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Patient-Therapist Congruence on Aspects of the Therapeutic Alliance in Psychotherapy for Medically Unexplained Symptoms

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PATIENT-THERAPIST CONGRUENCE ON ASPECTS OF THE THERAPEUTIC ALLIANCE IN PSYCHOTHERAPY FOR MEDICALLY UNEXPLAINED SYMPTOMS

by

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ABSTRACT

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Medically unexplained symptoms (MUS) are physical symptoms that cannot be explained or are not sufficiently explained by medical examination. These symptoms most typically present as pain or other discomfort, and are associated with significant psychological distress, healthcare utilization, and disability. Both psychologists and medical professionals have struggled to treat this population, and MUS patients have noted their dissatisfaction with the care they receive. The present study analyzed a sample of 174 patient-therapist dyads to learn more about the role of congruence, or agreement, on aspects of the therapeutic alliance. Grid sequence analyses of measures of therapist warmth, therapist competence, patient engagement in therapy, and therapy outcome perceptions and expectations were conducted to learn more about the congruence patterns present in a MUS population. Regression analyses revealed that these congruence patterns were associated both with patient baseline characteristics and treatment outcomes. The results of this study provided nuanced insight into patient-therapist congruence in therapy. Specifically, the findings of the present analysis highlighted the importance of the valence of congruence, whether a dyad agrees things are going well, or

whether a dyad agrees things are going poorly. Additionally, the present analysis further highlighted the importance of the direction of incongruence (whether therapists tend to underestimate aspects of therapy relative to patients, or vice versa). Furthermore, patient characteristics, such as mental health comorbidities, were shown to likely impact congruence. Overall, congruence alone seems to inconsistently relate to treatment outcomes. The present study illustrates the importance of considering other congruence-related factors.

(112 pages)

PUBLIC ABSTRACT

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Sarah Daehler

Medically unexplained symptoms (MUS) are physical symptoms that cannot be explained or are not sufficiently explained by medical examination. These symptoms most typically present as pain or other discomfort, and are associated with significant psychological distress, healthcare utilization, and disability. Both psychologists and medical professionals have struggled to treat this population, and MUS patients have noted their dissatisfaction with the care they receive. The present study analyzed a sample of 174 patient-therapist dyads to explore the role of congruence, or agreement, on aspects of the therapeutic alliance in therapy for MUS as congruence research has not yet been conducted in this population. This study aimed to learn more about the types of congruence present in this population, whether certain types of congruence were associated with treatment outcomes, and whether any patient characteristics were associated with types of congruence. The results of this analysis suggested that certain types of congruence were associated with treatment outcomes and patient characteristics. However, the analysis also revealed that other elements of congruence, such as whether patients and therapists agree things are going well, or whether they agree things are going poorly, or whether they disagree, are important elements to consider. In addition, patient characteristics, such as whether they have any mental health diagnoses, were shown to be associated with congruence. Overall, congruence alone did not consistently relate to treatment outcomes. The present study illustrated the importance of considering other

congruence-related factors when treating patients with MUS both in psychological care and medical care settings.

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CHAPTER I

INTRODUCTION

Medically unexplained symptoms (MUS) are physical symptoms that cannot be explained or are not sufficiently explained by a structural or other pathology (Marks & Hunter, 2015). These types of symptoms often present as pain or other discomfort (Marks & Hunter, 2015). Diagnostic labels have shifted as research and clinical practice have developed in this area, but MUS have been a core component across numerous diagnoses (Wessely et al., 1999). MUS have been found to be as prevalent as 80% in primary care settings and can take on a chronic, persistent, and debilitating nature (Behm et al., 2021; Haller et al., 2015).

MUS are associated with significant psychological distress, healthcare utilization, and disability (de Waal et al., 2004; Henningsen, 2018; Rask, 2015; Toussaint, et al., 2016). de Waal et al. (2004) found that individuals with somatoform disorder were limited in many different domains of health-related quality of life (de Waal et al., 2004; Ware & Sherbourne, 1992).

There are numerous etiological factors that contribute to the development and maintenance of distressing MUS. These include both cognitive and behavioral factors, including attentional biases, somatosensory amplification, catastrophization, increased healthcare utilization, body checking behaviors, and avoidance behaviors (Barsky et al., 2005; Brosschot, 2002; Kleinstäuber & Rief, 2017; Vlaeyen et al., 1995). There are also numerous risk factors associated with MUS. These include older age, lower education

level, lower socioeconomic status, recent medically unexplained pain, comorbid physical health conditions, comorbid mental illness, living alone, parental alcohol abuse, and recent stressful life events (Leiknes et al., 2007; Kleinstäuber et al., 2018; Steinbrecher & Hiller, 2011). Additionally, such symptoms are at least twice as common in women as they are in men (de Waal et al., 2004; Leiknes et al., 2007; Steinbrecher & Hiller, 2011).

Although MUS are a prevalent burdensome experience, patients' and medical doctors' agendas for treatment are often different, leading to significant misunderstanding and frustration on both ends (Kenny, 2004). In a qualitative interview study, the authors created the following composite quote based on themes that all their patients shared: "They (the doctors) don't even listen to what you have to say… you can tell they are not listening at all – they just write up a script and say see you next month. You have to jump up and down and scream at them to be heard. They have their minds made up before you speak" (Kenny, 2004). Doctors described their perspective in the following way: "People seem to be very hard to educate. They don't understand. They get fixed ideas about where their pain is coming from. It is hard to change their focus" (Kenny, 2004). Such communication experiences add to the already significant distress these patients are experiencing (Houwen et al., 2017; Kenny, 2004). Given the psychological distress these patients experience, it follows that psychological treatment would be an important component of the management of MUS, especially in terms of decreasing MUS-related distress.

Cognitive Behavioral Therapy (CBT) has emerged as the psychotherapy with the best efficacy for treating patients with MUS (Van Dessel et al., 2014). This treatment can help patients to reframe health-related beliefs, reduce associated distress, and improve

function (Van Dessel et al., 2014). One of the most important aspects of psychological treatments in general is the therapeutic alliance, or the relationship between therapist and patient (Horvath et al., 2011). A positive alliance has been shown to be significantly correlated with positive outcomes such as pain reduction, treatment adherence, improvement of mental health and wellbeing both in primary care settings and in psychological care settings (Horvath et al., 2011).

While different schools of thought vary in how they characterize the therapeutic alliance, all can agree that the relationship is one co-created by therapist and patient, meaning that both therapist and patient contribute in some ways to the relationship (Horvath et al., 2011). Despite this, few studies focus on therapist *and* patient perspectives together. Existing studies on the agreement, or congruence, between patient and therapist ratings of their relationship and the therapy have shown that congruence can impact outcomes in non-MUS samples. For example, if therapist and patient agree that they have a strong working relationship, they likely also hold a shared idea of treatment goals or values within the therapy (Jennissen et al., 2020). On the other hand, if therapist and patient agree that they have a poor working relationship, they likely are more able to address the aspects of the relationship or of the therapy that are not working well, then can pivot toward a stronger relationship (Jennissen et al., 2020). Disagreement, or incongruence, about the relationship or the therapy has been shown to result in a less productive therapy and results in worse treatment outcomes (Jennissen et al., 2020; Rubel et al., 2018).

A strong therapeutic alliance is important for all therapy patients, but this alliance is especially important for MUS patients given their experiences of invalidation in the

medical field (Kenny, 2004; Mander et al., 2017). Meeting with a psychologist offers an opportunity for a MUS patient to feel validated and understood. On the other hand, a referral to a psychologist may be disappointing for a patient who is seeking a medical explanation of their problem (Houwen et al., 2017; Kenny, 2004). Unfortunately, little research exists that examines the therapeutic alliance in this population. One study that included somatoform disorder patients within their larger clinical sample found that somatoform disorder patients showed the strongest increases in alliance over time and that alliance ratings predicted therapeutic gains (e.g., stronger alliance predicts more therapeutic gains; Mander et al., 2017). Developing a strong therapeutic alliance with MUS patients becomes an essential task for therapists hoping to maximize the efficacy of their treatment (Mander et al., 2017).

The importance of a strong alliance when treating MUS is clear, but the role of congruence within the therapy and the predictors of this congruence remains unknown in this population. One alliance congruence study included 15 somatoform disorder patients within their larger sample (Jennissen et al., 2020). This study found that greater congruence in the alliance predicted lower symptom distress, however, the effect for somatoform disorder patients only was not specified (Jennissen et al., 2020). Aside from this study, no other therapist-patient congruence research has been conducted in a MUS population.

Many barriers exist in conducting this research. In particular, the existing congruence studies conducted in other clinical populations typically have large sample sizes and many measurement points that can support complex analyses such as response surface analysis, truth-and-bias modeling, or growth mixture modeling. Unfortunately,

MUS participants are historically difficult to recruit, making it difficult to utilize such advanced statistical methods.

The present study seeks to address the following questions through a secondary analysis of existing data from an intervention trial including 255 patients with SSD (Kleinstäuber et al., 2016).

1. What patterns of congruence between patient and therapist exist in a MUS population?
2. How do congruence patterns regarding different aspects of the therapeutic alliance predict treatment outcomes?
3. Which baseline patient characteristics are associated with which congruence patterns?

CHAPTER II

LITERATURE REVIEW

1. Medically Unexplained Symptoms (MUS)

1.1 What are medically unexplained symptoms (MUS)?

Medically unexplained symptoms (MUS) are physical symptoms that cannot be explained or are not sufficiently explained by a structural or other pathology (Marks & Hunter, 2015). These types of symptoms often present as pain or other discomfort. MUS are a core component of numerous diagnostic labels, including somatoform disorder, somatization disorder, functional somatic syndromes, etc. As research has furthered the understanding of such disorders, the criteria and classifications have changed. Previous diagnoses, such as somatoform disorder, required that the distressing symptoms be medically unexplained. The DSM-5 currently recognizes Somatic Symptom Disorder (SSD) as a disorder characterized by one or more persistent physical symptoms causing excessive thoughts, feelings, and behaviors associated with the symptoms (American Psychiatric Association [APA], 2013). These somatic symptoms can either be medically explained or unexplained.

It can be difficult to distinguish between patients who have authentic medically unexplained symptoms, patients who have authentic symptoms that have not yet been medically explained, patients with factitious disorder (who unconsciously pretend to experience a symptom), or patients who are malingering (who consciously pretend to experience a symptom) (Onofrj et al., 2021). If malingering or factitious disorder are

present, medical professionals may identify this through inconsistent testing results or inconsistent symptoms, such as skin lesions only in areas where the individual can reach (Onofrj et al., 2021; APA, 2013).

When an individual experiences a certain cluster of medically unexplained symptoms, they may be diagnosed with a functional somatic syndrome (Wessely et al., 1999). A few common functional somatic syndromes include fibromyalgia, irritable bowel syndrome, chronic fatigue syndrome, and multiple chemical sensitivity (Wessely et al., 1999). Though the specific somatic symptoms may vary across these syndromes, they share common risk factors. For example, such syndromes are often experienced by women and are associated with psychological distress, childhood abuse, and altered central nervous system functioning, characterized by central sensitization, the phenomenon in which pain is perpetuated by a highly reactive nervous system (Guo et al., 2019; Wessely et al., 1999). These syndromes also share some cognitive features, including catastrophizing and attentional biases (Guo et al., 2019). Additionally, patients with different types of MUS all experience the physical and psychological burden of their physical symptoms (Guo et al., 2019). Many functional somatic syndromes respond to similar treatments, suggesting they may be more similar than different. In particular, antidepressants, psychotherapy with a biopsychosocial focus, and a focus on symptom management rather than symptom curing have been shown to be helpful in the context of many functional somatic syndromes (Guo et al., 2019; Wessely et al., 1999).

The conceptualization of somatic symptom type disorders remains inconsistent across the fields of medical practice, psychological practice, and research (Guo et al., 2019; Wessley et al., 1999). Medical providers focus on the syndromes and symptoms within their medical specialty, which likely has led to the differentiation of syndromes that may share underlying risk factors, symptoms, and treatments. Psychologists have found themselves focusing on the psychological aspects of these disorders, but psychological conceptualizations have shifted as diagnostic criteria have shifted. Wessley and colleagues (1999) suggest that an integration between medicine and psychology may be required for the proper treatment of somatic syndromes. Despite the inconsistencies in medical and psychological practice, MUS remain an important and underlying component of all past and present diagnostic labels, and as such, the present paper will focus on MUS. Further exploration of MUS without organ-specific specialization can help to enhance our understanding of shared etiology across symptom presentations and to enhance the development of effective treatments (Guo et al., 2019).

1.2 Epidemiology of MUS

Haller et al. (2015) conducted a meta-analysis on the prevalence of conditions characterized by MUS using DSM-III, -IV, and ICD-10 criteria, finding that the mean lifetime prevalence of one or more such disorders was 41%. The disorders included in this prevalence study were somatization disorder, undifferentiated somatoform disorder, chronic pain disorder, conversion disorder, somatoform autonomic dysfunction, somatoform disorder unspecified, abridged somatization disorder, multisomatoform disorder, somatoform disorder, and medically unexplained symptom (Haller et al., 2015).

The authors found that 40-49% of primary care patients reported one or more MUS, with one study reporting that 80% of primary care patients experienced at least one symptom that had not yet been medically explained (Haller et al., 2015).

Behm et al., (2021) conducted a longitudinal study looking at the persistence of SSD as defined by the DSM-5, meaning the somatic symptoms can be either medically explained or unexplained. At baseline, 51.8% of individuals met criteria for SSD. After four years, 21.4% of these SSD patients no longer met criteria, leaving 30.4% of patients with persistent SSD. Of the individuals who did not meet criteria at baseline, 16.9% developed enough symptoms to meet criteria at the four-year follow-up (Behm et al., 2021). These data suggest that SSD can be both persistent and highly prevalent.

While prevalence studies like these nicely summarize the statistics, it is difficult to accurately track prevalence given the terminology and classification challenges related to somatic symptoms and MUS. In addition, there is sufficient evidence to suggest that MUS are experienced worldwide, though specific somatic symptoms differ across countries (Kleinstäuber et al., 2018). For example, “nervios” is reported in Latin America and manifests with symptoms such as headaches, sleep troubles, gastrointestinal issues, or shaking (APA, 2013). “Shinkei-suijaku” is reported in Japan and manifests as fatigue, memory problems, and weakness (APA, 2013). Despite the cultural variation of the somatic symptoms, somatization is a cross-cultural experience (Kleinstäuber et al., 2018). The diversity in somatic symptoms experienced across the world make the syndromes difficult to track as well. Regardless of the epidemiological challenges, the prevalence of such symptoms and syndromes is striking.

1.3 Impact of MUS

The suffering of individuals with somatic symptoms of any kind is not limited to the physical symptoms. Rather, the psychological and behavioral aspects may cause more distress, especially when physical examinations fail to find an adequate explanation (Henningsen, 2018; Houwen et al., 2017). Severity of MUS-related distress lies on a spectrum ranging from mild to severe based on the number of psychobehavioral symptoms experienced. de Waal et al. (2004) found that 26% of patients with somatoform disorder (using DSM-IV criteria) also met criteria for an anxiety and/or depressive disorder. The presence of anxiety and/or depression, the number of somatic symptoms experienced, and high healthcare usage are all strong predictors of disability in these patients (de Waal et al., 2004; Henningsen, 2018; Rask, 2015; Toussaint, et al., 2016).

Furthermore, SSD patients are at higher risk of suicidal ideation, suicide attempts, and death by suicide as compared to a non-clinical population (Torres et al., 2021). A meta-analysis looking at suicidality in SSD populations found that as many as 34% of participants reported current suicidal ideation and that as many as 67% of participants reported a past suicide attempt (Torres et al., 2021). These data highlight the psychological impact of SSD, and it is possible that there is an even stronger psychological and physical impact on those whose symptoms are medically unexplained.

While research tends to focus on the physical and emotional aspects of SSD or MUS, de Waal et al. (2004) found that individuals with somatoform disorder were actually limited in all eight domains of health-related quality of life captured by the first version of the SF-36. This 36-item self-report questionnaire examines physical role

limitations, bodily pain, general health perceptions, energy/vitality, social functioning, emotional role limitations, and mental health (Ware & Sherbourne, 1992). This result indicates that somatoform disorder has a strong impact on overall quality of life and wellbeing (de Waal et al., 2004). Individuals with somatoform disorder and comorbid anxiety and/or depression saw even more functional impairment than those with somatoform disorder alone (de Waal et al., 2004).

While MUS have been shown to touch all aspects of life, one of the life domains most impacted is work participation (Henningsen, 2018). A Danish research team examined MUS and somatoform disorder impact on work over a period of 10 years. In this sample, 19.1% of individuals with somatoform disorder were granted partial or full disability leave from work while 8.3% of individuals with recent-onset MUS were granted disability benefits (Rask, 2015). These findings highlight that even recent-onset MUS, not just chronic MUS or somatoform disorders, can lead to interference with work.

1.4 Etiology of MUS

There are several etiological factors that contribute to the development and maintenance of distressing MUS. These include both cognitive and behavioral etiological factors (Kleinstäuber & Rief, 2017). For example, MUS patients have demonstrated attentional bias toward somatic stimuli, indicating they are more likely to give more attention to thoughts or feelings related to the body (Brosschot, 2002). This leads to somatosensory amplification, which is characterized by vigilance and attentional bias toward physical changes in the body, a tendency to interpret somatic symptoms in a negative or catastrophizing way, and a tendency to develop negative emotions or distress

related to the somatic symptoms (Barsky et al., 1988; Barsky & Wyshak, 1990). In addition, MUS patients also commonly experience body image issues in that they report a self-concept of bodily weakness (Klaus et al., 2015; Kleinstäuber & Rief, 2017).

Some behavioral factors have also been found to contribute to the development and maintenance of somatic symptom distress. In particular, MUS patients show higher healthcare utilization as compared to a nonclinical population as these patients often seek reassurance or confirmation from medical providers about their symptoms (Barsky et al., 2005). MUS patients are also more likely to engage in body scanning or checking behaviors in which an individual consistently checks their body or a specific body part for changes. On the other hand, MUS patients may engage in avoidance behaviors, particularly avoidance of physical activity (Vlaeyen et al., 1995). This may be due to the self-concept of bodily weakness, or it may be due to the individual avoiding distressing bodily sensations such as shortness of breath or muscle fatigue (Vlaeyen et al., 1995).

1.5 Risk factors of MUS

There are numerous risk factors associated with MUS. These include age (younger people experience more MUS), education level (less educated individuals experience more MUS), socioeconomic status (those with lower socioeconomic status experience higher rates of MUS), recent medically unexplained pain, comorbid physical health conditions, comorbid mental illness, living alone, parental alcohol abuse, and recent stressful life events (Leiknes et al., 2007; Kleinstäuber et al., 2018; Steinbrecher & Hiller, 2011). Additionally, such disorders are at least twice as common in women as they are in men (de Waal et al., 2004; Leiknes et al., 2007; Steinbrecher & Hiller, 2011).

1.6 Treatment for MUS

MUS are associated with increased healthcare utilization, especially near the onset of the symptom(s) (Toussaint et al., 2016). Patients experiencing a new somatic symptom often visit their primary care physician first (Murray et al., 2016). Unfortunately, MUS patients are often dissatisfied with the healthcare they receive (Houwen et al., 2017). Patients visit their physicians expecting to learn why they are experiencing their symptoms and to learn about potential treatments. Given that MUS patients present with symptoms that doctors cannot explain and since doctors are unable to provide adequate helpful treatments because of the unknown origin of the symptoms, patients leave appointments feeling disappointed and discouraged (Houwen et al., 2017). Physicians who do not feel comfortable treating MUS often refer these patients to other specialty providers, beginning what can sometimes turn into a cycle of misunderstandings between clinician and patient (Murray et al., 2016) and endless referrals (Kenny, 2004). The distress related to navigating the healthcare system adds to the already significant distress these patients are experiencing (Houwen et al., 2017; Kenny, 2004).

Given that psychological and behavioral factors are at least as distressing as somatic symptoms for patients with MUS, it follows that psychological support and treatment would be effective in addressing the distress these patients experience. Cognitive Behavioral Therapy (CBT) has emerged as the psychotherapy with the best efficacy for treating patients with MUS (Van Dessel et al., 2014). A meta-analysis found that CBT reduced somatic symptom severity by the end of treatment (Van Dessel et al., 2014). At a one-year follow-up, this effect remained (Van Dessel et al., 2014). Even

short-term psychotherapy has been shown to have positive results for individuals with MUS (Kleinstäuber et al., 2011).

When CBT takes a biopsychosocial approach, it can help patients to reframe health-related beliefs, reduce associated distress, and improve function (Van Dessel et al., 2014). One typical component of CBT for MUS is psychoeducation. This is an important aspect of treatment and focuses on an exploration of the patient's illness-related beliefs. This is not intended to invalidate the patient. Rather, the exploration intends to slowly extend the illness-related beliefs to include psychosocial factors (Kleinstäuber & Rief, 2017). Once patients have extended their illness-related beliefs to include psychosocial factors, they can begin to acknowledge the role of stress on their somatic symptoms. Stress management techniques such as progressive muscle relaxation can be an effective tool for this (Kleinstäuber & Rief, 2017). In order to reduce somatosensory amplification, CBT for MUS includes techniques for distracting from somatic sensations. Another important component of CBT for MUS is cognitive restructuring of dysfunctional cognitions (such as catastrophization or biased illness attributions) related to the somatic symptoms (Kleinstäuber & Rief, 2017).

In addition to the cognitive components of treatment, CBT for MUS also aims to reduce the frequency or intensity of dysfunctional illness behaviors. This aspect of treatment includes identifying the short- and long-term consequences of each illness behavior. For example, a therapist will encourage individuals to approach their previously avoided activity or behavior (Kleinstäuber & Rief, 2017). In addition to the numerous components of CBT listed above, a trustful therapeutic alliance is perhaps the most important aspect of treatment for patients with MUS.

2. Therapeutic Alliance

An important aspect of psychological treatment is the therapeutic alliance, or the relationship between therapist and patient. A positive alliance has been shown to be significantly associated with treatment outcomes such as depression symptom reduction, general distress reduction, and perceived stress reduction in psychological care settings (weighted $r = .28$, $p < .0001$; Horvath et al., 2011). Though this represents a moderate effect size, this result has remained consistent across diagnoses, treatment types, and treatment settings (Arnow & Steidtmann, 2014).

2.1 Concepts of therapeutic alliance

Theories of what makes a strong therapeutic alliance differ significantly from one another. Carl Rogers' patient-centered framework suggests that empathy, congruence, and unconditional positive regard are required for a strong therapeutic alliance (Rogers, 1961/1967). Rogers defines empathy as a therapist's internal understanding of a patient's feelings and personal meanings as the patient experiences them. Congruence refers to how authentic or genuine the therapist is. A congruent therapist is one that does not put on a "front." Finally, unconditional positive regard is defined as a therapist's warmth and acceptance of the patient, regardless of what the patient is bringing into the room (Rogers, 1961/1967).

The work of Lester Luborsky suggests that there are two types of effective therapeutic relationships: (1) one in which the patient feels that their therapist is helpful

and supportive, and (2) one in which the patient feels that their therapist is working with them in a joint effort against the patient's challenges (Horvath & Luborsky, 1993).

Stanley Strong (1968) proposes his social influence theory, in which a therapist's expertness, attractiveness, involvement, and trustworthiness are the most important elements of the therapeutic relationship. Expertness refers to the how competent a patient perceives their therapist to be. This includes elements such as: certifications or diplomas, a knowledgeable and confident presence, and local reputation. Attractiveness is defined as compatibility or similarity between therapist and patient. Involvement refers to how much a therapist shows a patient that their issues are important. Trustworthiness is based on a patient's perception of a therapist as open, honest, and sincere (Strong, 1968).

Edward Bordin (1975) suggests that bonds and agreement on tasks and goals make a strong therapeutic alliance. Bordin defines bonds as the trusting and accepting relationship between therapist and patient. In addition to the bond, therapist and patient should agree on their tasks, the things they do within a therapy session, and their goals, the outcome they are working toward, in order to have a strong therapeutic alliance (Bordin, 1975).

Bordin's conceptualization of the therapeutic alliance informed the development of the working alliance inventory (WAI), one of the strongest and most frequently used measures of therapeutic alliance (Horvath & Greenberg, 1989). The WAI is a 36-item measure of the working alliance with 12 items each focusing on bonds, tasks, and goals. The WAI has both patient and therapist versions that have been found to be a valid and reliable measure of the therapeutic alliance (Horvath & Greenberg, 1989).

The WAI is just one example of an instrument that can measure therapeutic alliance at a specific point in time. When such instruments are administered over the course of treatment, the development of the alliance can be measured. In a study that examined alliance ratings of patients, therapists, and observers, researchers found that patients tended to view the therapeutic alliance in a stable manner over the course of therapy while therapists and observers were more likely to change their ratings over time (Martin et al., 2000). Patients who gave the therapeutic alliance a positive rating after the first session were likely to maintain the positive rating throughout all sessions. This finding emphasizes the importance of establishing a positive relationship early in treatment (Martin et al., 2000).

Therapist warmth and competence have been identified as two important aspects of therapy that can contribute to the outcome expectations a patient has (Seewald & Rief, 2022). In this context, warmth is defined as a therapist's personal engagement and care, and competence is defined as a therapist's efficiency, knowledge, and expertise (Seewald & Rief, 2022). Seewald and Rief (2022) found that even if a patient has an initial negative outcome expectation, a therapist can modify their warmth (e.g., smiling more) and competence (e.g., sharing empirical evidence) to change this expectation.

2.2 Agreement between therapist and patient: Congruence

While different schools of thought vary in how they characterize the therapeutic alliance, all can agree that the relationship is one co-created by therapist and patient, meaning that both therapist and patient contribute in some ways to the relationship. Despite this, few studies focus on therapist *and* patient perspectives together. Therapeutic

alliance research tends to focus on positive and negative alliances from *either* the therapist or patient perspective. What may be more important than just positive or negative alliance, however, is whether therapist and patient can find agreement with one another about their relationship and the therapy. For example, Jennissen et al. (2020) found that if therapist and patient agree that they have a strong working relationship, they likely also hold a shared idea of treatment goals or values within the therapy. This agreement is often referred to as "congruence." On the other hand, if therapist and patient agree that they have a poor working relationship, they likely are more able to address the aspects of the relationship or of the therapy that are not working well, then can pivot toward a stronger relationship (Jennissen et al., 2020). Disagreement, or incongruence, about the relationship or the therapy, regardless of who has a more positive or negative view, results in a less productive therapy (Jennissen et al., 2020).

Congruence impacts both session productivity and outcomes (Jennissen et al., 2020; Rubel et al., 2018). One study conducted on cognitive-behavioral therapy for patients with anxiety and depression used response surface analysis and a truth-and-bias model to find that higher congruence between therapist and patient ratings of the bond resulted in decreased symptom distress (Rubel et al., 2018). Additionally, this study captured surprising differences in the two types of disagreement: when therapists give the bond a strong rating and patients give the bond a weak rating and vice versa. Both types of incongruent relationship ratings showed increased symptom distress compared to congruent relationship ratings, but patient outcomes were worse (more symptom distress) when the therapist was the one giving the weaker rating (Rubel et al., 2018). This finding contrasts other findings that suggest that it is more favorable when the therapist gives the

weak rating or that there is no difference between the different types of incongruent relationships (Jennissen et al., 2020).

Another study also used response surface analysis in a university counseling center setting to find that incongruent therapist-patient dyads that vary or fluctuate in who gives the alliance a stronger rating were associated with worse session evaluations and less symptom reduction (Marmarosh & Kivlighan, 2012). Session evaluations were found to be more favorable and greater symptom reduction was found in those dyads in which one member always gave the higher rating and the other always gave the lower rating, regardless of whether therapist or patient was higher or lower, though the outcomes were still not as favorable as in congruent dyads (Marmarosh & Kivlighan, 2012).

Additionally, the same study explored the impact of congruence on session smoothness and depth. Smoothness and depth were measured using the Session Evaluation Questionnaire (SEQ), a measure that uses a bipolar scale for each concept (Stiles et al., 2002). For smoothness, the poles are defined as relaxed or comfortable (smoother) and tense or distressing (less smooth) and, for depth, the poles are defined as powerful or valuable (deeper) and weak or worthless (less deep) (Stiles et al., 2002). Session smoothness was greater when the therapeutic bond was both congruent and rated high compared to congruent and rated low (Marmarosh & Kivlighan, 2012). Furthermore, patients tended to rate their sessions as less smooth when they were the ones to give the bond a lower rating and therapists gave a higher rating (Marmarosh & Kivlighan, 2012). The opposite was also found: patients reported greater smoothness when they rated the bond higher and therapists rated the bond lower (Marmarosh & Kivlighan, 2012).

In a study that used a truth-and-bias model to analyze therapy outcomes in a sample of patients with various mental health conditions, researchers found that therapists overall tended to underestimate the strength of the therapeutic alliance (Atzil-Slonim et al., 2015). This is a largely supported finding that implies or explains a sense of vigilance from the therapist, which may cause a therapist to respond to subtle shifts more quickly in the alliance in an effort to prevent rupture (Atzil-Slonim et al., 2015).

A few studies have found that when patients are more symptomatic within a session, especially in the context of more persistent mental illness such as borderline personality disorder, there is more incongruence between patient and therapist alliance ratings (Atzil-Slonim et al., 2015; Kivity et al., 2020). In particular, therapists are more likely to underestimate the strength of the alliance when patients are more symptomatic. Perhaps therapists are incorrectly attributing symptom distress to the therapeutic relationship (Atzil-Slonim et al., 2015; Kivity et al., 2020). On the other hand, a different study for individuals experiencing psychosis found the opposite: greater symptoms of emotional discomfort at baseline predicted more congruence in the relationship (Hasson-Ohayon et al., 2021). Perhaps a discussion of emotional discomfort early in the relationship can create shared insight about the nature of the distress and the goals of treatment, leading therapists and patients to form similar judgments about the alliance (Hasson-Ohayon et al., 2021). Though these findings contrast one another, they were found in different populations, suggesting that alliance research may not be generalizable across diagnosis. Regardless of the specifics, such studies suggest that relationship congruence is just as important as whether the relationship is considered positive or negative.

2.3 Therapeutic Alliance for MUS Patients

A strong therapeutic alliance is important for all therapy patients, but this alliance is especially important for MUS patients (Houwen et al., 2017; Kenny, 2004). Physicians tend to disregard psychosocial cues that patients present and are often unsure how best to communicate with their patients experiencing MUS (Houwen et al., 2017; Kenny, 2004). As previously discussed, there are numerous barriers to diagnosing MUS including changing diagnostic labels, endless referral cycles, and poor communication strategies (Houwen et al., 2017; Kenny, 2004; Murray et al., 2016). These barriers can be distressing, invalidating, and financially costly for MUS patients (Murray et al., 2016).

Meeting with a psychologist offers an opportunity for a MUS patient to feel validated and understood even before treatment formally begins. A study on early treatment response in MUS patients demonstrated that symptoms of anxiety, depression, illness anxiety and associated illness behaviors began improving during the five preparatory sessions before the intervention began (Kleinstäuber et al., 2017). These preparatory sessions included an exploration of the patient's physical and mental health history, social history, resources and coping strategies, structured interviews and goal-setting (Kleinstäuber et al., 2017). It is possible that some of the improvement can be attributed to the new experience of meeting with a validating therapist, which highly contrasts the typical experience for MUS patients navigating the healthcare system (Kleinstäuber et al., 2017). Such findings highlight how crucial the therapeutic alliance is for MUS patients.

Unfortunately, little research exists that examines the therapeutic alliance in this population. In the existing study, Mander et al. (2017) used longitudinal alliance data from patients and therapists to identify alliance development trajectories that could be used as predictors of outcomes. This study included three disorder groups: major depressive disorder, eating disorders, and somatoform disorder. All three disorder groups saw an increase in therapeutic alliance over the course of therapy, but the somatoform disorder patients showed the strongest increases in alliance over time. This study also found that alliance ratings predicted therapeutic gains (e.g., stronger alliance predicts more therapeutic gains). Given that patients with MUS often encounter invalidating experiences in the medical field, and given that this patient population is capable of developing strong alliances with their therapists, developing a strong therapeutic alliance with MUS patients becomes an essential task for therapists hoping to maximize the efficacy of their treatment (Mander et al., 2017).

More studies need to be conducted in this area to better understand the therapeutic alliance and its impact on individuals with MUS, but the preliminary evidence is striking. Mander et al. (2017), however, only examine alliance ratings. The role of congruence within therapy and the predictors of this congruence remain unclear in this population. One alliance congruence study included 15 somatoform disorder patients within their larger sample (Jennissen et al., 2020). This study found that greater congruence in the alliance predicted lower symptom distress, however, the effect for somatoform disorder patients only was not specified (Jennissen et al., 2020).

Research Gaps

Although a few alliance or congruence studies of somatic symptom type disorders exist, there has been no research on the alliance or patient-therapist congruence in a broader MUS population. Aside from the congruence study that included 15 MUS patients (Jennissen et al., 2020), no other therapist-patient congruence research has been conducted in this population. In the context of other mental health disorders, congruence has been shown to be an incredibly important aspect of treatment. It follows that it would also be important for a MUS population, or perhaps even more important given the invalidating experiences these patients typically encounter in the healthcare system.

The importance of this research is clear, yet many barriers exist in conducting this research. In particular, the existing congruence studies conducted in other clinical populations (discussed in Section 2.2) typically have large sample sizes and many measurement points that can support complex analyses such as response surface analysis, truth-and-bias modeling, or growth mixture modeling. Unfortunately, MUS participants are historically difficult to recruit, making it difficult to utilize such advanced statistical methods. As such, alternate statistical methods are required to conduct congruence research in an MUS population.

The Present Study

The present study seeks to address the described gaps through a secondary analysis of existing data from an intervention trial including 255 patients with SSD (Kleinstäuber et al., 2016). The following questions will be addressed through this analysis:

1. What congruence patterns between patient and therapist exist in this population?

This first question aims to explore congruence patterns, defined as the ways in which therapists and patients agree with one another over the course of therapy. Through a grid sequence analysis of a measure of the different dimensions of therapeutic alliance, patient and therapist perspectives will be compared to reveal congruence patterns, such as whether a dyad will move toward greater congruence over the course of therapy, or toward incongruence, or whether their congruence fluctuates. The present analysis will first examine whether groups of dyads sharing similar congruence patterns can be identified.

2. How do congruence patterns regarding different aspects of the therapeutic alliance predict treatment outcomes?

The present analysis will examine whether congruence patterns can predict somatic symptom-related disability and symptom severity at the end of treatment.

3. Which baseline characteristics are associated with which congruence patterns?

Finally, this analysis aims to understand which baseline patient characteristics are associated with each of the various congruence pattern groups. In particular, the present analysis will examine how the level of somatic symptom-related disability, symptom severity, emotional distress, health anxiety, anxiety, and depression in patients at the beginning of therapy is associated with certain congruence patterns. If more is known about the baseline patient characteristics associated with certain congruence patterns, and if more is known about what types of congruence patterns are associated with the most favorable treatment outcomes, this information can be used by therapists to promote

stronger congruence or more effective therapy. Additionally, this analysis will explore which patient demographic factors are associated with a given congruence pattern.

CHAPTER III

METHODS

The present analysis is a secondary analysis of existing data from an intervention trial for 255 patients with MUS. This randomized multicenter trial compared 20 sessions of Cognitive Behavioral Therapy (CBT) to 20 sessions of Cognitive Behavioral Therapy complemented with Emotion Regulation Training (ENCERT). The trial was registered with clinicaltrials.gov (Identifier: NCT01908855) and a study protocol was published (Kleinstäuber et al., 2016). The trial was performed in accordance with the Declaration of Helsinki and the guidelines of Good Clinical Practice. The study protocol and the consent forms were approved by the Ethics Committee of the German Psychological Association (German Society for Psychology, DGPs, ID: WR 072013).

Participants

Participants were recruited in Germany and, if eligible, received treatment at one of seven outpatient university mental health clinics. In order to participate in the research trial, all 225 participants met the following criteria: (a) between ages 18 and 69; (b) reported at least three distressing medically not sufficiently explained somatic symptoms; (c) scored ≥4 on the mPDI (modified Pain Disability Index; Tait et al., 1990) and ≥5 on the PHQ-15 (Patient Health Questionnaire-15; Kroenke et al., 2002); (d) met at least one of the three B-criteria of SSD in the DSM-5; (e) experienced somatic symptoms for at

least six months, and (f) provided a documented medical check for medical diseases as a potential cause for the somatic symptoms.

Potential participants were excluded if they (a) had a primary mental disorder requiring other treatments; (b) had acquired brain injuries; (c) currently took benzodiazepine, anti-psychotic, or opioid treatments; (d) had a change in an antidepressant treatment during the four weeks prior to treatment until six months after the end of therapy; and (e) had received outpatient CBT targeting the MUS during the past two years. Please refer to Table 1 to see descriptive statistics of the demographic variables.

Original Trial Procedures

After being screened for eligibility, participants provided informed consent and completed a baseline evaluation. Then, participants were randomly assigned to one of the two treatment groups in a 1:1 ratio. A computer-based randomization strategy stratified for mPDI score to ensure that symptom-related disability was equally represented in both study groups. Participants then completed three to five preparatory intake sessions followed by 20 therapy sessions. See Figure 1 for a diagram of the study procedure. Participants completed outcome measures after every session, as well as at six-month follow-up. See Table 2 for a detailed view of the outcome measures collected at each time point.

Original Intervention

All participants in the original intervention received treatment including 3-5 preparatory sessions and 20 manualized, highly structured therapy sessions. The preparatory sessions included an exploration of the patient's physical and mental health history, social history, and the precipitating and perpetuating factors of the physical symptoms. All sessions were 50 minutes long. In addition to therapy session content, the manuals included homework, therapeutic exercises, worksheets, and audio files. Participants were either randomized to CBT or ENCERT (Enriching Cognitive Behavior Therapy with Emotion Regulation Training). CBT focused on the causing and maintaining factors of an individual's MUS and how to change these factors. ENCERT focused on negative emotions as both a cause and a consequence of MUS. In this treatment, patients learned a variety of emotion regulation strategies, including acceptance- and mindfulness-based strategies as well as CBT- and change-oriented strategies such as cognitive reappraisal. The central goal was for patients to learn both traditional CBT strategies and acceptance-based strategies and to successfully apply these to their individual problems. See Table 3 for a session-by-session list of therapy content.

Measures

Outcome Measures

One of the outcomes of the present analysis, somatic symptom severity, was assessed with the summed score of the Patient Health Questionnaire-15 (PHQ-15;

Kroenke et al., 2002). The PHQ-15 consists of 15 somatic symptoms and respondents rate on a 3-point scale how much a particular symptom has bothered them over the past week (Kroenke et al., 2002). The original trial also collected data about disability caused by physical symptoms. This was assessed with the summed score of a modified version of the Pain Disability Index (mPDI; Tait et al., 1990). Respondents rate their level of disability on a 10-point numeric rating scale in 7 life domains, including family/home responsibilities, recreation, social activity, occupation, sexual behavior, self-care, and life support activity (Tait et al., 1990). Both the PHQ-15 and the mPDI were administered at baseline, at therapy session 8, and at the end of treatment (therapy session 20). For the purposes of the present analysis, PHQ-15 and mPDI scores from therapy session 20 were used as outcome measures. To see detailed descriptions of other measures collected in the original trial, refer to Kleinstäuber et al. (2016) and refer to Table 2 for a detailed view of the outcome measures collected at each time point.

Therapist-Patient Relationship

Based on their clinical experience, the authors of the original trial created a brief 10-item rating scale for their study to assess therapist competence, therapist warmth, patient engagement, and therapy outcome perceptions and expectations. The patient and therapist versions both focus on the patient's experience. For example, the patient version says, "The therapy has helped me make changes," while the therapist version says, "The therapy has helped my patient make changes."

This measure was administered to patients at preparatory sessions 3-5 and at every therapy session. Therapists completed this measure at therapy sessions 1, 10, and

20. Since data for both members of the patient-therapist dyad is only available at sessions 1, 10, and 20, the present study will focus on these three time points. Please reference Appendix A to see the 10-item patient scale and Appendix B to see the 10-item therapist scale.

An exploratory factor analysis was conducted on both versions of this measure as it had not been previously validated. An initial anti-image analysis of the patient scale showed that items 1 and 2 had correlation coefficients <.80 at every time point, so these items were excluded from the scale (Kaiser & Rice, 1974). Items 5 and 9 had coefficients <.80 at seven and eleven time points, respectively, so these items were also excluded from the scale. All other items (3, 4, 6, 7, 8, 10) had coefficients >.80 at most or all time points, so these items were included in the factor analysis. Please refer to Table 4 to see a summary of the anti-image analysis.

Factors for the patient scale were extracted via principal axis factoring using varimax rotations with no predetermined number of factors. Inspection of the factor loadings showed that item 3 had only a small loading on the first factor and lowered internal consistency when included. Additionally, the content of this item did not fit with that of the other items. Therefore, item 3 was removed from the scale, leaving items 4, 6, 7, 8, and 10 to be included. The content of this five-item scale is related to *therapy outcome perceptions and expectations* (e.g., therapy helps me understand my problems, therapy helps me make changes, etc.). Please refer to Table 5 for a summary of the factor analysis of the patient questionnaire.

The initial anti-image analysis for the therapist scale showed that only item 9 needed to be excluded. Factors were also extracted via principal axis factoring using

varimax rotations with no predetermined number of factors. Inspection of the factor loadings showed that the factor structure varied across the different assessment time points and there were many double loadings. Including only the five items in the final patient scale resulted in a much clearer pattern across the time points with no double loadings. Therefore, items 4, 6, 7, 8, and 10 were included in the final therapist scale. Please refer to Table 6 for a summary of the factor analysis of the therapist questionnaire.

Though items 1, 2 and 3 were not included in either scale, each of these items covers an important aspect of the therapeutic relationship on their own (item 1: *therapist warmth*; item 2: *therapist competence*; item 3: *patient engagement*) and were still analyzed in the present analysis as individual items.

Baseline Patient Characteristics

To examine patient characteristics that potentially predict congruence patterns, pain-related distress and cognitive and behavioral strategies for coping with chronic pain were measured with the Coping with Chronic Pain Scales (FESV; Geissner, 1999). The FESV has numerous subscales. The one used for the present study provides a summed score of all pain-related distress and coping items. Health anxiety was assessed with a summed score of the modified version of the Short Health Anxiety Scale (mSHAI) (Salkovskis et al., 2002). General distress and depression were measured with the total mean score of the Global Severity Index of the Symptom Checklist-90-Revised (SCL-90-R) and the summed score of the Beck Depression Inventory-II (BDI-II) (Derogatis, 1977; Beck et al., 1996). These measures were administered at baseline (before the preparatory

sessions), therapy session 8, and therapy session 20. For the purposes of the present analysis, the baseline scores and therapy session 20 scores were used.

Original Findings

At baseline, the individuals in the two treatment groups, CBT versus ENCERT, did not differ regarding sociodemographic variables, clinical characteristics, and somatic symptom severity. The trial found significant improvement of all outcomes, including PHQ-15 and mPDI, in both groups by the end of therapy. The two treatment groups did not differ significantly from one another in these outcomes at the end of therapy. Please refer to Kleinstäuber (2019) to see the full results of this clinical trial.

Data Analysis Plan

Given that the two treatment groups did not differ significantly from one another regarding demographic or clinical variables at baseline or at the end of treatment, these two groups were merged for the purpose of the present analysis. An α value of 0.05 and two-tailed tests were used to test for the significance of the results of the univariate and multivariate regression analyses.

Additionally, descriptive statistics were conducted on demographic information, including age, sex, education, number of co-morbid mental disorders, and treatment group to examine the demographic characteristics present in the sample after cases with missing data were removed.

Research Question 1: What patterns of congruence between patient and therapist exist in this population?

In order to answer research question 1, it was important to first determine how "congruence" could be measured. Previous studies have taken various approaches. Two common analytic methods that have been used to explore congruence in a therapeutic context are response surface analysis and a truth-and-bias model. Both of these approaches are complex and require large population sizes, many data collection time points, or highly advanced statistical work. Given the smaller sample size and the limited time points in the present analysis, alternative statistical methods were required.

The present analysis was conducted with R using RStudio via grid sequence analysis, an approach that uses repeated-measures dyadic data to learn more about within-dyad dynamics and allows comparison between dyads (Brinberg, n.d.; RStudio Team, 2022). Grid sequence analysis does not allow for missing data, so any cases with missing data were first removed. This type of analysis tracks a dyad's movement across a grid where the x-axis represents patient scores and the y-axis represents therapist scores.

For each of the three measurement time points, a single point was plotted that captured the outcome of the measure for each member of the dyad. If both dyad members rated the alliance as strong, the point was plotted in the upper right area of the grid. If both dyad members rated the alliance as weak, the point was plotted in the lower left area of the grid. If the dyads members disagreed, the point was plotted either in the upper left area or lower right area of the grid. For a visual representation of such a grid, please refer to Figure 2.

The movement of each dyad across this grid was tracked and converted into a sequence. Once each dyad had their unique sequence, a cluster analysis of these sequences was completed to identify similar congruence patterns, or similar patterns of movement across this grid. The benefit of such an analysis is that it can capture both congruence between therapist and patient (whether both members of the dyad agree with one another, or whether they disagree with one member rating high while the other rates low), and the valence of the congruence (either positive congruence, where both members of a dyad agree that things are going well, or negative congruence, where both members of a dyad agree that things are going poorly). Grid sequence analysis does not result in a numeric congruence score, but rather in clusters of dyads who share similar congruence patterns.

Four grid sequence analyses were conducted: one for the therapy outcome and expectation perception measure and one for each of the three individual items (therapist warmth; therapist competence; patient engagement). A hierarchical cluster analysis for each item was conducted, resulting in four dendrograms. The clusters within these dendrograms represent dyads who shared similar congruence patterns. The heights of all dendrogram branch points were visually analyzed to determine the number of clusters. After the number of clusters had been identified for each item, a congruence pattern variable for each item was added to the full data set. In addition, means and standard deviations for each of the three individual items and the scale were conducted.

Research Question 2: How do congruence patterns regarding different aspects of the therapeutic alliance predict treatment outcomes?

Once congruence pattern clusters were identified for the scale and each of the three individual items, multiple linear regression analyses were conducted in SPSS using these congruence patterns as categorical predictor variables (IBM Corp., 2021). End of treatment scores of somatic symptom-related disability (mPDI) and symptom severity (PHQ-15) were used as continuous outcome variables. The regression models controlled for baseline scores of these variables. Before running each model, the variables were checked to ensure they fell within the acceptable skewness and kurtosis ranges. Additionally, in the event that the cluster analysis revealed more than two clusters, the categorical predictor variables were dummy coded.

Recommendations regarding the optimal number of participants per variable entered in a regression analysis vary between 10 to 20 individuals (Schmidt, 1971). All models included one predictor variable, one control variable, and one outcome variable. This analysis had adequate power given the sample size of 174 (three variables * 20 individuals = minimum 60 participants).

Research Question 3: Which baseline patient characteristics are associated with which congruence patterns?

The final research question examined the relationship between baseline patient characteristics and congruence patterns for the scale and the three individual items. The logistic regression models included baseline somatic symptom-related disability (mPDI), somatic symptom severity (PHQ-15), emotional distress (FESV), health anxiety (mSHAI), general psychological distress (SCL), and depression (BDI) as continuous predictor variables and congruence patterns as a categorical outcome variable. One

logistic regression model was completed for the scale and for each of the three individual items, totaling to four logistic regression models. In the event that a cluster analysis revealed more than two clusters, the categorical outcome variable was dummy coded.

There was adequate power to run these regression models given the sample size of 174 with six predictors and one outcome variable (7 variables * 20 individuals = minimum 140 participants).

Results of binary and multinomial regression models were reported as odds ratios (ORs), which indicate the change in odds of the outcome associated with a 1-unit change in the predicting variable. ORs > 1 indicated the outcome was more likely; ORs < 1 indicated the outcome was less likely. Ninety-five percent confidence intervals (CIs) were reported for the ORs. Significance of an OR was indicated if the CI excluded 1. Significance of the regression models was tested using the Chi- square test. Nagelkerke's R^2 was reported as indicator variance explained by the predicting variables.

Ethics

The present study did not require IRB approval or additional informed consent from the study participants. The data set for this analysis had been completely de-identified and code lists had been destroyed.

CHAPTER IV

FINDINGS

Sample Characteristics

After removing cases with missing data, 174 dyads of patients and therapists remained. Skewness and kurtosis values for all variables fell within the acceptable range of -2 to 2 (George & Mallery, 2010). Descriptive statistics for the sample of 174 dyads were conducted. The mean age in the sample was 43.26 (SD = 12.88) and the mean years of education was 14.51 (SD = 3.16). Of the 174 participants, 115 were female and 59 were male. Undifferentiated somatoform disorder was the most common diagnosis (n = 90), followed by somatoform pain disorder (n = 45), and somatization disorder (n = 39). 92 participants had no comorbid mental disorders, 59 participants had one comorbid mental disorder, and 23 had two or more comorbid mental disorders. Additionally, t-tests and chi-squared tests were conducted to ensure that the demographic characteristics of the 174 included participants did not significantly differ from the 255 total sample. The demographic characteristics did not significantly differ between the two groups (p-values ranged from .340 to .925). Please refer to Table 7 for a summary of the patient characteristics.

Descriptive statistics stratified by cluster for baseline measures, outcome measures, the three individual items, and the five-item scale were conducted and summarized in Table 8.

Analysis of Item 1: Therapist Warmth

Research Question 1: Grid Sequence Analysis

After mapping the congruence sequences of each dyad for item 1 (therapist warmth), a cluster analysis suggested two clusters of sequences (n = 152, n = 22). Please see Figure 3 for the dendrogram of this item.

The first cluster showed mostly magenta colors at each time point. This suggests that the dyads in this cluster demonstrated positive congruence, meaning both patient and therapist rated the therapist as warm, at all three measurement time points throughout therapy. A few dyads in congruence pattern type 1 showed some pinks or blues at session 1, but moved toward magenta by session 20, indicating a shift toward strong positive congruence over time. The second congruence pattern type showed mostly pinks and reds, indicating less congruence than type 1. Red colors are representative of incongruence in which patients rated their therapists as warm, while therapists rated their own warmth as low. Congruence pattern type 2 appeared not to move toward congruence over time like congruence pattern 1, but rather, these dyads generally maintained the incongruence over time. Please refer to Figure 4 to see a visual representation of the clustered congruence patterns.

Research Question 2: Multiple Linear Regression Models

The multiple linear regression model examining the association of item 1 congruence patterns with end of treatment mPDI while controlling for baseline mPDI score was significant $F(2, 151) = 12.54$, $p < .001$, $R^2 = .14$. Results indicated that baseline mPDI score was positively associated with mPDI at the end of treatment ($\beta = 0.42$, $p < .001$). However, the regression did not find a significant relationship between

congruence patterns and mPDI at the end of treatment after controlling for baseline mPDI score (β = 0.13, p = .059).

The multiple linear regression model examining the influence of item 1 congruence patterns on end of treatment PHQ-15 controlling for baseline PHQ-15 score was significant $F(2, 151) = 17.27$, $p < .001$, $R^2 = .19$. Results indicated that baseline PHQ-15 score was positively associated with PHQ-15 at the end of treatment (β = .45, $p < .001$). However, the regression did not find a significant relationship between congruence patterns and PHQ-15 at the end of treatment after controlling for baseline PHQ-15 score (β = 0.09, p = .175). Test statistics of the regression analyses are summarized in Table 9.

Research Question 3: Binary Logistic Regression Model

A binary logistic regression model was used to analyze the relationship between baseline characteristics and congruence patterns for item 1, $X^2(6) = 10.92$, p = .091, R^2 = .12. Somatic symptom severity (OR = 0.82, 95% CI: 0.69 to 0.96; p = .015) and general psychological distress (OR 8.09, 95% CI: 1.56 to 42.01; p = 0.013) at baseline were the only two predictors that were significantly associated with congruence patterns for item 1. Participants in congruence pattern type 1 (positive congruence at all time points) tended to have higher symptom severity and lower general psychological distress than those in congruence pattern type 2 (the cluster in which patients rated their therapists as warmer than therapists rated themselves) for item 1. Test statistics are summarized in Table 10.

Analysis of Item 2: Therapist Competence

Research Question 1: Grid Sequence Analysis

After mapping the congruence sequences of each dyad for item 2 (therapist competence), a cluster analysis suggested two clusters of sequences (n = 69, n = 105). Please see Figure 5 for a dendrogram.

Congruence pattern type 1 showed mostly pinks and reds at session 1, which indicated incongruence where patients rated their therapists as highly competent, while therapists rated themselves low. Sessions 10 and 20 showed more magenta colors than red colors, demonstrating that these dyads moved toward positive congruence by the end of treatment. Congruence pattern type 2 showed mostly magenta colors at each time point. This suggests that the dyads in this cluster demonstrated positive congruence at all measurement time points throughout therapy. A few dyads in congruence pattern type 2 showed some blues at session 1, but moved toward magenta by sessions 10 and 20, indicating a shift toward strong positive congruence. Please refer to Figure 6 for a visual representation of the two clustered sequences.

Research Question 2: Multiple Linear Regression Models

The multiple linear regression model examining the influence of item 2 congruence patterns on end of treatment mPDI controlling for baseline mPDI score was significant $F(2, 151) = 12.85$, $p < .001$, $R^2 = .15$. Results indicated that baseline mPDI score was positively associated with mPDI at the end of treatment ($\beta = 0.43$, $p < .001$). However, the regression did not find a significant relationship between congruence patterns and mPDI at the end of treatment after controlling for baseline PDI score ($\beta = -3.06$, $p = .128$).

The multiple linear regression model examining the influence of item 2 congruence patterns on end of treatment PHQ-15 controlling for baseline PHQ-15 score was significant $F(2, 151) = 18.04$, $p < .001$, $R^2 = .19$. Results indicated that baseline PHQ-15 score was positively associated with PHQ-15 at the end of treatment ($\beta = 0.45$, $p < .001$). However, the regression did not find a significant relationship between congruence patterns and PHQ-15 at the end of treatment after controlling for baseline PHQ-15 score ($\beta = -0.08$, $p = .251$). Test statistics are summarized in Table 11.

Research Question 3: Binary Logistic Regression Model

A binary logistic regression model was used to analyze the relationship between baseline patient characteristics and congruence patterns for item 2, $X^2(6) = 8.26$, p = .219, $R^2 = .06$. No predictors were significantly associated with congruence patterns for this item. Test statistics are summarized in Table 12.

Analysis of Item 3: Patient Engagement

Research Question 1: Grid Sequence Analysis

After mapping the congruence sequences of each dyad for item 3 (patient engagement), a cluster analysis suggested three clusters of sequences (n = 113, n = 43, n = 18). Please see Figure 7 for a dendrogram of this item.

Congruence pattern type 1 showed mostly magenta colors at each time point. This suggests that the dyads in this cluster demonstrated positive congruence at all measurement time points throughout therapy. Congruence pattern type 2 showed mostly blue colors, indicating that patients rated their engagement in therapy low, while

therapists rated it high. Congruence pattern type 3 showed mostly pinks and reds, indicating the opposite incongruence pattern, in which patients rated their engagement in therapy high, while therapists rated them low. Please refer to Figure 8 for a visual representation of the three clustered congruence patterns.

Research Question 2: Multiple Linear Regression Models

As this scale had three clusters, the variables were dummy coded. Congruence pattern 1 was used as the reference category to learn about the relationship between congruence pattern 1 vs. congruence pattern 2 and between congruence pattern 1 vs. 3. In order to learn about the relationship between congruence patterns 2 and 3, a second regression model was run using dummy coded variables with congruence pattern 3 as the reference category (congruence pattern 1 vs. 3, congruence pattern 2 vs. 3).

The multiple linear regression model examining the influence of item 3 congruence patterns on end of treatment mPDI controlling for baseline mPDI score was significant $F(3, 168) = 13.31$, $p < .001$, $R^2 = .19$. Results indicated that baseline mPDI score was positively associated with mPDI at the end of treatment ($\beta = 0.36$, $p < .001$). The model showed that congruence patterns are not significantly associated with mPDI at the end of treatment.

The end of treatment mPDI scores for congruence pattern type 1 compared to congruence pattern type 2 were not significantly different from one another ($\beta = 0.08$, $p = .295$). Likewise, the end of treatment mPDI scores for congruence pattern type 1 compared to congruence pattern type 3 were not significantly different from one another ($\beta = 0.14$, $p = .078$). End of treatment mPDI scores between congruence pattern 2 and

congruence pattern 3 were also not significantly different from one another ($\beta = 0.12$, $p = .315$).

The multiple linear regression model examining the influence of item 3 congruence patterns on end of treatment PHQ-15 controlling for baseline PHQ-15 score was significant $F(3, 168) = 16.92$, $p < .001$, $R^2 = .23$. Results indicated that baseline PHQ-15 score was positively associated with PHQ-15 at the end of treatment ($\beta = 0.43$, $p < .001$). As this scale had three clusters, the variables were dummy coded. The end of treatment PHQ-15 scores for congruence pattern type 1 compared to congruence pattern type 2 were not significantly different from one another ($\beta = 0.08$, $p = .299$). End of treatment PHQ-15 scores for congruence pattern type 1 compared to congruence pattern type 3 were significantly positively associated ($\beta = 0.21$, $p = .006$). Congruence pattern type 3 (the cluster in which patients rated their engagement high while therapists rated patient engagement low) showed significantly higher symptom severity at the end of treatment than congruence pattern type 1 (positive congruence at all time points). Congruence pattern 2 end of treatment PHQ-15 scores did not significantly differ from those of congruence pattern 3 ($\beta = 0.22$, $p = .065$). Test statistics are summarized in Table 13.

Research Question 3: Multinomial Logistic Regression Model

A multinomial logistic regression model was used to analyze the relationship between baseline patient characteristics and congruence patterns for item 3, $X^2(12) = 20.13$, p = .065, $R^2 = .13$. Pain coping and depression at baseline were the only two predictors that were significantly associated with congruence patterns for item 3. Participants in congruence pattern type 1 (positive congruence at all time points) tended

to have higher scores of pain coping at baseline than those in congruence pattern type 3 (the cluster in which patients rated their engagement high while therapists rated patient engagement low) for this item (OR 0.95, 95% CI: 0.92 to 0.99; $p = 0.008$). Additionally, participants in congruence pattern type 2 (the cluster in which patients rated their engagement low while therapists rated patient engagement high) tended to have higher depression scores at the beginning of therapy than those in congruence pattern 3 (patients rated their engagement high, therapists rated patient engagement low; OR 1.13, 95% CI: 1.01 to 1.28; $p = 0.039$). Test statistics are summarized in Table 14.

Analysis of Scale: Therapy Outcome Perceptions and Expectations

Research Question 1: Grid Sequence Analysis

After mapping the congruence sequences of each dyad for the five-item scale (therapy outcome perceptions and expectations), a cluster analysis suggested two clusters of sequences (n = 100, n = 74). Please see Figure 9 for a dendrogram of this scale.

In the congruence pattern type 1, many dyads showed red or maroon colors at session 1, indicating very low therapist scores and somewhat higher patient scores. By sessions 10 and 20, however, these dyads moved toward positive congruence, demonstrated by the magenta color. In congruence pattern type 2, many dyads showed the eggplant or dark purple color at session 1, indicating negative congruence, or agreement that they were not very satisfied with therapeutic progress or optimistic about treatment outcomes. By session 10 and 20, some lighter colors are present, indicating more positive scores. In addition, therapists seemed to be rating these items just higher

than the patients, indicated by more blue colors than red colors. Please refer to Figure 10 for a visual representation of the two clusters.

Research Question 2: Multiple Linear Regression Models

The multiple linear regression model examining the influence of the five-item scale congruence patterns on end of treatment mPDI controlling for baseline mPDI score was significant $F(2, 151) = 17.58$, $p < .001$, $R^2 = .19$. Results indicated that baseline mPDI score was positively associated with mPDI at the end of treatment ($\beta = 0.39$, $p < .001$) while congruence patterns were negatively associated with mPDI at the end of treatment ($\beta = -0.24$, $p = .001$). Congruence pattern type 1 (the dyads who move toward positive congruence by the end of treatment) showed higher somatic symptom-related disability at the end of treatment compared to congruence pattern type 2 (the dyads who showed more incongruence or negative congruence).

The multiple linear regression model examining the influence of the five-item scale congruence patterns on PHQ-15 score at the end of treatment while controlling for baseline PHQ-15 score was significant $F(2, 151) = 22.65$, $p < .001$, $R^2 = .23$. Results indicated that baseline PHQ-15 score was positively associated with PHQ-15 at the end of treatment ($\beta = 0.39$, $p < .001$) while congruence patterns were negatively associated with PHQ-15 at the end of treatment ($\beta = -0.22$, $p = .003$). Congruence pattern type 1 (the dyads who move toward positive congruence by the end of treatment) showed higher somatic symptom severity at the end of treatment compared to congruence pattern type 2 (the dyads who showed more incongruence or negative congruence). Test statistics are summarized in Table 15.

Research Question 3: Binary Logistic Regression Model

A binary logistic regression model was used to analyze the relationship between baseline patient characteristics and congruence patterns for the five-item scale, $X^2(6) = 14.90$, p = .021, $R^2 = .11$. Health anxiety (OR 1.04, 95% CI: 1.01 to 1.07; $p = 0.012$) and somatic symptom-related disability (OR 1.05, 95% CI: 1.01 to 1.09; $p = 0.006$) at baseline were the only two predictors that were significantly associated with congruence patterns for the scale. Participants in congruence pattern type 1 tended to have lower scores of health anxiety and somatic symptom-related disability at the beginning of therapy than those in congruence pattern type 2 for this scale. Test statistics are summarized in Table 16.

CHAPTER V

DISCUSSION

Results from the present analysis indicate that patient-therapist congruence on questions about the therapist warmth and competence, patient engagement, and therapy outcome perceptions and expectations is associated both with certain baseline characteristics and treatment outcomes.

Analysis of Item 1: Therapist Warmth

The grid sequence analysis for item 1 indicated two clusters, one majority (n = 152) and one minority (n = 22). Through a visual analysis, most patients rated their therapists as warm. In congruence pattern 1, therapists rated themselves as warm, whereas in congruence pattern 2, therapists did not rate themselves as warm. Perhaps the difference captured between these two congruence patterns is related to therapist confidence or self-criticism. Congruence patterns for this item did not predict end of treatment somatic symptom-related disability or somatic symptom severity. Perhaps we did not see a significant effect given that patients across both congruence patterns rated their therapists as warm. It seems that whether therapists view themselves as warm does not change the client perception of a therapist's warmth. Previous research suggests that warmth is an important construct tied to therapeutic alliance and therapeutic motivation in a healthy population (Seewald & Rief, 2022). The role of warmth remains unclear in a

MUS population as the patients in this sample largely rated their therapists as warm. It appears that congruence alone for this item is not associated with treatment outcomes.

When analyzing baseline characteristics present in each congruence pattern type, patients in congruence pattern 1 (more congruent dyads) tended to have higher baseline symptom severity than those in congruence pattern 2 (less congruent dyads). Given that congruence pattern 1 showed more positive congruence than congruence pattern 2, perhaps elevated baseline symptom severity allowed these dyads to "get on the same page" more quickly. Hassan and Ohayon (2021) found that patients who were able to express more intense emotional discomfort at the beginning of treatment were in higher agreement with their therapists, perhaps because stronger symptoms allow therapists and patients to form similar appraisals of their relationship and therapy. In contrast, other research has demonstrated the opposite: that there was less congruence within the dyad at sessions during which patients were more symptomatic (Atzil-Slonim et al., 2015, Jennissen et al., 2020). This finding fits with that of the present analysis that patients in congruence pattern 1 (with more congruence) tended to have lower baseline psychological distress than those in congruence pattern 2 (with less congruence) Perhaps therapists find it easier to be warm with clients experiencing lower psychological distress. However, this finding should be held lightly since the overall logistic regression model was not significant.

Analysis of Item 2: Therapist Competence

The analytic findings for item 2 looked similar to those of item 1. Specifically, a majority of dyads (n = 105) agreed that the therapist was competent, and a minority of dyads (n = 69) showed that patients rated their therapist as competent while therapists rated themselves as incompetent. It is interesting that patients largely rated their therapists as competent given that this patient population is subject to invalidation from the medical community (Kenny, 2004; Murray et al., 2016). Many of the therapists in this study were either in training or recent graduates, so it is not surprising to see that they tended to rate their competence low. Even among very experienced therapists, feelings of incompetence, insecurity, or inadequacy have been shown to be common experience (Dahl et al., 2016; Fitzpatrick et al., 2005; Thériault & Gazzola, 2006).

Congruence patterns for item 2 were not significantly associated with treatment outcomes nor with patient baseline characteristics. Additionally, no patient baseline scores predicted congruence patterns for this item. This finding suggests that congruence for this item alone is not associated with any particular baseline characteristics or outcomes.

Analysis of Item 3: Patient Engagement

This item was the only item analyzed that resulted in three clusters. The first congruence pattern type was the largest with 113 dyads, in which patient and therapist both agreed that the patient was engaged in therapy at all three time points. The second congruence pattern contained 43 dyads, in which therapists viewed their patients as

engaged, but patients viewed themselves as disengaged. The third congruence pattern contained 18 dyads, in which therapists viewed their patients as disengaged, but patients viewed themselves as engaged.

Congruence patterns for this item did not predict somatic symptom-related disability at the end of treatment. Congruence patterns 1 and 3 however, differed on their somatic symptom severity scores at the end of treatment. More specifically, congruence pattern 3 showed higher symptom severity at the end of treatment than congruence pattern 1. In congruence pattern 3, therapists appeared to view their patients as disengaged, with decreasing engagement scores at each time point. Perhaps therapists equated higher symptom severity with less patient engagement in therapy. Tetley et al. (2011) posit that therapeutic progress is often conflated with engagement in treatment. Treatment engagement instead includes behaviors such as attending sessions, completing homework between sessions, contributing to therapy sessions, and developing a working alliance with the therapist (Tetley et al., 2011). It is possible that a single question about engagement in therapy was unable to fully capture these numerous facets of therapeutic engagement, or that therapists and patients differed in their definitions of engagement.

Analysis of the baseline characteristics of patients in each congruence pattern showed that patients in congruence pattern 1 had higher pain coping than congruence pattern 3. Perhaps individuals with higher pain coping at baseline were already viewed as more engaged by their therapists at the beginning of therapy, or maybe these patients had more coping skills to demonstrate engagement with.

Baseline depression scores differed between congruence patterns 2 and 3. In particular, patients in congruence pattern 2 reported higher scores of depression than

those in congruence pattern 3. Patients in congruence pattern 2 were those who rated themselves as disengaged during therapy despite their therapists rating them as engaged. This finding is not surprising, as research has demonstrated that depressive symptoms mediate self-esteem in somatizing patients (Sertoz et al., 2009). However, this finding should be held lightly since the overall logistic regression model was not significant.

Overall, it seems that congruence regarding patient engagement has implications for treatment outcomes. In particular, it seems that establishing congruence about the patient's engagement in treatment is associated with more favorable treatment outcomes related to symptom severity. It may be of benefit for therapists to discuss therapeutic engagement with their patients to develop a shared understanding of what being engaged in therapy might look like. Such shared definitions are likely to bolster congruence in the therapeutic relationship (Atzil-Slonim et al., 2015).

Analysis of Scale: Therapy Outcome Perceptions and Expectations

The grid sequence analysis of this scale resulted in two clusters of congruence patterns. The first congruence pattern included 100 dyads. At session 1, it appeared that some of these dyads had negative congruence, meaning that they seemed to agree they were not optimistic about the outcome of therapy. In the remaining congruence pattern 1 dyads, the therapists seemed slightly less optimistic than their patients. Most dyads in congruence pattern 1 moved toward positive congruence by session 10 and remained in positive congruence at session 20. The second congruence pattern consisted of 74 dyads who also showed negative congruence at session 1, but this negative congruence seemed

to persist over the course of therapy. This second congruence pattern contained many dyads in which therapists rated therapy outcome perceptions and expectations in a slightly more positive way than their patients. Both congruence pattern types showed low expectations for therapy at session 1, which makes sense since treatment had just begun.

For this scale, congruence patterns were shown to be associated with end of treatment somatic symptom-related disability and somatic symptom severity. Congruence pattern 1 (the dyads who moved toward positive congruence by the end of treatment) was associated with a decrease in somatic symptom- related disability and severity, confirming the findings of Jennissen et al. (2020). However, patients in congruence pattern type 2 (the dyads who did not move toward positive congruence) showed even more improvement in their somatic symptom- related disability and severity, in contrast with Jennissen et al.'s (2020) findings. Again, it appears that patient-therapist congruence alone for the scale is not enough to have an impact on treatment outcomes.

Baseline health anxiety scores and baseline disability scores were associated with congruence patterns for the therapy outcome expectation and perception scale. Patients in congruence pattern 1 (the dyads who moved toward positive congruence) had lower baseline health anxiety and disability than patients in congruence pattern 2 (the dyads who did not move toward positive congruence). Health anxiety has been shown to be associated with catastrophization and rumination, so perhaps the more health anxious patients in congruence pattern 2 were catastrophizing as they considered their expectations for therapy (Marcus et al., 2008).

Although treatment expectations have been shown to be associated with treatment outcomes, research has not yet revealed a causal relationship between outcome

expectations, motivation within treatment, and treatment outcomes (Greenberg et al., 2006; Tetley et al., 2011). Despite this, it may be of benefit for therapists to explicitly discuss therapy expectations and outcomes with their patients as this has the potential to have a positive impact.

At baseline, patients in congruence pattern 1 (the dyads who moved toward positive congruence) reported less somatic symptom-related disability relative to patients in congruence pattern 2 (the dyads who did not move toward congruence), supporting the findings of Atzil-Slonim et al. (2015) and Kivity et al. (2020), which suggest that more intense symptoms are associated with more incongruence between patient and therapist, but contrasting the findings of Hasson-Ohayon et al. (2021), which suggest the opposite. The role of congruence appears to remain unclear.

Strengths and Limitations

One major strength of this analysis is that it expands understanding of congruence and alliance in a MUS population. Given the difficulties associated with recruiting and treating this population, a sample of this size is notable. The understanding gained from the present analysis can provide useful information to clinicians and other healthcare providers who find themselves treating MUS.

Additionally, the present analysis was able to reveal important nuance within the concept of congruence. Grid sequence analysis is a creative and helpful method in addressing congruence (and the valence of this congruence) and incongruence (and the direction of this incongruence). It seems that valence and direction of congruence or

incongruence are potentially more valuable constructs to consider when aiming to optimize therapy for individuals with MUS.

The present analysis also has a few limitations to consider. One particular challenge is that only three time points were available for analysis. While the beginning, middle, and end of treatment all serve as important landmarks in therapy, having only three time points simplifies the complex and dynamic nature of therapeutic relationship and progress. This would be true of any therapy but seems particularly reductive in this population as MUS are a dynamic and fluctuating experience. Future studies should aim to understand and analyze the dynamic nature of MUS in relation to congruence and treatment outcomes.

Additionally, although the three individual items analyzed in this study provided helpful insight into constructs of therapist warmth, therapist competence, and patient engagement, this study was limited by having just one item to address each. Having more than just one item for construct measured will be of benefit for future research. Regardless, the preliminary understanding provided by this study is useful, particularly as therapist warmth and competence are emerging focuses in therapy outcomes research (Seewald & Rief, 2022). The five-item scale used in this study had not been previously validated, so a well-validated and standardized measure of therapy outcome expectations will also be important in future research.

It appears that the present study was capturing some between-therapist differences. Approximately 50 therapists provided the interventions in this trial, with some therapists treating just one participant and others treating up to 11. Given the large number of therapists with varying caseloads, the present study was unable to further

investigate therapist effects. The potential effects of therapists will be helpful to consider in future research.

The present analysis has some issues with generalizability. Specifically, the original trial provided 3-5 preparatory sessions before providing 20 therapy sessions. This is many more sessions than a typical patient attends, and it is unlikely that the same results would be found with 12 or even 8 therapy sessions. Additionally, the therapists in the original trial were mostly therapists in training or new therapists, and results may have differed if therapy had been provided by more experienced therapists as well. Finally, the original study was conducted in Germany. As such, results may be generalizable only within a German or Western European population.

Implications and Future Directions

The research that has been conducted on congruence or therapeutic progress in this population is extremely limited, so the present research has valuable implications both on a clinical and public scale despite the limitations listed above. Both medical providers and psychologists struggle to treat this population (Kenny, 2004; Murray et al., 2016). If we can continue to learn more about the important relational aspects (such as therapist warmth or congruence) in treating this population, all professionals who work with MUS patients can intentionally cultivate those aspects. Further research can help develop the understanding of MUS patient experiences, which can help professionals provide more validating care in the future, particularly for those professionals who feel less confident treating this population.

It would be of benefit to conduct studies gathering both patient and therapist data on their alliance and therapeutic progress using validated measures at more time points throughout therapy, including after therapy has ended. Statistical methods, such as grid sequence analysis, which have the ability to capture both congruence and valence, seem to be of particular importance. In addition, future studies should aim to recruit more diverse MUS patients as sociocultural factors strongly impact patients' experiences of MUS (Leiknes et al., 2007; Kleinstäuber et al., 2018; Steinbrecher & Hiller, 2011). Finally, future studies should aim to collect therapist characteristic data to help better understand therapist experiences while treating this population.

Overall, the role and impact of congruence alone remains unclear. However, the type of incongruence, such as whether the patient is rating high and the therapist low, or vice versa, may be of importance (Atzil-Slonim et al., 2015; Fitzpatrick et al., 2005; Jennissen et al., 2020). For example, when therapists underestimate the alliance relative to their patients, they may be more vigilant or attuned to their patient's behaviors, which may even be adaptive as such therapists may be more aware of when rupture occurs (Atzil-Slonim et al., 2015). In the present analysis, therapists underestimated their own warmth and competence relative to their patients. Despite this incongruence, these patterns were not found to be associated with treatment outcomes, suggesting that in the present study, therapist underestimation may have been adaptive.

Additionally, the valence of the congruence, such as whether dyads agree their progress is poor, or whether they agree their progress is successful, may also provide rich and informative context to the degree of congruence or incongruence (Atzil-Slonim et al., 2015; Fitzpatrick et al., 2005; Jennissen et al., 2020). For example, patient-therapist

dyads with strong positive congruence likely hold a shared idea of treatment goals or values within the therapy. On the other hand, patient-therapist dyads with strong negative congruence are likely more able to address therapeutic aspects that are going poorly, then can pivot toward a stronger relationship (Jennissen et al., 2020). Though one of the congruence patterns identified in this remained negative throughout therapy, this group of patients did not see fewer treatment gains. In fact, they saw more symptom reduction than the other more positive congruence pattern. This finding highlights that constructs of therapeutic engagement, therapeutic progress, and congruence, though, related, are separate constructs and positive congruence alone does not always relate to outcomes.

Lastly, patient characteristics such as health anxiety, general psychological distress, depression, pain coping, and disability were associated with congruence pattern types. For example, depressed patients appeared to underestimate their engagement with therapy, while anxious patients appeared to underestimate treatment outcomes. These types of results hold implications for therapists and other healthcare professionals treating individuals with MUS. It is important to consider a MUS patient's comorbid mental health diagnoses as these are likely impacting the way the individual is understanding their symptoms, their therapist, and their treatment expectations.

Conclusion

Using data from a previous trial of psychotherapy for a MUS population, this analysis examined patient-therapist congruence on four different constructs: therapist warmth, therapist competence, patient engagement in therapy, and therapy outcome

perceptions and expectations. Based on the data of 174 patient-therapist dyads over the course of therapy, this analysis found that baseline patient characteristics, clusters based on congruence patterns, and patient treatment outcomes were associated with one another. The results illustrated the importance of qualitative valence- or direction- related characteristics of congruence as this information helped to provide a nuanced understanding of congruence.

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Table 1

Demographics Summary Table: Original Trial

Demographic variables	Total sample n=254	SOMA-CBT n=128	ENCERT n=126
	M (SD)	M (SD)	M (SD)
Age (in years)	43.38 (12.92)	44.93 (12.84)	41.80 (12.86)
Years of education	14.55 (2.94)	14.47 (2.85)	14.63 (3.03)
	n (%)	n (%)	n (%)
Sex (female)	163 (64.2)	78 (60.9)	85 (67.5)
Main diagnosis			
Somatization disorder	55 (21.7)	26 (20.3)	29 (23.0)
Undifferentiated somatoform disorder	144 (56.6)	70 (54.7)	74 (58.7)
Somatoform pain disorder	55 (21.7)	32 (25.0)	23 (18.3)
Number of comorbid mental disorders			
0 comorbid disorders	126 (49.6)	66 (51.6)	60 (47.6)
≥ 1 comorbid disorder	92 (36.2)	62 (48.4)	66 (52.4)
≥ 2 comorbid disorders	36 (14.2)	21 (16.4)	15 (11.9)
Comorbid anxiety disorder	46 (18.1)	22 (17.2)	24 (19.0)
Comorbid mood disorder	94 (37.0)	48 (37.5)	46 (36.5)
Comorbid personality disorder	14 (5.5)	9 (7.0)	5 (4.0)
Other comorbidities	12 (4.7)	7 (5.5)	5 (4.0)

table continued on next page

Table 1 Continued

Demographics Summary Table: Original Trial

Demographic variables	Between-group differences
Age (in years)	t(252) = 1.94, p = .054
Years of education	t(252) = -0.44, p = .663
Sex (female)	X^2(1, 254) = 1.18, p = .278
Main diagnosis	X^2(2, 254) = 2.10, p = .351
Number of comorbid mental disorders	X^2(2, 254) = 2.36, p = .308
Comorbid anxiety disorder	X^2(1, 254) = 0.15, p = .700
Comorbid mood disorder	X^2(1, 254) = 0.03, p = .870
Comorbid personality disorder	X^2(1, 254) = 1.14, p = .285
Other comorbidities	X^2(1, 254) = 0.32, p = .573

Table 2

Detailed View of Outcome Measures at Each Time Point of the Original Trial

Outcome	Measure	B	Monitor IS 1-2	Monitor IS 3-5 TS 1-20	TS 1	TS 4	TS 8
Symptom severity	SOMS-7T	X				X	X
Symptom severity	PHQ-15	X					X
Symptom severity	SSS-8	X					
Symptom disability	PDI	X					X
Pain coping	FESV	X					X
Health anxiety	mSHAI	X					X
Health care utilization	HCU	X					
Depression	BDI-II	X					X
General distress	SCL-90-R	X					X
Quality of life	EQ-5D	X					X
ER skills	ERSQ	X					X
Negative effects therapy	INEP						
Credibility	CEQ						
Symptom severity	VAS		X	X			
Symptom disturbance	VAS		X	X			
Symptom disability	VAS		X	X			
Symptom coping	VAS		X	X			
Emotion regulation	VAS		X	X			
Therapeutic progress[a,c]	Likert			X			
Therapeutic progress[b,c]	Likert				X		

Note. SOMS-7T = Screening of Somatoform Disorders, PHQ-15 = Patient Health Questionnaire-15, SSS-8 = Somatic Symptom Scale-8, PDI = Pain Disability Index, FESV = Coping With Chronic Pain Scales, mSHAI = modified version of the Short Health Anxiety Inventory, HCU = Health Care Utilization Questionnaire, BDI-II = Beck Depression Inventory-II, SCL-90-R = Symptom Checklist-90-Revised, EQ-5D = EuroQol-5D, ER skills = emotion regulation skills, INEP = Inventory of the Assessment of Negative Effects of Psychotherapy, CS = Credibility/Expectancy Questionnaire, VAS = visual analogue scale, Monitor = weekly monitoring, FU = follow-up. IS = introductory session, TS = therapeutic session. [a]completed by patients, [b]completed by therapists, [c]administered as interview, [c]includes items on quality of the therapy, working alliance, outcome expectations, and adverse events.

Table 2 Continued

Detailed View of Outcome Measures at Each Time Point of the Original Trial Continued

Outcome	Measure	TS 10	TS 12	TS 16	TS 20	6-months FU
Symptom severity	SOMS-7T		X	X	X	X
Symptom severity	PHQ-15				X	X
Symptom severity	SSS-8					X
Symptom disability	PDI				X	X
Pain coping	FESV				X	X
Health anxiety	mSHAI				X	X
Health care utilization	HCU				X[c]	X
Depression	BDI-II				X	X
General distress	SCL-90-R				X	X
Quality of life	EQ-5D				X	X
ER skills	ERSQ				X	X
Negative effects therapy	INEP				X	X
Credibility	CEQ				X	
Symptom severity	VAS					X
Symptom disturbance	VAS					X
Symptom disability	VAS					X
Symptom coping	VAS					X
Emotion regulation	VAS					X
Therapeutic progress[a,c]	Likert					
Therapeutic progress[b,c]	Likert	X			X	

Note. SOMS-7T = Screening of Somatoform Disorders, PHQ-15 = Patient Health Questionnaire-15, SSS-8 = Somatic Symptom Scale-8, PDI = Pain Disability Index, FESV = Coping With Chronic Pain Scales, mSHAI = modified version of the Short Health Anxiety Inventory, HCU = Health Care Utilization Questionnaire, BDI-II = Beck Depression Inventory-II, SCL-90-R = Symptom Checklist-90-Revised, EQ-5D = EuroQol-5D, ER skills = emotion regulation skills, INEP = Inventory of the Assessment of Negative Effects of Psychotherapy, CS = Credibility/Expectancy Questionnaire, VAS = visual analogue scale, Monitor = weekly monitoring, FU = follow-up. IS = introductory session, TS = therapeutic session. [a]completed by patients, [b]completed by therapists, [c]administered as interview, [c]includes items on quality of the therapy, working alliance, outcome expectations, and adverse events.

Table 3

Contents of ENCERT and Conventional CBT

Module/Session	CBT	ENCERT
1/ 1	**Illness beliefs and therapeutic targets** Exploration of patient's illness beliefs considering the role of negative emotions; developing therapeutic targets	**Illness beliefs and therapeutic targets** Exploration of patient's illness beliefs; developing therapeutic targets
2/ 2-6	**Distress and physical symptoms** Psychoeducation: distress and physical symptoms; stress management and relaxation techniques	**Negative emotions and physical symptoms** Psychoeducation: negative emotions and physical symptoms; introduction to the concept of acceptance (vs. change) and mindfulness
3/ 7-9	**Attention and physical symptoms** Psychoeducation: relationship between attention and physical symptoms; focusing exercises to shift attention away from physical symptoms	**Mindful symptom perception** Psychoeducation: mindfulness; exercises to facilitate mindful perception of physical symptoms
4/ 10-14	**Dysfunctional cognitions and physical symptoms** Psychoeducation: dysfunctional thoughts and physical symptoms; identifying individuals' dysfunctional symptom-related thoughts; strategies of reappraisal and cognitive restructuring; behavioral experiments (symptom induction) for questioning dysfunctional symptom-related thoughts	**Dysfunctional cognitions and physical symptoms** Psychoeducation: negative thoughts and physical symptoms; identifying individuals' dysfunctional symptom-related thoughts; strategies of reappraisal and cognitive restructuring; strategies of mindful perception of dysfunctional thoughts; supporting the patient in finding out individual helping strategies (acceptance vs. change)

Table 3 Continued

Module/Session	CBT	ENCERT
5/ 15-18	**Illness behaviors and physical symptoms** Psychoeducation: illness behaviors and physical symptoms; exposure based and cognitive strategies to reduce avoidance behaviors and doctor-shopping	**Illness behaviors and physical symptoms** Psychoeducation: illness behaviors and physical symptoms; acceptance-based strategies and cognitive reappraisal to reduce avoidance behaviors and doctor-shopping; refocusing on life values and goals
6/ 19-20	**Explanatory model and relapse prevention** 1 session with open contents: specific problem of the patient or repeating contents from previous modules; summary of therapy contents in an individual explanatory model of MUS; relapse prevention	**Explanatory model and relapse prevention** 1 session with open contents: specific problem of the patient or repeating contents from previous modules; summary of therapy contents in an individual explanatory model of MUS considering the role of negative emotions; relapse prevention

Note. ENCERT = Enriching Cognitive Behavior Therapy with Emotion Regulation Training for Patients with Multiple Medically Unexplained Symptoms, CBT = Cognitive Behavior Therapy, and MUS = medically unexplained symptoms

Table 4

Exploratory factor analysis anti-image correlations

Item 1	Anti-image correlation index
T1	0.713
T10	0.736
T20	0.789
Item 2	
T1	0.710
T10	0.743
T20	0.739
Item 3	
T1	0.858
T10	0.922
T20	0.934
Item 4	
T1	0.894
T10	0.916
T20	0.928
Item 5	
T1	0.802
T10	0.857
T20	0.893
Item 6	
T1	0.889
T10	0.907
T20	0.900
Item 7	
T1	0.739
T10	0.849
T20	0.861
Item 8	
T1	0.763
T10	0.883
T20	0.888
Item 9	
T1	0.760
T10	0.805
T20	0.903
Item 10	
T1	0.907
T10	0.909
T20	0.922

Table 5

Exploratory factor analysis: patient items

	Factor		h^2	r_{itc}	α
	1	2			
Item 3					
T1	0.040	0.527	0.140	0.235	0.870
T10	0.491	-	0.254	0.475	0.902
T20	0.492	-	0.250	0.481	0.935
Item 4					
T1	0.543	0.535	0.477	0.683	0.799
T10	0.858	-	0.661	0.810	0.856
T20	0.906	-	0.768	0.868	0.889
Item 6					
T1	0.809	0.253	0.689	0.763	0.780
T10	0.809	-	0.641	0.752	0.864
T20	0.899	-	0.809	0.851	0.892
Item 7					
T1	0.949	0.154	0.850	0.795	0.772
T10	0.884	-	0.746	0.818	0.853
T20	0.934	-	0.844	0.884	0.886
Item 8					
T1	0.912	0.194	0.831	0.797	0.772
T10	0.882	-	0.731	0.822	0.852
T20	0.934	-	0.831	0.886	0.885
Item 10					
T1	0.216	0.555	0.222	0.399	0.850
T10	0.622	-	0.392	0.597	0.891
T20	0.679	-	0.461	0.661	0.921

Note. h^2 = individual item communality, r_{itc} = corrected item-total correlation, α = alpha when item is deleted

Table 6

Exploratory factor analysis: therapist items

	Factor		h^2	r_{itc}	α
	1	2			
Item 4					
T1	0.531	-	0.305	0.521	0.799
T10	0.778	-	0.578	0.741	0.899
T20	0.880	-	0.731	0.851	0.924
Item 6					
T1	0.750	-	0.510	0.675	0.750
T10	0.735	-	0.502	0.702	0.907
T20	0.772	-	0.575	0.750	0.941
Item 7					
T1	0.885	-	0.779	0.732	0.731
T10	0.902	-	0.792	0.846	0.877
T20	0.883	-	0.774	0.848	0.925
Item 8					
T1	0.906	-	0.774	0.770	0.725
T10	0.867	-	0.766	0.818	0.883
T20	0.931	-	0.822	0.893	0.916
Item 10					
T1	0.333	-	0.137	0.325	0.844
T10	0.821	-	0.625	0.778	0.891
T20	0.888	-	0.745	0.856	0.923

Note. h^2 = individual item communality, r_{itc} = corrected item-total correlation, α = alpha when item is deleted

Table 7

Demographics Summary Table: Current Analysis

Clinical variables	n=174, M(SD)	n=254, M(SD)	Between-group diff.
Age (in years)	43.26(12.88)	43.38(12.92)	t(427) = .95, p = .925
Years of Education	14.51(3.16)	14.55(2.94)	t(427) = .13, p = .893
Sex	n(%)	n(%)	
Female	115(66.10)	163(64.20)	$X^2(1) = .17$, p = .682
Male	59(33.90)	91(35.80)	
Main Diagnosis			
Somatization disorder	39(22.40)	55(21.70)	$X^2(2) = 1.28$, p = .528
Undifferentiated somatoform disorder	90(51.70)	144(56.60)	
Somatoform pain disorder	45(25.90)	55(21.70)	
Number of comorbid mental disorders			
0 comorbid disorders	92(52.90)	126(49.60)	$X^2(2) = .44$, p = .802
≥ 1 comorbid disorder	59(33.90)	92(36.20)	
≥ 2 comorbid disorders	23(13.20)	36(14.20)	
Randomization			
CBT	83(47.70)	127(50.00)	$X^2(1) = .22$, p = .640
ENCERT	91(52.30)	127(50.00)	
Baseline variables	M(SD)	M(SD)	
BDI	20.25(9.14)	21.16(10.04)	t(427) = .96, p = .340
FESV	68.73(17.26)	67.87(18.10)	t(427) = .62, p = .860
mSHAI	29.92(13.15)	29.69(13.47)	t(427) = .18, p = .861
mPDI	33.21(11.49)	33.64(11.93)	t(427) = .37, p = .710
PHQ-15	13.01(4.02)	12.76(4.13)	t(427) = .62, p = .534
SCL-90-R	0.87(0.51)	0.91(0.54)	t(427) = .77, p = .442
Outcome variables	M(SD)	M(SD)	
mPDI	18.04(13.97)	19.20(14.24)	t(427) = .83, p = .404
PHQ-15	7.71(4.61)	7.59(4.60)	t(427) = .26, p = .791

Table 7 Continued

Item 1-Therapist warmth	Patient Score M(SD); Therapist Score M(SD)
Session 1	5.06(0.88); 5.03(0.80)
Session 10	5.29(0.80); 5.11(0.79)
Session 20	5.47(0.65); 5.23(0.83)
Item 2-Therapist competence	
Session 1	5.20(0.93); 4.77(1.01)
Session 10	5.44(0.75); 5.05(0.85)
Session 20	5.59(0.62);5.14(0.88)
Item 3-Patient engagement	
Session 1	4.88(1.02); 5.05(0.89)
Session 10	4.93(0.89); 5.10(0.94)
Session 20	5.03(0.88); 5.17(1.05)
Scale-Therapy outcome perceptions & expectations	
Session 1	3.47(1.17); 2.88(0.91)
Session 10	4.17(1.01); 4.13(1.05)
Session 20	4.66(1.00); 4.63(1.17)

Table 8

Baseline and outcome measures stratified by cluster

Item 1 Clusters	Cluster 1; M(SD)	Cluster 2; M(SD)
Baseline measures		
BDI	20.01(8.89)	21.86(10.82)
FESV	69.01(17.09)	66.86(18.53)
mSHAI	29.86(13.46)	30.36(11.02)
mPDI	33.25(11.52)	32.91(11.53)
PHQ-15	13.15(3.91)	12.05(4.71)
SCL-90-R	0.84(0.46)	1.04(0.73)
Outcome measures		
mPDI	17.36(13.90)	22.68(13.92)
PHQ-15	7.62(4.52)	8.32(5.24)
Therapy measure	Patient; Therapist	Patient; Therapist
Session 1	5.10(0.86); 5.18(0.70)	4.77(0.97); 4.00(0.76)
Session 10	5.35(0.77); 5.28(0.63)	4.86(0.89); 3.95(0.79)
Session 20	5.53(0.59); 5.44(0.61)	5.05(0.90); 3.77(0.69)
Item 2 Clusters	**Cluster 1; M(SD)**	**Cluster 2; M(SD)**
Baseline measures		
BDI	19.33(9.38)	20.85(8.97)
FESV	68.32(15.68)	69.00(18.24)
mSHAI	29.00(13.07)	30.52(13.22)
mPDI	31.39(10.47)	34.40(12.01)
PHQ-15	12.43(4.18)	13.39(3.89)
SCL-90-R	0.85(0.56)	0.88(0.47)
Outcome measures		
mPDI	18.93(13.56)	17.48(14.26)
PHQ-15	7.90(4.40)	7.59(4.76)
Therapy measure	Patient; Therapist	Patient; Therapist
Session 1	5.28(1.07); 3.90(0.96)	5.15(0.82); 5.34(0.52)
Session 10	5.33(0.93); 4.39(0.86)	5.50(0.59); 5.48(0.50)
Session 20	5.51(0.74); 4.48(0.90)	5.64(0.52); 5.57(0.52)

table continued on next page

Table 8 Continued

Baseline and outcome measures stratified by cluster

Item 3 Clusters	Cluster 1; M(SD)	Cluster 2; M(SD)	Cluster 3; M(SD)
Baseline measures			
BDI	19.12(8.93)	23.51(.47)	19.56(10.56)
FESV	71.01(18.30)	66.21(14.94)	60.33(11.64)
mSHAI	29.81(13.38)	30.42(12.48)	29.39(13.92)
mPDI	33.42(11.47)	33.28(11.08)	31.72(13.07)
PHQ-15	12.90(3.88)	13.23(4.29)	13.17(4.49)
SCL-90-R	0.82(0.49)	0.99(0.52)	0.91(0.58)
Outcome measures			
mPDI	16.95(14.14)	19.28(11.79)	21.83(17.31)
PHQ-15	7.17(4.56)	8.05(4.01)	10.22(5.55)
Therapy measure	Patient; Therapist	Patient; Therapist	Patient; Therapist
Session 1	5.17(0.93); 5.27(0.78)	4.05(0.98); 4.81(0.93)	5.06(0.42); 4.22(0.81)
Session 10	5.33(0.54); 5.41(0.68)	3.93(0.88); 4.77(1.09)	4.78(0.73); 3.94(0.87)
Session 20	5.44(0.68); 5.62(0.56)	3.95(0.82); 4.58(1.35)	5.06(0.54); 3.72(0.46)
Scale Clusters	Cluster 1; M(SD)	Cluster 2; M(SD)	
Baseline measures			
BDI	21.00(9.58)	19.81(8.89)	
FESV	65.97(15.70)	70.32(17.93)	
mSHAI	27.66(13.11)	31.24(13.05)	
mPDI	31.45(10.22)	34.23(12.10)	
PHQ-15	12.86(4.07)	13.10(4.01)	
SCL-90-R	0.88(0.54)	0.86(0.49)	
Outcome measures			
mPDI	21.64(13.80)	15.91(13.70)	
PHQ-15	9.05(4.67)	6.92(4.41)	
Therapy measure	Patient; Therapist	Patient; Therapist	
Session 1	2.84(0.93); 2.59(0.94)	3.83(1.15); 3.05(0.86)	
Session 10	3.39(0.81); 3.28(0.95)	4.63(0.82); 4.62(0.75)	
Session 20	3.84(0.76); 3.66(1.01)	5.13(0.79); 5.20(0.84)	

Table 9

Results of two multiple linear regression analyses including item 1 congruence patterns on mPDI and PHQ-15 scores at the end of treatment

	b(SE)	*β*	*t*	*p*
Regression analysis 1 Outcome: mPDI (end of therapy)				
mPDI (baseline)	0.51(0.08)	0.42	6.05	**<.001**
Congruence patterns	5.49(2.89)	0.13	1.90	.059
Regression analysis 2 Outcome: PHQ-15 (end of therapy)				
PHQ-15 (baseline)	0.51(0.08)	0.45	6.51	**<.001**
Congruence patterns	1.29(0.95)	0.09	1.36	.175

Note. *n* = 174. mPDI = Modified Pain Disability Index. PHQ-15 = Patient Health Questionnaire-15.

Table 10

Binary Logistic Regression Model for Item 1

	b(SE)	OR[95% CI]	*p*-value
$X^2(6) = 10.92$, p = .091, Nagelkerke's $R^2 = .12$			
Predictors			
Baseline BDI-2	-0.03(.05)	0.97[.89, 1.06]	.471
Baseline FESV	0.00(.02)	1.00[.97, 1.03]	.789
Baseline mSHAI	0.00(.02)	1.00[.96, 1.04]	.872
Baseline PDI	0.00(.02)	1.00[.95, 1.05]	.908
Baseline PHQ-15	-0.20(.08)	0.82[.69, .96]	**.015**
Baseline SCL-90-R	2.09(.84)	8.09[1.56, 42.01]	**.013**

Note. BDI-2 = Beck Depression Inventory-II, FESV = Coping with Chronic Pain Scales, mSHAI = modified version of the Short Health Anxiety Inventory, PDI = Pain Disability Index, PHQ-15 = Patient Health Questionnaire-15, SCL-90-R = Symptom Checklist-90-Revised, OR = odds ratio, CI = confidence interval. Coding of the dependent variable: 0 = congruence pattern type 1, 1 = congruence pattern type 2.

Table 11

Results of two multiple linear regression analyses including item 2 congruence patterns on mPDI and PHQ-15 scores at the end of treatment

	b(SE)	*β*	*t*	*p*
Regression analysis 1				
Outcome: mPDI (end of therapy)				
mPDI (baseline)	0.52(0.9)	0.43	6.16	**<.001**
Congruence patterns	-3.06(2.00)	-0.11	-1.53	.128
Regression analysis 2				
Outcome: PHQ-15 (end of therapy)				
PHQ-15 (baseline)	0.51(0.08)	0.45	6.49	**<.001**
Congruence patterns	-0.75(0.65)	-0.08	-1.15	.251

Note. $n = 174$. mPDI = Modified Pain Disability Index. PHQ-15 = Patient Health Questionnaire-15.

Table 12

Binary Logistic Regression Model for Item 2

	b(SE)	OR[95% CI]	p-value
$X^2(6) = 8.26$, p = .219, Nagelkerke's $R^2 = .06$			
Predictors			
Baseline BDI-2	0.04(0.03)	1.04[0.98, 1.11]	.191
Baseline FESV	0.01(0.01)	1.01[0.99, 1.03]	.539
Baseline mSHAI	0.02(0.01)	1.02[0.99, 1.04]	.258
Baseline PDI	0.02(0.02)	1.02[0.99, 1.06]	.159
Baseline PHQ-15	0.07(0.05)	1.07[0.96, 1.19]	.207
Baseline SCL-90-R	-1.09(0.61)	0.34[0.10, 1.11]	.073

Note. BDI-2 = Beck Depression Inventory-II, FESV = Coping with Chronic Pain Scales, mSHAI = modified version of the Short Health Anxiety Inventory, PDI = Pain Disability Index, PHQ-15 = Patient Health Questionnaire-15, SCL-90-R = Symptom Checklist-90-Revised, OR = odds ratio, CI = confidence interval. Coding of the dependent variable: 0 = congruence pattern type 1, 1 = congruence pattern type 2.

Table 13

Results of two multiple linear regression analyses including item 3 congruence patterns on mPDI and PHQ-15 scores at the end of treatment

	b(SE)	*β*	*t*	*p*
Regression analysis 1				
Outcome: mPDI (end of therapy)				
mPDI (baseline)	0.43(0.09)	0.36	4.81	**<.001**
Congruence pattern type 1 vs. 2	2.39(2.27)	0.08	1.05	.295
Congruence pattern type 1 vs. 3	2.93(1.65)	0.14	1.78	.078
Congruence pattern type 2 vs. 3	3.43(3.38)	0.12	1.01	.315
Regression analysis 2				
Outcome: PHQ-15 (end of therapy)				
PHQ-15 (baseline)	0.47(0.08)	0.43	5.83	**<.001**
Congruence pattern type 1 vs. 2	0.75 (0.72)	0.08	1.04	.299
Congruence pattern type 1 vs. 3	1.47(0.52)	0.21	2.81	**.006**
Congruence pattern type 2 vs. 3	2.20(1.17)	0.22	1.88	.065

Note. *n* = 174. mPDI = Modified Pain Disability Index. PHQ-15 = Patient Health Questionnaire-15.

Table 14

Multinomial Logistic Regression Model for Item 3

	b(SE)	OR[95% CI]	*p*-value
$X^2(12) = 20.13$, p = .065, Nagelkerke's $R^2 = .13$			
Congruence Pattern Type 1 vs. Type 2			
Predictors			
Baseline BDI-2	0.05(1.26)	1.07[0.99, 1.15]	.073
Baseline FESV	-0.07(0.04)	0.99[0.97, 1.01]	.265
Baseline mSHAI	0.01(0.01)	0.99[0.96, 1.03]	.649
Baseline PDI	0.01(0.01)	0.97[0.93, 1.01]	.133
Baseline PHQ-15	0.03(0.02)	0.97[0.86, 1.10]	.660
Baseline SCL-90-R	-0.17(0.68)	1.19[0.31, 4.54]	.801
Congruence Pattern Type 1 vs. Type 3			
Predictors			
Baseline BDI-2	0.06(0.06)	0.94[0.85, 1.05]	.277
Baseline FESV	0.05(0.02)	0.95[0.92, 0.99]	**.008**
Baseline mSHAI	0.02(0.02)	0.98[0.93, 1.02]	.312
Baseline PDI	0.04(0.03)	0.97[0.91, 1.02]	.204
Baseline PHQ-15	-0.04(0.09)	1.04[0.88, 1.23]	.667
Baseline SCL-90-R	-1.47(1.00)	4.34[0.61, 30.81]	.142
Congruence Pattern Type 2 vs. Type 3			
Predictors			
Baseline BDI-2	0.13(0.06)	1.13[1.01, 1.28]	**.039**
Baseline FESV	0.04(0.02)	1.04[1.00, 1.08]	.068
Baseline mSHAI	0.02(0.03)	1.02[0.97, 1.07]	.531
Baseline PDI	0.01(0.03)	1.01[0.95, 1.07]	.869
Baseline PHQ-15	-0.06(0.09)	0.94[0.78, 1.13]	.496
Baseline SCL-90-R	-1.30(1.07)	0.27[0.03, 2.23]	.226

Note. BDI-2 = Beck Depression Inventory-II, FESV = Coping with Chronic Pain Scales, mSHAI = modified version of the Short Health Anxiety Inventory, PDI = Pain Disability Index, PHQ-15 = Patient Health Questionnaire-15, SCL-90-R = Symptom Checklist-90-Revised, OR = odds ratio, CI = confidence interval.

Table 15

Results of two multiple linear regression analyses including item 2 congruence patterns on mPDI and PHQ-15 scores at the end of treatment

	b(SE)	*β*	*t*	*p*
Regression analysis 1				
Outcome: mPDI (end of therapy)				
mPDI (baseline)	0.47(0.09)	0.39	5.32	**<.001**
Congruence patterns	-6.86(2.11)	-0.24	-3.26	**.001**
Regression analysis 2				
Outcome: PHQ-15 (end of therapy)				
PHQ-15 (baseline)	0.50(0.08)	0.45	6.30	**<.001**
Congruence patterns	-2.02(0.67)	-0.22	-3.02	**.003**

Note. n = 174. mPDI = Modified Pain Disability Index. PHQ-15 = Patient Health Questionnaire-15.

Table 16

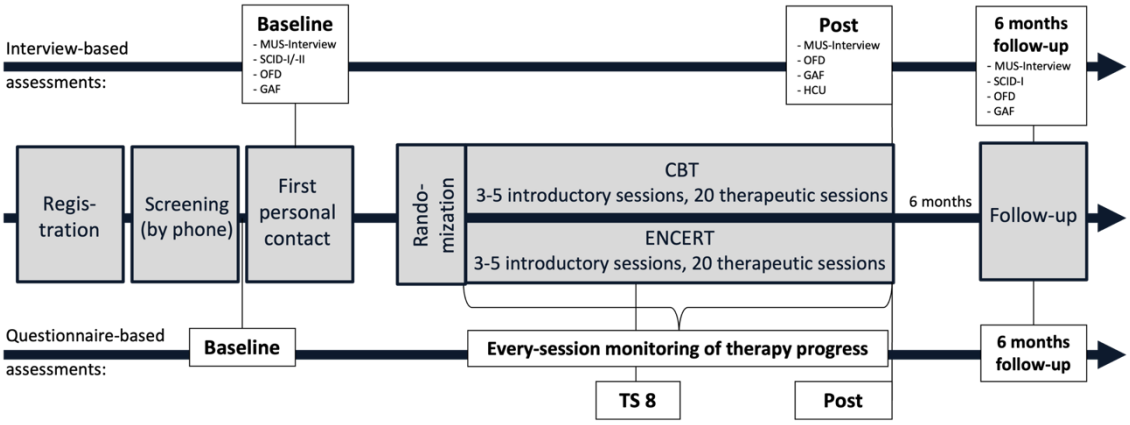
Binary Logistic Regression Model for Scale

	b(SE)	OR[95% CI]	*p*-value
$X^2(6) = 14.90$, p = .021, Nagelkerke's $R^2 = .11$			
Predictors			
Baseline BDI-2	-0.03(0.03)	0.97[0.91, 1.04]	.365
Baseline FESV	0.02(0.01)	1.02[1.00, 1.04]	.076
Baseline mSHAI	0.04(0.02)	1.04[1.01, 1.07]	**.012**
Baseline PDI	0.05(0.02)	1.05[1.01, 1.09]	**.006**
Baseline PHQ-15	-0.01(0.05)	0.99[0.89, 1.10]	.790
Baseline SCL-90-R	-0.27(0.63)	0.76[0.22, 2.65]	.671

Note. BDI-2 = Beck Depression Inventory-II, FESV = Coping with Chronic Pain Scales, mSHAI = modified version of the Short Health Anxiety Inventory, PDI = Pain Disability Index, PHQ-15 = Patient Health Questionnaire-15, SCL-90-R = Symptom Checklist-90-Revised, OR = odds ratio, CI = confidence interval. Coding of the dependent variable: 0 = congruence pattern type 1, 1 = congruence pattern type 2.

Figure 1

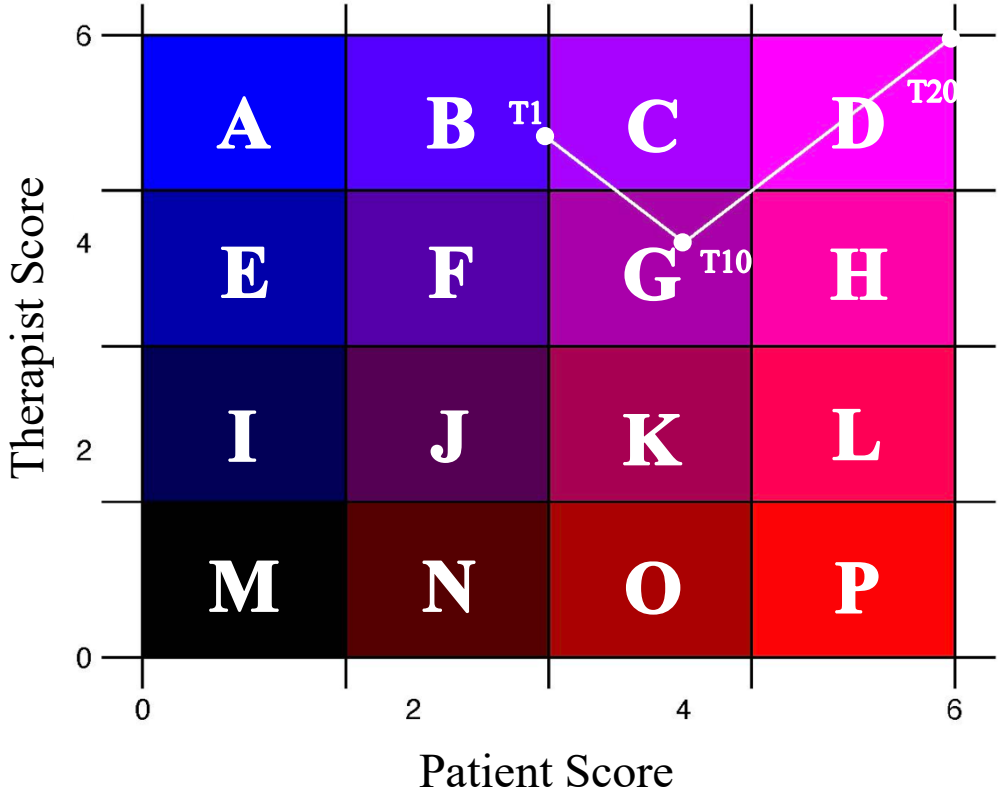
Study Procedure and Assessments for Interview- and Questionnaire-Based Assessments



Note. MUS = medically unexplained symptoms, SCID-I/-II = Structured Clinical Interview for DSM-IV Axis I/II Disorders, OFD = Operationalized Skills Assessment Inventory, GAF = Global Assessment of Functioning Scale, HCU = Health Care Utilization Interview, CBT = cognitive behavior therapy, ENCERT = Enriching Cognitive Behavior Therapy with Emotion Regulation Training for Patients with Multiple Medically Unexplained Symptoms, TS 8 = 8th therapeutic session.

Figure 2

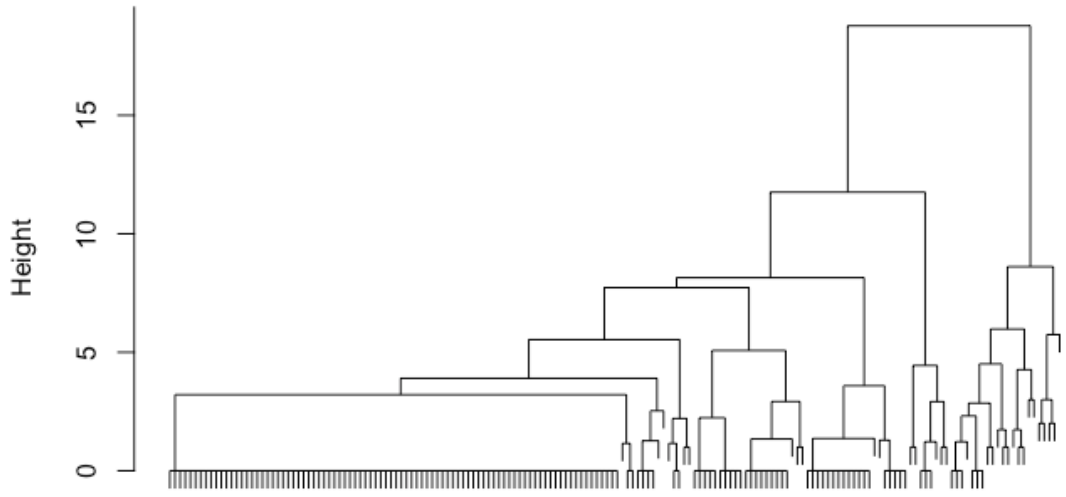
Sample Grid



Note. For each dyad, a grid like the one above is created. Each point represents a measurement time point. For the dyad above, at the first time point (T1), the patient scored the item around a 3 and the therapist scored it around a 5. This created a point in blue grid cell B. At session 10 (T10), both patient and therapist scored approximately a 4, creating a point in purple grid cell G. At session 20 (T20), both patient and therapist scored a 6, creating a point in magenta grid cell D. The point in blue grid cell B represents some incongruence since the therapist scored the item higher than the patient. The points in purple grid cell G and magenta grid cell D represent very strong congruence, since both patient and therapist gave the items the same score. The difference between the purple and magenta grid cells, however, is the valence. At session 20, this dyad agreed in a more positive way than at session 10. In general, the colors or cells in the upper right quadrant of this grid represent positive congruence (the dyad agrees that things are going well), while the colors or cells in the lower left quadrant of the grid represent negative congruence (the dyad agrees that things are going poorly). The lower right quadrant represents the first type of incongruence, in which the patient rates an item high while the therapist rates the same item low. The upper left quadrant represents the other type of incongruence, where the patient rates an item low while a therapist rates an item high.

Figure 3

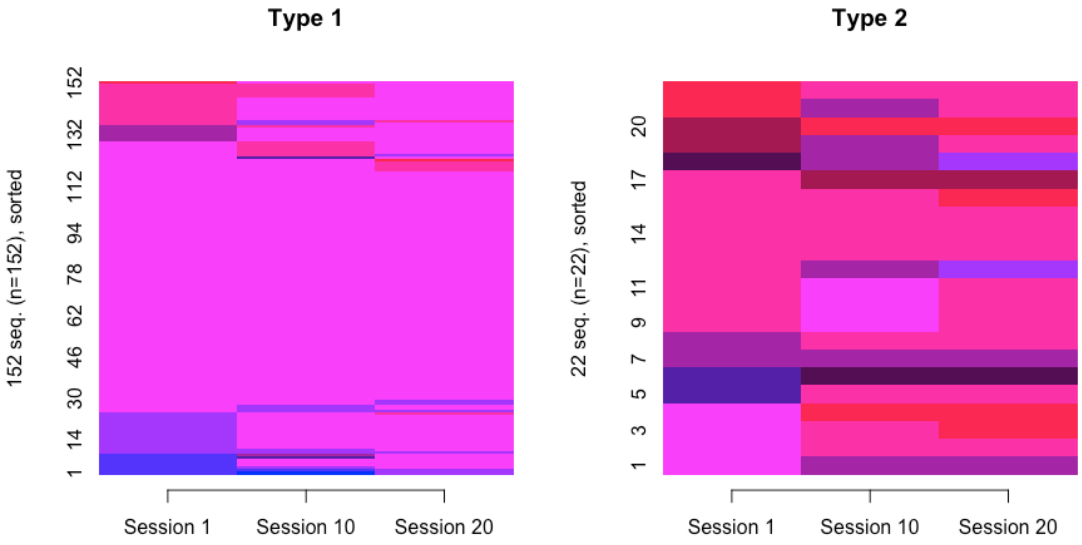
Item 1 Dendrogram



Note. The y-axis of this figure represents the height of the vertical lines in the dendrogram. Each dyad is represented at the bottom of each branch. Higher (or longer) vertical lines indicate that the dyads in various branches are different from one another, while shorter lines indicate more similar dyads within the branches. In order to identify clusters from the dendrogram, branch heights are visually inspected. In the case of the above dendrogram, it shows two long vertical lines (in the upper right corner of the figure), indicating two clusters.

Figure 4

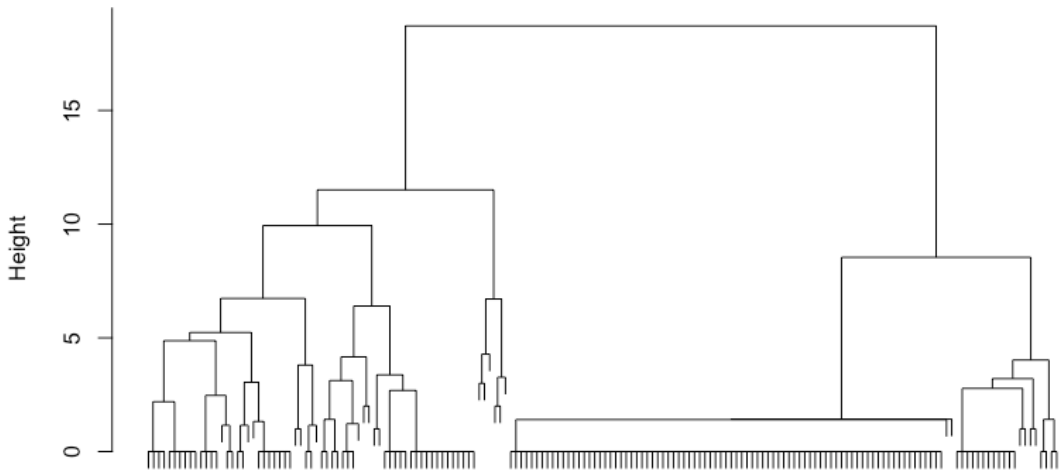
Item 1 Clustered Sequence



Note. This figure shows the congruence patterns or sequences represented in each cluster. Each point on the y-axis represents one dyad and each point on the x-axis represents one measurement time point. Reading each figure from left to right provides information on the congruence over time for the dyads in each cluster. In type 1 (or cluster 1), the figure shows mostly magenta colors at each time point. This suggests that the dyads in this cluster demonstrated positive congruence at all measurement time points throughout therapy. A few dyads in cluster 1 show some different pinks or blues at session 1, but move toward magenta by session 20, indicating a shift toward strong positive congruence over time. In type 2 (or cluster 2), the figure shows mostly pinks and reds, indicating less congruence than type 1. Reds are representative of incongruence in which a patient rates an item high, while a therapist rates the same item low. Cluster 2 appears not to move toward congruence over time like cluster 1, but rather, it generally maintains the incongruence over time.

Figure 5

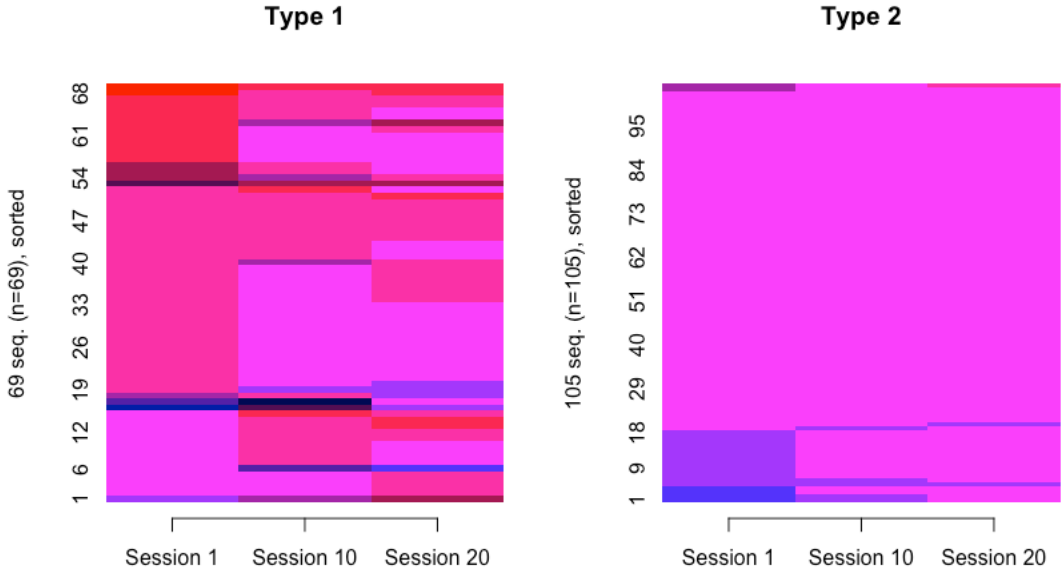
Item 2 Dendrogram



Note. The y-axis of this figure represents the height of the vertical lines in the dendrogram. Each dyad is represented at the bottom of each branch. Higher (or longer) vertical lines indicate that the dyads in various branches are different from one another, while shorter lines indicate more similar dyads within the branches. In order to identify clusters from the dendrogram, branch heights are visually inspected. In the case of the above dendrogram, it shows two branches (long vertical lines), indicating two clusters.

Figure 6

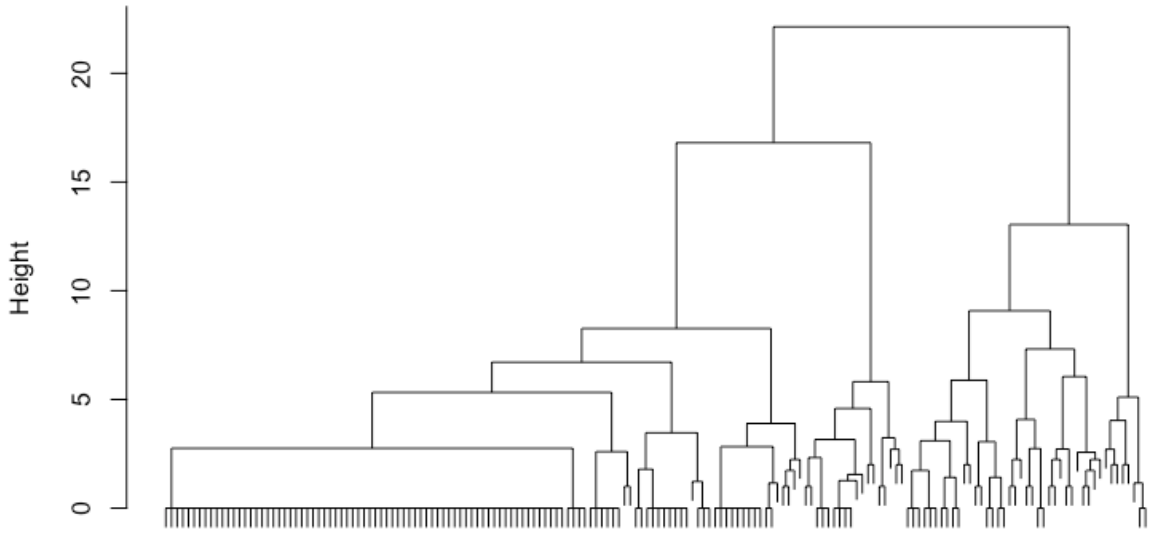
Item 2 Clusters



Note. This figure shows the congruence patterns or sequences represented in each cluster. Each point on the y-axis represents one dyad and each point on the x-axis represents one measurement time point. Reading each figure from left to right provides information on the congruence over time for the dyads in each cluster. In type 1 (or cluster 1), the figure shows mostly pinks and reds at session 1, which are representative of incongruence in which a patient rates an item high, while a therapist rates the same item low. Sessions 10 and 20 have more magenta colors than red colors, demonstrating that these dyads move toward positive congruence by the end of treatment. In type 2 (or cluster 2), the figure shows mostly magenta colors at each time point. This suggests that the dyads in this cluster demonstrated positive congruence at all measurement time points throughout therapy. A few dyads in cluster 2 show some blues at session 1, but move toward magenta by session 20, indicating a shift toward strong positive congruence over time.

Figure 7

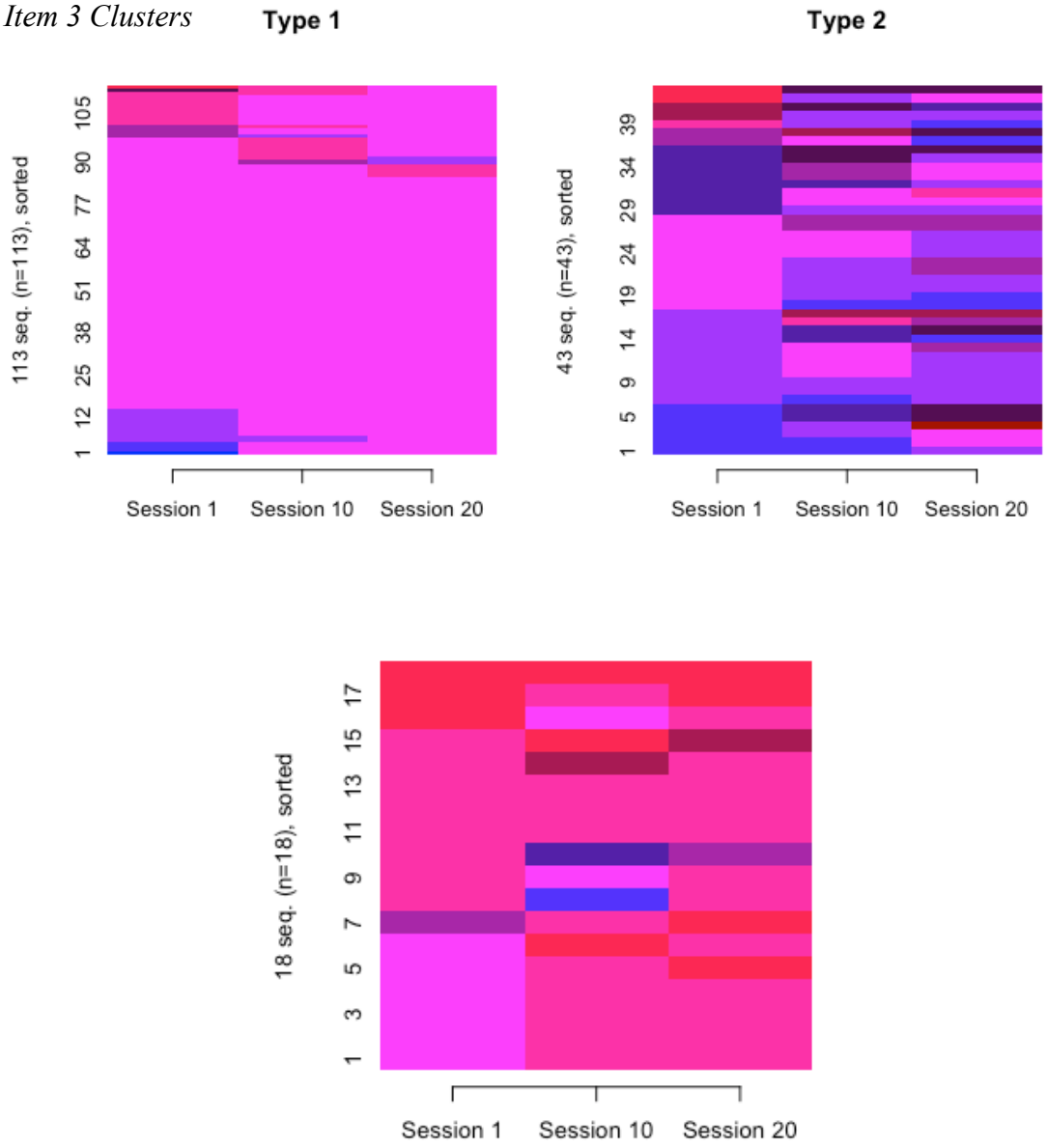
Item 3 Dendrogram



Note. The y-axis of this figure represents the height of the vertical lines in the dendrogram. Each dyad is represented at the bottom of each branch. Higher (or longer) vertical lines indicate that the dyads in various branches are different from one another, while shorter lines indicate more similar dyads within the branches. In order to identify clusters from the dendrogram, branch heights are visually inspected. In the case of the above dendrogram, it shows two main branches, but the left branch contains two distinct branches of its own. This dendrogram was interpreted to have three clusters.

Figure 8

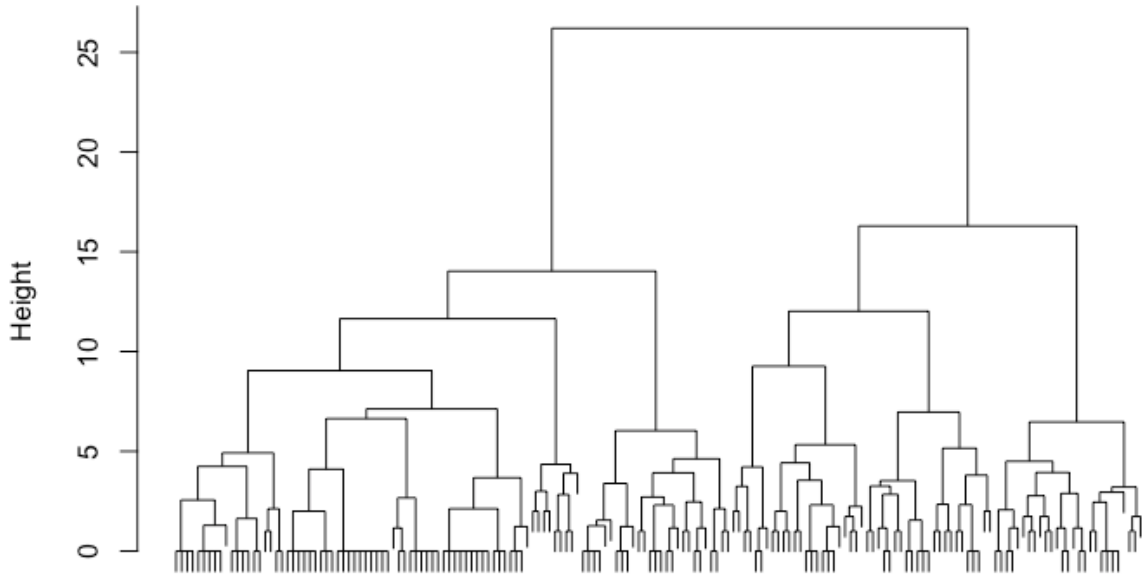
Item 3 Clusters



Note. This figure shows the congruence patterns or sequences represented in each cluster. Each point on the y-axis represents one dyad and each point on the x-axis represents one measurement time point. Reading each figure from left to right provides information on the congruence over time for the dyads in each cluster. In type 1 (or cluster 1), the figure shows mostly magenta colors at each time point. This suggests that the dyads in this cluster are demonstrating positive congruence at all measurement time points throughout therapy. In type 2 (cluster 2), the figure shows mostly blue colors, indicating that patients rated the item low, while therapists rated it high. In type 3 (or cluster 3), the figure shows mostly pinks and reds, indicating the opposite incongruence pattern, in which patients rated the item high, while therapists rated the same item low.

Figure 9

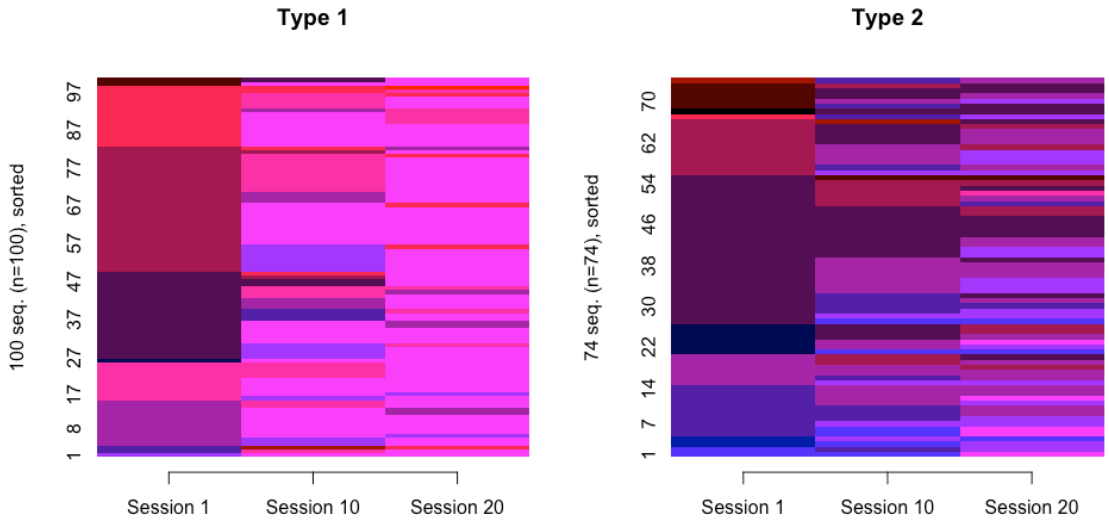
Scale Clusters



Note. The y-axis of this figure represents the height of the vertical lines in the dendrogram. Each dyad is represented at the bottom of each branch. Higher (or longer) vertical lines indicate that the dyads in various branches are different from one another, while shorter lines indicate more similar dyads within the branches. In order to identify clusters from the dendrogram, branch heights are visually inspected. In the case of the above dendrogram, it shows two main branches, indicating two clusters.

Figure 10

Scale Clusters



Note. This figure shows the congruence patterns or sequences represented in each cluster. Each point on the y-axis represents one dyad and each point on the x-axis represents one measurement time point. Reading each figure from left to right provides information on the congruence over time for the dyads in each cluster. In type 1 (cluster 1), many dyads show red or maroon colors at session 1, indicating very low therapist scores and somewhat higher patient scores. By session 10 and 20, however, these dyads move toward positive congruence, demonstrated by the magenta color. In type 2 (cluster 2), many dyads show the eggplant or dark purple color at session 1, indicating negative congruence, or agreement that they are not very satisfied with therapeutic progress or optimistic about treatment outcomes. By session 10 and 20, some lighter colors are present, indicating more positive scores. In addition, therapists seem to be rating these items just higher than the patients, indicated by more blue colors than red colors.

Appendix A

Patient Version of Measure

Bitte lesen Sie die folgenden Aussagen genau, und beurteilen Sie jeweils, in welchem Maße Sie die Therapie in der angegebenen Art erlebt haben.
Bitte antworten Sie ehrlich. Nur eine realistische Einschätzung ist eine hilfreiche Rückmeldung.

	über-haupt nicht						sehr stark
1. Ich fühle mich von meinem Therapeuten / meiner Therapeutin[1] verstanden	☐	☐	☐	☐	☐	☐	☐
2. Ich halte meinen Therapeuten für fachlich kompetent	☐	☐	☐	☐	☐	☐	☐
3. Ich habe mich in den Therapiesitzungen aktiv beteiligt	☐	☐	☐	☐	☐	☐	☐
4. Die Therapie hilft mir, meine Probleme besser zu verstehen bzw. anders zu sehen	☐	☐	☐	☐	☐	☐	☐
5. Die Therapie geht an meinen Problemen vorbei	☐	☐	☐	☐	☐	☐	☐
6. Durch die Therapie habe ich neue Anregungen zur Bewältigung meiner Probleme bekommen	☐	☐	☐	☐	☐	☐	☐
7. Ich habe mit Hilfe der Therapie Dinge verändert	☐	☐	☐	☐	☐	☐	☐
8. Ich habe gelernt, mit meinen Problemen besser umzugehen	☐	☐	☐	☐	☐	☐	☐
9. Die Therapie schadet mir	☐	☐	☐	☐	☐	☐	☐
10. Ich denke, dass mir die Therapie helfen wird	☐	☐	☐	☐	☐	☐	☐

Note. English translation, rated from strongly disagree to strongly agree:
1. I feel understood by my therapist.
2. I consider my therapist to be competent.
3. I am engaged in the therapy sessions.
4. The therapy helps me to understand my problems and gain perspective about my problems.
5. The therapy disregards my problems.
6. The therapy gave me new ideas to address my problems.
7. The therapy has helped me make changes.
8. I have learned to better deal with my problems.
9. The therapy harms me.
10. I think the therapy will help me.

Appendix B

Therapist Version of Measure

	über-haupt nicht						sehr stark
1. Ich habe Verständnis für meinen Patienten	☐	☐	☐	☐	☐	☐	☐
2. Ich fühle mich in dieser Therapie fachlich kompetent	☐	☐	☐	☐	☐	☐	☐
3. Mein Patient hat sich in den Therapiesitzungen aktiv beteiligt	☐	☐	☐	☐	☐	☐	☐
4. Die Therapie hilft meinem Patienten, seine Probleme besser zu verstehen und anders zu sehen / besser einzuordnen	☐	☐	☐	☐	☐	☐	☐
5. Die Therapie geht an den Problemen meines Patienten vorbei	☐	☐	☐	☐	☐	☐	☐
6. Durch die Therapie hat mein Patient neue Anregungen zur Bewältigung seiner Probleme bekommen	☐	☐	☐	☐	☐	☐	☐
7. Mein Patient hat mit Hilfe der Therapie Dinge verändert	☐	☐	☐	☐	☐	☐	☐
8. Mein Patient hat gelernt, mit seinen Problemen besser umzugehen	☐	☐	☐	☐	☐	☐	☐
9. Die Therapie schadet meinem Patienten	☐	☐	☐	☐	☐	☐	☐
10. Ich denke, dass meinem Pat. die Therapie helfen wird	☐	☐	☐	☐	☐	☐	☐

Note. English translation, rated from strongly disagree to strongly agree:
1. I understand my patient.
2. I consider myself to be competent.
3. My patient is engaged in the therapy sessions.
4. The therapy helps my patient to understand their problems and gain perspective about their problems.
5. The therapy disregards my patient's problems.
6. The therapy gave my patient new ideas to address their problems.
7. The therapy has helped my patient make changes.
8. My patient has learned to better deal with their problems.
9. The therapy harms my patient.
10. I think the therapy will help my patient.