from both the CBT and MCT group, and additionally it was operationalized by frequency. CBT and MCT differ especially in the structure of the first session which could possibly explain some of the discrepancy. Since our study did not include control groups (e.g. GAD or CBT) it is impossible to state if the discrepancy in results can be explained by treatment approach or primary diagnosis.

When examining the mean strength of utterances, change- and sustain talk in session one was 57.03 and 18.03 compared to 41.81 and 19.38 for session four, respectively, which indicated a decreasing trend in change talk utterances along the course of treatment. When testing the significance of this negative trend, we found a significant reduction in change talk utterances from session one to session four, and no significant changes in sustain talk. It is possible that this trend does not represent actual motivation change, but merely a change in expressed motivation. Patients may be more potent to express motivation explicitly or exaggerate existing motivation in session one due to social-desirability effects between the patient and the therapist, an effect that is thought to decrease over time due to the development of trust, emotional closeness and loyalty (Kühne, 2018). Additionally, the majority of session one consists of composing a case formulation, giving the patient many opportunities to express for example reasons to change. Session four is quite different, mostly consisting of reviewing the last week and discussing obstacles that may have occurred during this time. The decrease in change talk utterances can therefore be explained by the differences in content when comparing session one and four, where expressing motivational language in session one can be a natural effect of composing the case formulation, providing a facilitating structure resulting in a high sum of change talk in session one.

It seems reasonable to assume that session one has a more facilitating structure if one looks further into the frequency of utterances in the different categories of change talk and sustain talk. Utterances of *reason* were quite frequent in session one (M = 14.49), with a great decrease in session four ($M = 1.49$). When the case formulation is composed the patient is encouraged to talk about their symptoms. These utterances were categorized as *reason* according to the MISC manual. For obvious reasons, session four does not encourage these utterances in the same way. This may further indicate that though the observed motivation decreases along the course of treatment, this does not actually imply that a patient's actual motivation is lower as treatment progresses. However, the strength of change talk in session four is still substantially greater than the strength of sustain talk in this session, indicating that

patients were more potent to express change talk during session four. Additionally, due to the possible facilitating structure of session one it may be reasonable to assume that motivation expressed in session four could be more authentic than motivation expressed in session one since the majority of utterances in session four were less provoked by the therapist or facilitated by the session's structure.

Lastly, our third hypothesis stated that we believed that being in the waitlist group would weaken the strength of motivational utterances and thus affect symptom reduction. The results revealed that there were no significant differences between the two treatment groups, hence the strength of motivational utterances did not differ significantly between the two groups. In the original study by Hagen et al. (2017) none of the patients in either group dropped out during treatment. However, two of the patients allocated to waitlist did not go on to complete all 10 treatment sessions, neither did they meet with the assessment team for a post-treatment and follow-up interview. In addition, two patients in the waitlist dropped out of the project prior to treatment and were not included in our data material.

Studies have examined the relation between waiting time and adult dropout rates and found that decreasing the time from when a patient seeks treatment to the first appointment can reduce dropout rates (Carr et al., 2008; Salta & Buick, 1989). Although the primary diagnosis in these studies differ from the current study, it is possible that being waitlisted can have similar effects. Since two patients dropped out of the waitlist group and two other patients allocated to waitlist did not go on to complete all 10 treatment sessions, one might assume that this could be caused by the motivational effects of waiting for treatment. However, one of the two patients dropped out prior to treatment due to the offer of another treatment option which did not include substantial waiting time and the second dropped out due to moving to another city. This may imply that these patients did not lack or loose motivation during the waiting list period. One meta-analysis found that waiting for treatment only results in a negligible effect considering symptom improvement, meaning the severity of a patient's symptoms were stable while being on a waitlist short-term (Steinert et al., 2017). Their results concerned social anxiety disorder, but it is stated that these effects were similar to previous meta-analyses investigating the effects of waiting in other disorders, e.g., depression. In addition, the mean waiting time in this meta-analysis (10.6 weeks) was almost identical to the waiting time in the current study (Steinert et al., 2017). This might indicate that the patients' need for treatment stays the same while waiting for treatment since symptoms were stable, thus, leading to the motivation for treatment staying stable as well. This supports our findings, indicating no significant differences in motivation between the two treatment groups.

Limitations

  The current study has several limitations which must be accounted for. The study suffers from a relatively small sample size and therefore increasing this should be a priority in future research. Inter-rater reliability has not been examined, and future research should include this when using multiple MISC coders. The coders were kept blind to the individual patient's treatment outcome, however both coders were familiar with the overall results of the original study.

  Motivation was not explicitly assessed by the therapists nor did the patients complete any self-report questionnaires to operationalize motivation. However, Lombardi et al. (2014) and Poulin et al. (2018) both included self-report questionnaires in their studies and found no significant correlations between observed and self-reported motivation. This might indicate that the different measurements assess different aspects of motivation and that an inclusion of self-report questionnaires were not essential in this study. Regardless, including self-report questionnaires could have provided meaningful insight on how observed and self-reported motivation are associated and furthermore the predictive capacity for treatment outcome.

  To our knowledge this is the first study which applies MISC on a research population of depressed patients in a MCT treatment condition. This alone is a limitation, providing limited opportunity of comparing our results to previous ones. The studies used to compare results have based their research on patients with GAD, and most have used CBT as treatment condition, making it important to be cautious when comparing results. The current study operationalized the MISC variables by using the sum of utterance strength, whereas previous studies have calculated these by using ratio of motivational language, frequency or quantity. However, we argue that the strength of utterances can provide meaningful information about a patient's motivation and may unveil a more accurate representation of the patient's motivation than ratio or quantity of utterances.

  The current research lacks a control group of patients in a different treatment condition than MCT, which makes it impossible to examine if our findings are generalizable or unique to MCT. For further research we recommend the inclusion of a control group. In the original study (Hagen et al., 2017) there were four different therapist who provided treatment. Due to the small sample we could not do a multilevel modelling to account for therapist effects. However, we recommend for future research that this limitation is addressed, given that even small therapist effects can significantly impact the results.

Implications

This study has provided unique insight into how observed patient motivation can be associated with treatment outcome for depressed patients receiving MCT. In terms of clinical implications, the findings of this study suggest that motivational utterances can be important for the therapist to be aware of, as it can affect the treatment outcome. Our results suggest that high levels of motivation could lead to a more favorable treatment outcome, even at three-year follow-up. The findings could contribute to highlight the importance of patient motivation during treatment and further stress the possible utility of therapists detecting lack of motivation and furthermore attempting to enhance this for a more favorable treatment outcome. More specifically, if the therapist recognizes reductions in change talk this may be especially important. This is particularly indicated by the fact that alterations in change talk was the only motivational language variable who could significantly predict variation in three-year follow-up BDI scores. Learning to detect such changes may provide opportunities for therapists to assess and possibly enhance patients' motivation which could potentially lead to a more favorable treatment outcome.

Our findings may further imply that patients' motivation to act is especially important to assess, preliminary indicated by *taking steps* utterances in session four being significantly associated with more a favorable treatment outcome. Furthermore, when dividing our sample into either a positive (score of 1 or higher) or negative (score of 0 or lower) group based on *taking steps* scores in session four, post-treatment and three-year follow-up BDI scores were halved for the positive group ($M_{post} = 4.21$, $M_{follow-up} = 5.75$) when compared to the negative one ($M_{post} = 8.00$, $M_{follow-up} = 11.85$), indicating greater improvement for the positive group. A *taking steps* score of 0 of lower in session four indicates that, for the most part, the patient has not acted in order to reduce target behavior or acted in ways so that target behavior have been maintained or increased. This may imply that therapists should specifically be aware of their patients' actions considering change in session four, and potentially try to motivate their patients in cases where actions toward change are lacking or cooperate to solve potential treatment roadblocks. Further research could investigate if it is possible to specify a cut-off for this, making it easier for clinicians to detect these patients.

In terms of implications for future research, increasing the sample size should be a priority. Amongst other things, this would enable the use of multilevel modelling to account for therapist effects. Furthermore, including self-report questionnaires can provide meaningful insight on the association between observed and self-reported motivation and should be included in future research. This study sheds light on the potential utility of patient motivational

language beyond GAD and in another treatment context than CBT. Future research should strive to replicate and elaborate the findings of the current study, to further investigate whether the relevance of patient motivational language can be extended to the current clinical context. In addition to specifying a cut-off for strength of *taking steps* utterances, one could investigate whether administering an additional form of motivational intervention to the patients who score below cut-off will increase their motivation prior to or during treatment. To our knowledge, no previous studies have investigated observed treatment motivation with MISC during the course of treatment. By doing this, future research could ultimately examine if this outlined approach could lead to more favorable treatment outcome.

Conclusion

To our knowledge, this is the first study to investigate the predictive capacity of motivational language in a depressed patient population receiving MCT. Therefore, this work provides a valuable contribution in evaluating whether the relevance of patient motivational language can be extended to clinical contexts beyond GAD and CBT. Motivational utterances during early therapy sessions with MCT seems to provide valuable insight in terms of treatment outcome. More specifically, utterances of sustain talk in session one, change talk in session four (particularly *taking steps)* and alterations in change talk from session one to session four may especially be related to treatment outcome. Previous research has found similar results and therefore it is reason to believe that motivational utterances are important irrespective of treatment approach and primary diagnosis. However, future research is necessary to affirm this to a greater extent. This study is the first of its kind in a growing, and quite important field of research. We encourage therapists to pay attention to motivational utterances, and researchers to further investigate this subject.

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