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Effects of Therapeutic Alliance and Metacognition on outcome in a brief psychological treatment for Borderline Personality Disorder

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Abstract:	OBJECTIVE: The therapeutic alliance (TA) is a crucial factor in the effective treatment of borderline personality disorder (BPD). Metacognition, or the patient's capacity for awareness of mental states, is under-explored as a predictor of the TA. We therefore examined whether metacognition predicted alliance and if metacognition and TA together predicted psychological distress in the context of a brief psychological treatment for BPD. METHOD: We included N = 36 patients with BPD diagnoses in a secondary analysis of a randomized controlled trial. We assessed the TA session by session (Working Alliance Inventory), metacognition at session 1 (using the Metacognitive Assessment Scale-Revised) and outcome (using residual gains on the Outcome Questionnaire-45.2 between sessions 1 and 10). RESULTS: Greater capacity to understand others' minds treatment onset predicted an increase in therapist-rated alliance over time. Therapist rated alliance was the only significant predictor of psychological distress (B = -0.85, R Squared = .12). CONCLUSIONS: Better metacognitive capacity to understand others' minds, predicted TA which in turn affected psychological distress-related treatment outcomes. Metacognition presents a possible therapeutic target in severe BPD. Future studies could explore other aspects of metacognition in patients with higher functioning, impact of different treatment modalities and delivery.
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Title Page

RUNNING HEAD: Metacognition, Alliance, and Psychological Distress in Borderline Personality Disorder

Effects of Therapeutic Alliance and Metacognition on outcome in a brief psychological treatment for Borderline Personality Disorder

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ABSTRACT

OBJECTIVE: The therapeutic alliance (TA) is a crucial factor in the effective treatment of borderline personality disorder (BPD). Metacognition, or the patient's capacity for awareness of mental states, is under-explored as a predictor of the TA. We therefore examined whether metacognition predicted alliance and if metacognition and TA together predicted psychological distress in the context of a brief psychological treatment for BPD.

METHOD: We included $N = 36$ patients with BPD diagnoses in a secondary analysis of a randomized controlled trial. We assessed the TA session by session (Working Alliance Inventory), metacognition at session 1 (using the Metacognitive Assessment Scale-Revised) and outcome (using residual gains on the Outcome Questionnaire-45.2 between sessions 1 and 10).

RESULTS: Greater capacity to understand others' minds treatment onset predicted an increase in therapist-rated alliance over time. Therapist rated alliance was the only significant predictor of psychological distress ($B = -0.85$, R Squared = .12).

CONCLUSIONS: Better metacognitive capacity to understand others' minds, predicted TA which in turn affected psychological distress-related treatment outcomes. Metacognition presents a possible therapeutic target in severe BPD. Future studies could explore other aspects of metacognition in patients with higher functioning, impact of different treatment modalities and delivery.

Keywords: Borderline Personality Disorder; Metacognition; Therapeutic Alliance; Therapist Responsiveness; Predictor; Motive-Oriented Therapeutic Relationship

INTRODUCTION

Borderline Personality Disorder (BPD) is a prevalent mental disorder, characterized by intense emotions, impulsivity and identity and interpersonal problems. Effective treatment options exist, particularly in the psychological therapies (e.g., Bateman & Fonagy, 2009; Linehan, 1993). However not all patients respond sufficiently to structured psychotherapies, and there remain significant questions over what works for whom. One avenue to optimize treatment protocols is to identify individual-level patient predictors of engagement and markers for treatment processes.

One factor that could limit the effectiveness of treatments for BPD may be insufficient therapist-patient collaboration – or TA. A positive and sustained TA has been linked with cross-modal and transdiagnostic improvements in the likelihood of positive therapeutic outcomes (Horvath, Del Re, Flückiger & Symonds, 2011; Flückiger, Del Re, Wampold & Horvath, 2018). In BPD, there is contradictory evidence for the association between the he strength of TA and both treatment outcome and retention in therapy,. Therapist rated alliance at 6 weeks predicted treatment drop-outs, whilst early alliance scores were not related with subsequent change (Gunderson, Najavits, Leonhard, Sullivan, & Sabo, 1997). In another study, both therapist- and patient-rated alliance early in treatment predicted dropout, and patients who increased their alliance rating in the first phase of treatment reported greater clinical improvement (Spinhoven, Giesen-Bloo, van Dyck, Kooiman, & Arntz, 2007). Patients who had a better alliance were also more likely to attribute positiveoutcomes to treatment (Marziali, Munroe-Blum, & McLeary, 1999; Yeomans et al., 1994). Furthermore, patient personality traits may play a role. For example, individuals with higher trait agreeableness had greater growth in development of the TA over time in specific treatments (i.e., DBT) with increases in alliance associated with better treatment outcomes (Hirsh, Quilty, Bagby, & McMain, 2012).

This mixed picture suggests more evidence is needed to identify core patient predictors that contributing to the development of the TA, and conversely to identify factors that may impinge on its development. Poor metacognitive capacities represent one aspect that may impact development of the TA across treatment. Metacognition refers to the ability to recognize and reflect on mental

states relating to oneself and others, incorporating both cognitive and affective components, and including the ability to use mental state knowledge for purposeful social problem solving (Carcione et al., 2010; Dimaggio & Lysaker, 2010; Semerari et al., 2003; 2007). Metacognitive capacities include three broad functional domains: First, self-reflection, denoting the capacity to form increasingly complex ideas about the self (Lysaker & Dimaggio, 2014; Semerari et al., 2007). Higher order functioning in this domain include being able to recognize that our ideas do not necessarily mirror reality and to form an integrated view of oneself. Second, the understanding of others' mind includes the ability to recognize what others think and feel on the basis of overt cues, knowledge of contextual factors and awareness of the personal history of the interlocutor. It also refers to the capacity to appraise others' perspectives as different from ones' own (Semerari et al., 2007). Third, the mastery domain denotes the capacity to solve relational problems and soothe psychological distress via the use of adaptive strategies grounded within awareness an increasingly complex awareness of mental states and mental state knowledge (Carcione et al., 2011). Deconstructing metacognition into these functional domains is important, as these components provide richer information than a global evaluation of metacognition. For example, some individuals may have impairments in self-awareness, leading to limitations in purposeful problem-solving; whilst others have preserved self-awareness, but are unable to use this capacity for effective problem-solving (Semerari et al., 2005).

Patients presenting with complex psychopathology display impairments in several lower-order functions of metacognitive capacity (Maillard et al., 2017; Pellecchia et al., 2017; Semerari et al., 2005; 2014; 2015). These individuals also experience significant difficulties in using mental state knowledge for purposeful problem solving (Carcione et al., 2011; Lysaker et al., 2014). In the context of therapeutic collaboration, it may be assumed that the quality of the patient's capacity of thinking about other's mental states (i.e., the second sub-function outlined above) impacts upon the TA. Knowledge about the differential role that types of metacognitive capacities play in alliance formation may help clinicians attend to specific aspects of metacognition early in treatment and

tailor treatment accordingly. For example, when patients struggle to describe their emotions, treatment should first focus on improving this capacity, before guiding awareness of the maladaptive schemas underlying their dysfunctional social relationships.

Metacognition is conceptually akin to mentalization (Fonagy, Luyten & Bateman, 2015; Fonagy & Bateman, 2016). Similarities are that both focus on the human capacity to recognize, name, distinguish and reason about mental states both in oneself and in the others (Semerari et al., 2007). Both metacognition and mentalizing focus upon the capacity to distinguish mental states from reality, for example the realization that anxiety does not necessarily indicate impeding catastrophe, but is instead an emotion, or that if we think another is cheating on us this is not necessarily true, but is first and foremost a guess. However, there are differences between metacognition and mentalizing. First, mentalizing is considered to emerge in the context of disrupted attachments (Fonagy & Bateman, 2016), whereas metacognition develops as a function of the perceived status of a wide array of evolutionarily selected motives, including social rank, exploration, autonomy, group inclusion and sexuality (Liotti & Gilbert, 2011; Dimaggio et al., 2015). Though both concepts utilize the capacity to use mental state knowledge for the purpose of self- and interpersonal regulation, metacognition describes this capacity (mastery) in a more nuanced way (Carcione et al., 2011). Second, mentalizing includes both implicit and explicit operations, whilst metacognition focuses on the conscious component only. Finally, mentalizing adopts the concept of hypermentalizing (Sharp et al., 2016) - over specifying others' mental states. In metacognitive terms, this is still considered poor metacognitive capacity. We consider that when individuals "hypermentalize" they are adopting fast schema-driven attributions without questioning them, ergo they lack the capacity to differentiate (Dimaggio & Brüne, 2016).

Predicting the TA in psychotherapy

To date, there has been little research on baseline predictors of TA in BPD treatments - both cross-sectionally and measuring TA. More broadly, for any mental condition, predictors of TA can

be divided into therapist-related, relational and patient-related factors. For therapist-related factors, theoretical background, expertise and personal characteristics appear important. For example therapists with higher facilitative interpersonal skills achieved better client-rated alliance and better outcomes (Anderson et al., 2016). Also therapists' attachment predicts the quality of the therapeutic relationship (Shafran et al., 2016; Steel et al., 2017).

Relational factors also influence the alliance. A crucial aspect may be the presence of in-session corrective relational experiences, which associate with higher patient-rated alliance, compared to patients who do not experience corrective experiences (Huang et al., 2016).

Patient factors are also important. The capacity to experience affects in session was linked to better TA in patients with depression (Town et al., 2017) and attachment organization also relates to TA (Bernecker et al., 2014). The number of criteria on narcissistic, borderline, histrionic and antisocial personality disorders negatively predicted alliance in a residential treatment for clients with substance abuse (Outcalt et al., 2016). The way patients presented themselves influenced therapist-rated alliance, with individual agenda setting, and self-promotion more positively rated, while individuals who tended to supplicate elicited more negative reactions. Patients' views differed slightly, and agenda-setting negatively impacted on their perception of the alliance, whereas self-promotion had a positive impact (Frühauf et al., 2015).

Among patient factors, there is evidence that metacognitive capacities affects TA. A patient presenting with higher metacognitive capacities is more likely to cognitively construe the therapist and the therapeutic interaction in a nuanced and more positive way. A metacognitive readiness for a positive alliance may result in a warmer, more robust interpersonal bond with the therapist. Indirectly, a therapist working with a patient with preserved metacognitive capacities may feel more accepted, welcoming, effective and is less likely to have to work through negative countertransference.

Similarly, in cognitive-behavior therapy for depression, poor awareness of affect negatively impacts upon therapeutic change, mediated by patient-rated alliance (Quilty et al., 2017). Poor

affect awareness predict spoor treatment response in group therapy for BPD (Ogrodniczuk et al., 2011), though this has been challenged (Joyce et al., 2013). Metacognition, TA and therapeutic technique also interacted in the early stages of therapy. Metacognition mediated the relationship between the type of intervention and TA in moments where collaboration among patient and therapist was positive; this effect vanishes after a rupture in the TA (Locati et al., 2019)

In addition, Reflective functioning (the operationalization of mentalizing; Fonagy et al., 1998) predicted lower therapist-rated alliance in treatment of depression and depression-specific reflective functioning predicted lower patient-rated alliance (Ekeblad et al., 2016).

Fostering the TA in borderline personality disorder treatment using individualized case formulations

Research into the alliance points to the necessity of a detailed understanding of the patient's intake features, aided by case formulation. In a controlled study, Kramer, Kolly et al. (2014) randomized patients with BPD to two conditions: a) a standard brief treatment based on psychiatric principles (Gunderson & Links, 2014) and b) the same treatment augmented with an individualized case formulation according to the principles of Plan Analysis (Caspar, 2007). Brief treatment, as used in this context, is an initial treatment step in a stepped care treatment plan. It makes clinical sense to offer a 'good enough' treatment based on psychiatric principles as a first line intervention for BPD, reserving specialized psychotherapy for more acute or severe presentations (Choi-Kain, Albert & Gunderson, 2016). A case formulation using this methodology yields a set of structured hypotheses on the links between observed behaviors, experiences and their instrumental underpinnings (such as plans). The individualized formulation of the underlying plans, and how these instrumentally link to each other, may be used proactively when creating a safe, and individually tailored psychotherapeutic relationship. Evidence demonstrates that this case formulation, and the ensuing motive-oriented therapeutic relationship, focusing on the underlying (acceptable motives), rather than the more problematic low-order Plans or behaviors, yields

promising results(Caspar, 2007). In the aforementioned controlled study, whereas both conditions produced comparable reductions in borderline symptoms, patients receiving individualized treatment had a more positive trajectory on general symptomatic improvement (Kramer et al., 2014). In terms of the TA, there were no between-condition differences in patients' views of the dynamic evolution of the TA, but the therapist in the individualized condition rated the alliance more positively over time (Kramer et al., 2014; a greater degree of patient-therapist rating accordance was also found for the motive-oriented therapeutic relationship (Kivity, Levy, Kolly, & Kramer, 2019). While this study demonstrates the relevance of an individualized treatment component for process and outcome at the beginning of therapy for BPD, the potential baseline features affecting the alliance remain underspecified. Given the centrality of metacognition as potential predictor, it may be that treatment individualization (e.g. Plan Analysis; Kramer et al. 2014), may moderate the association between metacognitive capacities, TA, and outcome (Kramer & Stiles, 2015). Individualizing therapy may particularly affect the predictive role of metacognitive capacity at baseline, as treatment individualization gives a novel articulation to the patient's disruptive experience, contributing to a symbolizing process that may affect process and outcome in psychotherapy (Kramer, 2019).

Study Aims

In the current study, we investigated the relationships among metacognition, alliance and psychological distress in a randomized controlled trial for BPD. We hypothesized that baseline metacognitive capacities impacted upon alliance and psychological distress in the following ways: 1) greater baseline metacognitive capacities would associate with higher TA, from both patient's and therapist's perspectives; 2) greater metacognitive capacities at baseline would associated with greater session-by-session increase in the TA, from both patient's and therapist's perspectives; 3) individualization of treatment would moderate the link between metacognition and the TA.

METHOD

Design

The present process-outcome study builds on an outcome study on individualizing brief treatment for patients with BPD (Kramer, Kolly et al. 2014), and a subsequent process-outcome mediation analysis on a sub-sample of $N = 57$ patients (Kramer, Keller et al. 2017) . In the original study, the patients were randomized to either 10 weekly sessions of brief psychiatric treatment alone (Good Psychiatric Management, GPM; Gunderson & Links, 2014) or to 10 weekly sessions of brief psychiatric treatment with the motive-oriented therapeutic relationship component (MOTR; i.e., the individualized or responsive treatment; Caspar, 2007). The research protocol was approved by the local ethics board (clearance number 254/08), as well as the research committee of the university department.

Participants

Patients

Out of the $N = 57$ patients from the previous process-outcome study, we retained $N = 36$ patients for the present in-depth analysis of metacognition and the alliance over time. We excluded $n = 18$ patients with an intake session involving structured assessments (i.e., diagnostic, suicidal or addiction) unsuitable for process coding of metacognition, $n = 1$ patient being treated with translator, $n = 1$ patient with head injury potentially affecting the process coding, as well as $n = 1$ patient with missing alliance data ($N = 36$ in total in the sample). Of these, 16 were attributed to the GPM condition and 20 to the GPM + MOTR condition. At baseline, the two conditions did not significantly differ in terms of age ($t = -0.68$, $p = .50$), gender (χ^2 (1) = 1.89, $p = .17$), employment (χ^2 (1) = 3.55, $p = .31$), number of BPD criteria ($t(34) = -0.32$, $p = .75$), number of Axis I diagnoses ($t(34) = -0.07$, $p = .91$) and II ($t(34) = 0.27$, $p = .79$), Global Assessment of Functioning ($t(34) = -1.62$, $p = .11$), level of OQ-45 symptoms ($t(34) = -1.04$, $p = .31$) or level of metacognition ($t(34) = 1.68$, $p = .10$). The two conditions differed in terms of marital status (χ^2 (1) = 8.80, $p = .01$), with patients from the GPM + MOTR condition more likely to be married than in the GPM condition.

Psychiatric diagnoses were assessed by trained clinicians with the Mini International Neuropsychiatric Interview (Lecrubier et al., 1997) for DSM-IV axis I and the SCID-II (First & Gibbon, 2004) for DSM-IV axis II. On average, patients presented with 7.08 (*SD* = 1.5) BPD criteria.

Therapists

Ten therapists delivered GPM-based treatment: 1 therapist treated 4 patients, 1 therapist treated 2 patients, 1 therapist treated 3 patients, and 7 therapists treated 1 patient. For the GPM + MOTR condition, a total of 5 therapists delivered treatment: 1 therapist treated 8 patients, 1 therapist treated 6 patients, 1 therapist treated 3 patients, 1 therapist treated 2 patients, and 1 therapist treated 1 patient. Therapists were 6 psychiatrists and 6 psychologists with at least 1 year of psychiatry residency and a basic psychodynamic background; and 3 therapists were nurses.

Treatments

GPM condition: 10 weekly sessions of GPM psychiatric treatment for BPD were offered to the patients (Gunderson & Links, 2014). Additional treatment was offered to patients if required (Kramer, Stulz et al., 2017), consistent with a stepped care approach to BPD (Choi-Kain et al., 2016). Manualization adapted the principles of GPM treatment to a 3-month brief treatment (Kolly et al., 2010), with the following objectives and contents: communication of psychiatric diagnoses, comorbidities and psychiatric anamnesis, definition of the principle problems and treatment target, identification of short-term objectives, recognition of and dealing with difficulties interfering with the treatment and finally formulation of the relational interpretations of core conflictual themes.

MOTR condition: The MOTR condition was the same as the GPM condition, with the additional implementation of an idiographic case formulation following the principles of Plan Analysis and the motive-oriented therapeutic relationship (MOTR; Caspar, 2007), aiming at individualizing the initial 10 sessions.

Treatment adherence was assessed cross-sectionally for both treatment conditions. As expected, both conditions presented with high-level adherence to GPM principles (non-significant

difference, Kramer et al., 2014) and the MOTR condition outperformed the GPM condition with regard to adherence to the individualized motive-oriented therapeutic relationship (t (1, 59) =10.62; p<.001)

Measures

Working Alliance Inventory – Short Form (WAI; Tracey & Kokotovic, 1989). We used the French version (Corbière, Bisson, Lauzon, & Ricard, 2006) of this 12-item self-report questionnaire. It aimed at assessing patient- (WAI-P) and therapist-rated (WAI-T) alliance on a 1 (never) to 7 (always) Likert-type scale. Questionnaires were completed after each therapy session. Internal consistency was excellent (α = .90 – .96).

Outcome Questionnaire-45.2 (OQ-45; Lambert, Morton, Hatfield, et al., 2004) is a self-report questionnaire designed for assessing three domains of mental health functioning and their change due to treatment: symptom distress, interpersonal functioning and social role. Items are assessed on a 4-point Likert scale, ranging from 1 (never) to 4 (always). A global score and scores for each subscale are computed. The OQ-45 has been translated and validated in French (Lambert et al., 1996). It was given after first and penultimate sessions. Cronbach's alpha was α = 0.94.

Metacognition Assessment Scale-Revised (MAS-R; Carcione, Dimaggio, Conti, Nicolò, Fiore, Procacci, & Semerari, 2010) is an observer-rating scale that provides an assessment of metacognitive abilities and their changes in individuals' narratives. The MAS-R provides a global score as well as a score for three metacognitive domains and their sub-functions:

1) Understanding of one's own Mind (UM subscale) denotes the ability of a person to understand his/her own mental states. The three sub-functions of UM are: 1) *Monitoring* - the recognition and description of cognitions and emotions as well as their links with behaviors; 2) *Differentiation* - the ability to identify the difference between fantasies or beliefs and reality; 3) *Integration* - the ability to form a comprehensive and coherent view of the self.
2) Understanding of Other's Minds (UOM subscale) denotes the ability to understand others' mental states. It includes 1) *Monitoring* - the recognition and description of others' cognitions,

emotions and their links between them and others' behaviours; and 2) *Decentration* - the ability to put oneself in others' shoes and make hypotheses about others' mental states, independent of one's own perspective.

Mastery (M subscale) denotes the capacity to use mentalistic knowledge and adopt an active attitude in order to cope with suffering and solve conflicts. Three different levels exist, from more behavioral to more complex and nuanced knowledge on mental states.

3) All sub-functions are rated on a 5-points Likert scale ranging from 1 = "scarce" (sporadic, poorly articulated, not spontaneous, probing does not generate improvement) to 5 = "sophisticated" (sustained talk about mental states, description are rich, talk of mental states is spontaneous or there is an autonomous elaboration of a question/suggestion). The rating scale also provides the possibility to score "not engaged" when a sub-function does not appear in the transcript.

Procedure

MAS-R assessment and rating. Once the outcome study completed, video-recorded intake sessions of the *N* = 36 patients were transcribed word by word (Mergenthaler & Stigler, 1997). MAS-R ratings were based on the transcripts. In each transcript the number of speech turns were calculated, then divided by 3. Each third was considered a scoring unit. (Carcione et al., 2010; Maillard et al., 2017).

Two independent raters, the first and the second authors, along with a Master's degree student, scored each unit. The first author is one of the creators of the MAS-R and second author is a psychologist with a 5-year experience in clinical and research settings who was trained for 6 months in the MAS-R scoring of 3 Adult Attachment Interviews and 7 therapeutic sessions (separate from the present study). All scorers were blind to any information concerning participants or sessions. A consensus score was used for the data collection. In former studies the MAS-R correlated with symptoms and functioning (MacBeth et al., 2014; Mitchell et al., 2012).

Psychometrics have not been investigated for the MAS-R, though the MAS-Adapted reports robust properties (Lysaker et al., 2005; 2014).

Statistical analyses

For the preliminary analyses, inter-rater reliability analysis was conducted using Intra-Class Coefficients (Shrout & Fleiss, 1979) on 20% of the ratings. In order to establish outcome indexes, a Paired sample *t* –test, and an ANCOVA (between-condition comparison, controlling for symptom level at intake) were conducted. Given the differences between conditions, as defined by design, condition was always introduced as moderator in the analyses (not just on the level of hypothesis 3).The first hypothesis designating the impact of MAS-R on the mean WAI (P and T) was tested using a single regression model for each of the averaged (over time) WAI-perspectives (P and T). Even though the hypothesis concerns the MAS-R subscale of understanding of other's mind (UOM), the other subscales were tested for discriminant predictive validity purposes. The second hypothesis assumed that MAS-R had an impact on the alliance progression over the course of therapy. In order to test this hypothesis, we conducted two parallel (for each WAI-perspective as dependent variable) Hierarchical Linear Models (HLM; Bryk & Raudenbush, 1987) with the following coefficients (on level 1 were the sessions, on level 2 the patients (Level 1: $\gamma_{ij} = \beta_{0j}*(\text{session}) + \beta_{1j} + \varepsilon$; Level 2: $\beta_{0j} = \gamma_{00} + \mu_{0j}$; $\beta_{1j} = \gamma_{10} + \gamma_{11}*(\text{MAS-R}) + \gamma_{12}*(\text{condition}) + u_{1j}$). Basically, each WAI-perspective across sessions was modeled (with intercept and slope) with MAS-R at baseline and the condition. In order to control for therapist effects known to be of importance, we introduced a third level on which therapist's effects were modelled: $\gamma_{00} = \pi_{00} + r_{00}$; $\gamma_{10} = \pi_{10} + r_{10}$; $\gamma_{11} = \pi_{11} + r_{11}$. The third hypothesis formulated a link between the process variables (MAS-R and WAI) and outcome, with a particular focus on the moderating effect of the condition (standard vs individualized). In order to test this hypothesis, we used a regression model (method stepwise) with the most significant (mean and slope) predictors from the earlier analyses. The method stepwise (backward) removal is particularly performant in defining a parsimonious model, by maximizing the explained variance by the model while at the same time using a limited number

of predictors. All Hierarchical Linear Modelling were computed with HLM7, all other analyses with IBM SPSS 25.

RESULTS

Preliminary analyses

MAS-R scoring's inter-reliability for 20% of the transcripts (*N* =15) was excellent with a mean ICC (2, 1) = .81 (*SD* = .17, range = .65 - .96). Before t-tests, we confirmed normal distributions of relevant variables and between-condition comparability of the variances of each variable. Taken together, both conditions taken together showed a significant pre-post decrease in symptoms (OQ-45: $t(35) = 4.16$, $p = .00+$). We also found a marginal outcome advantage favouring GPM + MOTR, compared to the standard condition, after controlling for symptom level at intake ($F(35) = 4.05$, $p = .05$). These results were not affected by patient's marital status.

Does metacognition affect the alliance average and progression?

Using single regression models, there was no significant predictive link between MAS Total at intake and alliance mean scores. MAS Total predicted only 1% of the variance of the patient's mean alliance and only 5% of the variance of the therapist's mean alliance This result was consistent across the three sub-scales, for both rating perspectives, and remained unaffected by the patient's marital status.

When explaining the alliance progression over the course of the first 10 sessions of therapy, patient's perspective and metacognitive abilities at intake did not affect alliance progression. This was consistent for all sub-scales of MAS-R and independent of treatment condition (Table 1). For therapist perspectives, the averaged sub-scale Understanding the Other's Mind (UOM) at intake affected alliance progression (Table 2), with higher UOM scores leading to a steeper slope for increase in therapist's coded TA over time. This result remained unaffected by treatment condition and therapist effects modeled at level 3 of the HLM.

Predicting therapeutic outcome with metacognition, TA and treatment condition

Given the central role of the TA coded by the therapist in the dynamics of the impact of the MAS, we focused our final analyses on comparing the predictive power of patient's vs therapist's coded alliance, with MAS and condition as moderator, on the distal outcome (symptom change after session 10). Linear regression models, using stepwise methods, included both static (mean alliance) and dynamic (alliance slope) predictors of outcome. First, dynamic predictors did not affect outcome significance, however static predictors did. Second, the mean of the therapist's coded alliance emerged as the only significant predictor outcome variance (12% of the variance; Table 3). Re-running the models incorporating patient's marital status did not alter the results.

DISCUSSION

The TA may be an important factor for any treatment, and in particular for patients with BPD (McMain et al., 2015). It is therefore critical to understand predictors of alliance formation over time. Our first two hypotheses were that baseline understanding of other's minds were linked with patient and therapist perceptions of TA. Patients with higher understanding of others' minds may be quicker to take the therapist's perspective and constructively use therapist's observations. Whereas neither patients' nor therapists' average assessments of the level of alliance were connected to understanding other's minds at treatment onset, we found a link between metacognitive understanding of other's mind at treatment onset and change in TA. Therapists assessed the alliance increasingly positively with patients who had a more developed awareness of others' minds. One may hypothesize that the patients' manifest capacity to reflect on others (UOM) gave therapists a greater sense that their treatment plans were understood, imbuing the interaction with a sense of cooperation and mutual progress. Therapists may also therefore be more optimistic about therapeutic prognosis and trajectories with patients presented with greater reflective capacities regarding others. Conversely, facing patients with difficulties in the capacity to

understand others, results suggest that the therapists may appraise them as non-cooperative or hostile, with therapist self-attributions of frustration or uselessness (Dimaggio et al., 2007).

The capacity to understand others' minds did not influence patient assessments of TA, both mean scores and TA progression. We speculate that early in treatment, patients with BPD may either underestimate or overestimate the quality of the cooperation and the possible gains which may be obtained through, and that estimation arises independently of their capacity to form a nuanced understanding of others' minds. In a brief treatment frame this early phase may constitute the entire treatment window. For example, they may either idealize the therapist and the therapy or be desperate and hopeless - however both conditions may influence evaluations of TA. Moreover, the global measurement of the patient's self-reported TA ((Levy et al 2010) may ignore more subtle moment-by-moment state fluctuations characteristic of patients with BPD in variables relevant to both cooperative (i.e., TA) and metacognitive abilities (Locati et al., 2019). Perhaps treatment was also too short for change in patient's capacities to affect the mean and the progress of the TA in BPD (Semerari et al., 2007).

It is also possible that TA was affected by variables other than metacognition, such as emotion dysregulation, capacity to experience affect in session (Town et al., 2017) and patients' attachment organization (Bernecker et al., 2014). Results therefore need replication in other samples, possibly with more preserved socio-economic status and higher functioning, or measuring other hypothesized variables that could influence associations between alliance and outcome.

The observation that no other metacognitive ability functioned as a predictor also speaks to the lack of discriminant predictive validity of the specific sub-scales of the MAS-R. Concepts measured by the MAS-R sub-scales UM (Understanding own's mind) and M (Mastery) did not affect the TA in this specific manner.

Our third hypothesis assumed that TA and metacognition, moderated by condition, predicted outcome. We hypothesized that higher metacognitive abilities, together with a productive alliance

and individualized treatment would contribute to symptom reduction. Results did not support a moderating role of the individualized condition. Although 12% of the variance may be considered a small effect, we tentatively conclude that our results only supported the predictive role of therapist coded alliance on outcome; metacognitive capacities were not retained in the most parsimonious regression model. Earlier studies have underlined the importance of therapist perspective when rating TA in BPD (Kivity et al., 2019; Kramer, Flückiger, et al., 2014). This may be due to disorder-specific difficulties that these patients evoke in the therapeutic relationship: therapist appreciation of the collaboration and bond may this constitute the crucial component for further process and outcome in psychotherapy for BPD. The observation that the individualization of the intervention, here in the form of the motive-oriented therapeutic relationship, did not result in any moderating effect in the context of the present study is also worth commenting upon. Individualized treatment affects therapy process and outcome only under certain circumstances. Metacognitive baseline predictors and the TA are both strong predictors. thus the potential contribution of individualizing therapy may have been overridden by these variables. More research is needed in this domain, both using larger samples in the context of RCT designs in this group, and using qualitative descriptions to elucidate change processes in these treatments (Kramer, 2017). Also, the moderating effects of treatment condition on the link between alliance and outcome could be explored in therapies specifically tailored for poor mentalistic capacities (e.g. Bateman & Fonagy, 2004; Dimaggio et al., 2007; 2015).

Taken together, our results give preliminary evidence for a sequential model explaining the dynamics of how initial symptomatic improvement emerges in patients with BPD. Baseline features of patients with BPD, such as their capacity to reflect on others' minds, may not directly impact on symptom improvement over the first few sessions of therapy, but these features may be mediated by the level of therapist-rated TA . This model speaks to the important role therapist's perception of collaboration has in the initial sessions of therapy for BPD: he/she faces patient-related negative

aspects such as hostility and be able to prevent ruptures or readily repair them (Eubanks, Muran & Safran, 2018; Wolf, Goldfried, & Muran, 2017).

There are a number of clinical implications of this sequential understanding of change in brief treatments. First, therapists may benefit from training enabling them to accurately identify patient's capacities of understanding others' minds, facilitating more productive therapeutic collaboration. Second, treating patients with BPD, especially severe forms, may elicit many forms of negative reaction in the therapist (Colli et al., 2014; Searles, 1988) ranging from anger to self-criticism, guilt, anxiety, worry, overwhelming, overinvolvement, pessimism and frustration, leading therapists to losing motivation to retain the patient in therapy (Cleary, Siegfried, & Walter, 2002; McMain et al., 2015; Rossberg, Karterud, Pedersen, & Friis, 2007).

We note limitations to the study. There was a small sample size, and there were few significant findings, although the observed effects may be of clinical significance. Also, the sample is a re-analysis of previously published work; all limitations pertaining to the original study (Kramer et al., 2014) apply here as well. Our sample also involved significantly symptomatically impaired individuals, limiting generalization to higher functioning samples and different cultural contexts. Moreover, treatment delivery was brief, suggesting replication within longer treatments. Variables not measured here may also have impacted upon process and outcome, such as attachment history, maladaptive interpersonal schemas, affect expression and emotional dysregulation. Future studies need to assess these variables in order to form an increasingly accurate picture of the therapy process.

Overall, our results demonstrated a limited role of metacognition in predicting psychological distress in short-term treatment for severe BPD. TA was a relevant predictor, as was patient's metacognitive capacity to understand others' minds, both of which had an impact on therapist-rated alliance. Although the impact of metacognition was smaller than hypothesized, a treatment focus on metacognition is still warranted (Dimaggio et al., 2007; 2015). Mindful of problems in understanding others' minds, therapists may swiftly adapt their interventions, for example attending

to making their therapeutic intentions crystal clear to the patient, continuously asking for feedback and checking how patients appraised the therapeutic interaction in the moment. These techniques are likely to buffer the negative impact of impairment in specific metacognitive domains and potentially increase the likelihood of positive therapeutic change.

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Table 1: Patient's alliance progression as predicted by baseline metacognitive capacity (HLM; *N* = 36)

Variable	Coefficient	robust SE	*t* (33)	*p*
Total MAS	-1.89	3.43	-0.55	.59
Condition	2.79	3.91	0.71	.48
Mean UM	-1.97	3.29	-0.60	.55
Condition	2.57	3.94	0.65	.52
Mean UOM	-0.94	3.29	-0.29	.77
Condition	3.00	3.89	0.77	.45
Mean M	-1.32	3.04	-0.43	.67
Condition	3.14	3.74	0.84	.41

Note. HLM: Hierarchical Linear Modeling; MAS: Metacognition Assessment Scale; UM: Understanding of one's Own Mind; UOM: Understanding of Others' Minds; M: Mastery; Condition: Standard General Psychiatric Management vs Individualized (using the Motive-Oriented Therapeutic Relationship Component) General Psychiatric Management.

Table 2: Therapist's alliance progression as predicted by baseline metacognitive capacity (HLM; *N* = 36)

Variable	Coefficient	robust SE	*t* (33)	*p*
Total MAS	2.40	3.01	0.80	.43
Condition	0.13	2.76	0.05	.96
Mean UM	0.22	2.56	0.09	.93
Condition	-0.23	2.73	-0.09	.93
Mean UOM	5.62	2.90	1.94	.04
Condition	0.83	2.75	0.30	.77
Mean M	3.01	2.64	1.14	.26
Condition	-0.22	2.55	-0.09	.93

Note. HLM: Hierarchical Linear Modeling; MAS: Metacognition Assessment Scale; UM: Understanding of one's Own Mind; UOM: Understanding of Others' Minds; M: Mastery; Condition: Standard General Psychiatric Management vs Individualized (using the Motive-Oriented Therapeutic Relationship Component) General Psychiatric Management.

Table 3: Predicting symptom change at session 10 with condition, mean alliance and baseline metacognitive capacity ($N = 36$)

Variables	R^2	B	SE	β	*t*	*p*
Model 1	.28					
Condition		-9.83	6.58	-0.24	-1.49	.15
Total MAS		10.06	6.82	0.23	1.47	.15
WAI Patient		-0.32	0.27	-0.18	-1.17	.25
WAI Therapist		-0.66	0.39	-0.27	-1.68	.10
Model 2	.25					
Condition		-9.85	6.61	-0.24	-1.49	.15
Total MAS		9.55	6.85	0.22	1.39	.17
WAI Therapist		-0.72	0.39	-0.29	-1.83	.08
Model 3	.12					
WAI Therapist		-0.85	0.40	-0.34	-2.11	.04

Note. Regression model using Stepwise method. R^2 non-adjusted. MAS: Metacognition Assessment Scale; WAI: Working Alliance Inventory. Condition: Standard General Psychiatric Management vs Individualized (using the Motive-Oriented Therapeutic Relationship Component) General Psychiatric Management.