Using Case Formulation for Prediction of the Therapeutic Alliance in Treatment for Borderline Personality Disorder

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Abstract

Background: Case formulation is a central tool for psychotherapists helping them to tailor psychotherapy to the individual patient, in particular for treatments for complex and multi-layered clinical problems, such as personality disorders (Kramer, 2019). Case formulation methodologies are still under-utilized in psychotherapy research in the prediction of therapy processes.

Methods: The present study included $N = 60$ patients with borderline personality disorder (BPD) undergoing a brief treatment, using an individualized treatment component ($n = 31$), as compared to a standard brief treatment ($n = 29$; Kramer et al., 2014). For each patient (in both groups as post-hoc analysis based on videos), we performed a Plan Analysis case formulation (Caspar, 2019): the idiographic information from the formulation was translated into quantitative scores (on a Likert-type scale) assessing patient's interactional agreeableness (vs antagonism; Zufferey et al., 2019). We modeled the session-by-session predictions of the progression of the therapeutic alliance – rated by the patient and the therapist – over the course of treatment, as a function of interactional agreeableness, the individualization of treatment, as well as their interaction with the session number.

Results: Patients with high levels of agreeableness have a significant increase in their alliance assessment over time. Treatment based on the case formulation predicted session-by-session increase of the therapeutic alliance as rated by the therapists.

Discussion: This study was the first to explore intra- and inter-individual dynamics of the therapeutic alliance in relationship with idiographic information extracted from case formulations. The results may help understand relationship struggles in the beginning of therapy for complex clinical problems, such as borderline personality disorder.

Key-Words: Case Formulation; Plan Analysis; Therapeutic Alliance; Borderline Personality Disorder; Prediction

Introduction

The domain of personality pathology undergoes a sea change and moves towards the conceptualization of empirically founded dimensions explaining psychopathology (Ruggero et al., 2019). Both the DSM-5 (APA, 2013; Alternative Model of Personality Disorders) and the ICD-11 (WHO, 2021) put severity of personality impairment at the core of the diagnosis, and in addition propose specific maladaptive trait domains as features which may inform diagnostics of personality pathology.

Trait domains according to such a dimensional conception of personality pathology are anchored in research on personality focusing on what personality *is* (i.e., the descriptive aspect) as opposed to what it *does* (i.e., the functional aspect; Allport, 1937). For the Alternative Model of DSM-5, these include (for the Criterion B) the maladaptive traits of negative affectivity, detachment, antagonism, disinhibition and psychoticism. Maladaptive trait domains affect psychotherapy process and outcome in global and specific ways (Bucher et al., 2019; Constantinou et al., 2020; Hirsh et al., 2012). A meta-analysis focusing on the Big Five conceptualization of personality traits included 99 studies ($N = 107'206$ patients) across different psychiatric difficulties, concluded that low neuroticism (i.e., akin to the concept of negative affectivity), high extraversion, high agreeableness, high conscientiousness and high openness predicted good psychotherapy outcome (Bucher et al., 2019), which was deemed consistent with the existing literature (Widiger et al., 2013). More agreeable patients tended to have a better overall therapeutic alliance ($r = .20$). Interestingly, these effects were moderated by treatment length: the longer the treatment, the greater the predictive links between traits domains and psychotherapy outcomes. Consistently, for patients undergoing interpersonal psychotherapy, Caspar et al. (2005) found that therapists intervene spontaneously more intensively oriented towards the patient's motives when the latter are non-assertive, exploitable and overly nurturant (as self-assessed on the Inventory of

Interpersonal Problems); of note, a case formulation was made using Plan Analysis based on the videos of the actual therapy sessions, which served to rate the quality of the therapist interventions. For treatment for depression, it was shown that patients' levels of negative affectivity and disinhibition negatively affected the response to psychotherapy (Constantinou et al., 2020). A recent study showed that predictive effects of trait domains on psychotherapy outcomes were specific to face-to-face interventions, while less present in the online format (Kerber et al., 2021). For patients with borderline personality disorder (BPD), specific psychotherapy modalities (e.g, Dialectical-Behavior Therapy) predicted the quality of the therapeutic alliance, where other types of treatment modalities (e.g., Good Psychiatric Management) do not (Hirsh et al., 2012). So far, it remains unclear whether personality dimensions, such as agreeableness, may be assessed using patient-derived idiographic methodologies and what the impact of such personality dimensions on the session-by-session evolution of the therapeutic alliance is. Such information may be particularly important in severe personality pathology, such as in patients with BPD, where problems with agreeableness are central (Morey et al., 2000; Zanarini, 2005), as is the necessary development, over time, of a positive therapeutic alliance in the context of BPD (Levy et al., 2010; Kivity et al., 2020).

Idiographic assessment has been defined as "the measurement of variables and functional relations that have been individually selected, or derived from assessment stimuli or contexts that have been individually tailored, to maximize their relevance for a particular client." (Haynes et al., 2009, p. 179), and they were developed in order to complement nomothetic, or group-based, methods which may tend to overlook singular features which may be determinant for a specific context. Typically, research relying on such assessments either aim at describing patterns of time-intensive responses (i.e., using ecological momentary assessment; Cardona et al., 2020; Fisher et al., 2015), or aim at explaining a

particular problem area using individual case formulations methodology from a variety of theoretical perspectives (Eells, 2013; Persons, 1991). It was argued that case formulation has the unique potential to personalize assessment and psychotherapy. It was argued that personality features being assessed using clinically-derived methods may increase the precision, clinical relevance and parsimony of the assessment (Haynes et al., 2009, 2011; Kramer, 2020), with levels of validity that are comparable to nomothetic assessments in specific cases (Haynes et al., 2009, 2011; Mumma et al., 2007; Weisz et al., 2011; Zufferey et al., 2019). For personality pathology, including different dimensions, as well as categories of personality disorders, case formulation methodology has been discussed as particularly relevant, precise and parsimonious, given the high complexity of clinical presentations often observed in these patients. A number of methodologies may be used and studied in this regard, although there is a lack of systematic research on case formulation for personality disorders (Kramer, 2019).

Interpersonal difficulties, such as defined by idiographic case formulations focusing on the patient's relationship impact on the therapeutic relationship, the patient's use of antagonistic behavior creating relationship difficulties in psychotherapy, and avoidance strategies potentially creating ruptures in the collaboration between the therapist and the patient, have the potential of explaining the dyadic influence of alliance ratings from one session to the next within a particular person (patient-patient, therapist-therapist), and between the therapist and the patient. Plan Analysis (PA; Caspar, 2019) may be one particular case formulation method explaining these interpersonal difficulties in a psychotherapy-relevant manner. Behaviors and experiences are understood as means to specific intraindividual Plans which prepare for action, thus creating heuristics an individual withan underdeveloped, rigid structure tends to over-use across different types of situations, and thus possibly contributing to the problematic patterns which mark personality pathology. An

idiographic formulation gets at the core of these intraindividual co-determining factors of behavior and experience (i.e., with the notion of "Plans"; Caspar, 2019, 2021), but it remains an open questions to what extent these dynamics affect the development of the therapeutic alliance over the course of psychotherapy. Results from idiographic methodology, such as Plan Analysis, may be translated into nomothetic variables. Zufferey et al. (2019) extracted from $N = 60$ case formulations nomothetic information on the level of the patient's in-session interactional agreeableness (on a Likert-type scale ranging between 1 and 7; with acceptable validity and reliability). Zufferey et al. (2019) showed that specific predictive links were found for this idiosyncratically anchored variable of interactional agreeableness and outcome in a brief treatment for BPD, where only for the standard treatment (and not the individualized treatment), agreeableness was related with symptoms at the end of the brief treatment. For the links of agreeableness with the averaged therapeutic alliance (by condition and by rater perspective) and for the links for agreeableness with the session-by-session progression of the therapeutic alliance (again by condition and by rater perspective), no significant association was found. This latter result may be because the alliance scores on a particular session may specifically depend on the alliance session on the previous session. To our knowledge, this sequential dimension in the prediction of the therapeutic alliance has not been investigated in treatments for BPD. The advantage of taking into account the alliance scores from the previous session is that the analyses can move towards causal explanations of posterior events by antecedent events (Pearls & Mackenzie, 2020). In addition, the effects of cross-lagged factors (i.e., impact of the previous alliance score from the patient on the alliance score of the therapist, or impact of the previous alliance score form the therapist on the alliance score of the patient) can be modeled (Falkenström et al., 2020).

Focusing on agreeableness, in relationship with the session-by-session prediction of the therapeutic alliance, in a brief psychiatric treatment may be particularly promising,

because a) effects of trait domains on process and outcome were observed to be stronger in long-term treatment and less is known for shorter treatments and b) such information would be clinically particularly relevant for treatment planning right from the beginning of treatment. In addition, there is a need for more controlled research on brief treatments for BPD (Kramer et al., 2021), to which this specific study aims to contribute.

The present study

The present study aims at exploring the impact of idiographically defined agreeableness (at intake) on the session-by-session prediction of ratings of the therapeutic alliance across therapy for borderline personality disorder. A second objective is the exploration of the effect of the therapist using of idiographic case formulation, using the motive-oriented therapeutic relationship, on the session-by-session prediction of the therapeutic alliance across therapy.

As such, our first hypothesis stated that patients with high idiosyncratically defined agreeableness present with stronger session-by-session (sequential) prediction of ratings of the therapeutic alliance than patients with low idiosyncratically defined agreeableness.

Our second hypothesis stated that therapies which used the idiosyncratic case formulation (in the form of the motive-oriented therapeutic relationship) present with stronger session-by-session (sequential) prediction of ratings of the therapeutic alliance than therapies without the use of the idiosyncratic case formulation.

Methods

Design

The present study is a secondary analysis of a two-arm randomized controlled trial (Kramer, Kolly et al., 2014, Kramer, Flückiger et al., 2014; $N = 85$ patients with borderline

personality disorder randomized) aiming at determining the additive effect of a responsive component based on case formulation to a brief psychiatric treatment. Two treatment conditions were compared: a) a brief version of a General (or Good) Psychiatric Management (standard treatment) to b) the same treatment augmented with an individualized Plan Analysis and the Motive-oriented Therapeutic Relationship (MOTR). The present study draws on the preliminary work by Zufferey et al. (2019) on validating the interactional agreeableness scale based on information from idiosyncratic case formulations, on a the completer sample of the original study ($n = 60$ patients included).

Participants

Participants of the present reanalysis were $N = 60$ outpatients presenting with Borderline Personality Disorder (BPD). The criteria of inclusion of the original study were an age between 18 and 65 years and a DSM-IV BPD diagnosis; exclusion criteria were the presence of a DSM-IV psychotic disorder, mental retardation and substance abuse as primary diagnosis. Standardized diagnoses were made using the Structured Clinical Interviews for DSM-IV-TR (First et al., 2004) and reliability was satisfactory ($\kappa = .81$; these reliability analyses were made based on 10% of the included patients by trained researcher-clinicians). The completers of the present reanalysis are described in a validation parent study (Zufferey et al., 2019).

Treatments

Study treatments lasted 10 sessions of psychiatric assessment and initial treatment, according to a brief version of GPM (Gunderson & Links, 2014; Charbon et al., 2019; Kramer et al., 2021). For the standard GPM treatment, therapeutic work and orientation around diagnosis and the model of interpersonal hypersensitivity were central. For the individualized treatment (GPM plus MOTR), the therapists were asked to implement a case

formulation based on the Plan Analysis right after session one, then use this information to inform the therapeutic relationship from session 2 until session 10 (i.e., by implementing the motive-oriented therapeutic relationship (MOTR)). In the context of a stepped care context, more treatment was offered for those patients who needed it; the need for more treatment was only discussed in the very last session (see the data on the follow-up of the present sample by Kramer, Stulz et al., 2017). The local ethics board (IRB) approved the research protocol (clearance number 254/08).

The outcome study has demonstrated excellent adherence coefficients for both conditions, according to both treatment models (GPM and the individualized MOTR component; Kramer et al., 2014). As reported in the original study, adherence to GPM principles was excellent in both conditions (in the GPM condition the average score was 4.32 (SD = 0.37), in the individualized MOTR condition, adherence to GPM principles was on average 4.37 (SD = 0.26), which did not differ, $t(1, 38) = 0.58$, $p = .57$), and adherence to the MOTR principles was significantly higher in MOTR condition (on average 1.55 (SD = 0.44)), compared to the standard GPM condition (on average 0.45 (SD = 0.38); $t(1, 59) = 10.62$, $p = .00+$).

Measures

Working Alliance Inventory – Short form (WAI-short version; Horvath & Greenberg, 1989), is a self-report questionnaire, measuring the different aspects of the therapeutic alliance (bond, agreement on tasks and goals) using 12 items. The items are evaluated on a Likert-type scale from 1 (never) to 7 (always), and an overall sum score is computed. At the end of every session, this instrument was administered to the patient and to the therapist. Mean Cronbach's alpha for this sample was $\alpha = .92$.

Plan Analysis - Agreeableness scale (PA-AS). This scale has been developed based on the qualitative information from the Plan Analysis from each patient to measure the interactional (in-session) level of agreeableness (Zufferey et al., 2019). Plan Analysis is an idiographic method of case formulation describing instrumental links between behaviors, experiences on the one hand and underlying, hierarchically ordered, Plans; each Plan – most are expected to be non-conscious – is composed of a means and an aim, also called the motive (Caspar, 2007; 2019). As a first step, the intake session served as information for the establishment of the patient's individual Plan Analysis (PA) depicted as a two-dimensional structure (on paper). In our study, the Plan Analyses were done by an independent researcher (in addition to being done by the therapist in the context of the trial). To facilitate the extraction of information related to interactional agreeableness, a seven-level Likert-type scale was developed based on prototypical examples of Plans. The PA-AS in a 7-point Likert-type scale ranging between «1» (antagonistic or not agreeable at all) and «7» (very agreeable). All formulated Plans from the Plan Analyses were rated based on PA-AS, so each Plan received a score of agreeableness. For example, "Present as hostile" was rated 1 on the PA-AS, and "Seek help in therapy" was rated 6 on the PA-AS. Convergent validity and reliability of the PA-AS reported were excellent (Zufferey et al., 2019). For the present study, the dichotomized score (1-4 "low agreeableness" vs 5-7 "high agreeableness"), was used based on the median-split of the distribution of the present sample.

Statistical Analyses

The interindividual variables of the sample (i.e., age, gender) are used to control for the baseline characteristics in the comparison between high versus low patient agreeableness, as well as for the comparison between the two conditions. In the tables, we will report the median and interquartile range for the continuous variables and number of observations and percentages for the categorical variables. To test the between-group differences, Wilcoxon

rank sum test is used for the continuous variables and Pearson chi-squared for the categorical variables. Also, further descriptive statistics are used to characterize the sample differences of WAI ratings with respect to the factors of interest (i.e., agreeableness and condition), by using a non-parametric Wilcoxon test.

To test our hypotheses, we fitted two types of models, a) non-lagged models (where the independent variables predicted each session-by-session change of the therapeutic alliance independently) and b) lagged models (where the therapeutic alliance was modeled as function of the predictor *and* the alliance assessed in the previous session, which corresponds to lag-1). For the predictors, we examined the potential effects of individualized agreeableness and condition on the session-by-session prediction of the therapeutic alliance, rated by the therapists and the patients. To do so, we use a random intercept mixed effect model, to account for the repeated measures of each individual. Further, we examine the significance of interaction between agreeableness and condition with the number of the session in the therapy. These terms define the effect of the variables on the session-by-session prediction in the model.

Firstly, the formula for the non-lagged models are:

$$WAIP_{is} = \beta_0 + \beta_1 Agreeableness_{is} + \beta_2 Condition_{is} + \beta_3 Session_{is} +$$
$$\beta_4 (Agreeableness_{is}) Session_{is} + \beta_5 (Condition_{is}) Session_{is} + u_i + \varepsilon_{is}, \tag{1}$$

$$WAIT_{is} = \beta_0 + \beta_1 Agreeableness_{is} + \beta_2 Condition_{is} + \beta_3 Session_{is} +$$
$$\beta_4 (Agreeableness_{is}) Session_{is} + \beta_5 (Condition_{is}) Session_{is} + u_i + \varepsilon_{is}, \tag{2}$$

Where, $WAIP_{is}$ is the alliance rating by the patient "i" at the session "s" and, $WAIT_{is}$ is the rating by therapist for patient "i" at time "s". The u_i, is the random intercept and it is assumed to follow a normal distribution.

Secondly, the formula for the lagged models are:

$$WAIP_{is} = \beta_0 + \beta_1 Agreeableness_{is} + \beta_2 Condition_{is} + \beta_3 Session_{is} + \beta_4 WAIP_{i(s-1)} +$$

$$\beta_5 WIAT_{i(s-1)} + u_i + \varepsilon_{is}, \qquad (3)$$

$$WAIT_{is} = \beta_0 + \beta_1 Agreeableness_{is} + \beta_2 Condition_{is} + \beta_3 Session_{is} + \beta_4 WAIP_{i(s-1)} +$$

$$\beta_5 WAIT_{i(s-1)} + u_i + \varepsilon_{is}, \qquad (4)$$

Where $WAIP_{i(s-1)}$ and $WAIT_{i(s-1)}$ are the first lagged value of $WAIP_{is}$ and $WAIT_{is}$ respectively.

For exploratory purposes, we attempted to predict symptom change (using the total score of the OQ-45 assessed in the end of the treatment; Lambert et al., 1996; see Kramer et al., 2014) by both models (non-lagged alliance and lagged alliance). All the analyses are done using the R software environment for statistical computing. A mixed effect model is fitted with the method REML via lme4 package from R and $p < 0.05$ is considered statistically significant.

Results

In this section, we present the results from the session-by-session prediction of the non-lagged therapeutic alliance first, then from lag-1 models. The results from the multiple regression analysis (non-lagged) focusing on the therapeutic alliance rated by patient, we found that high agreeableness predicts stronger session-by-session alliance (see Table 2; left portion of the table). For each session, an increase of 0.88 on the WAI (i.e., stronger session-by-session alliance) was observed for patients who were assessed as more agreeable, as compared with the patients who were evaluated as less agreeable.

For the assessment of the therapeutic alliance by therapists (non-lagged), we found that the type of treatment used is the main predictor of session-by-session development of the scores (see Table 2; right portion of the table). In addition to the positive effect of 1.10 score for each extra session of the therapy for each session, an increase of 0.80 on the scale of the WAI was observed, when comparing the patients who received the individualized treatment based on the case formulation (i.e., the motive-oriented therapeutic relationship, MOTR) to the patients who received the standard treatment (i.e., Good Psychiatric Management, GPM alone; see Table 2).

For the lag-1 models, where the additional effect of the previous alliance score was included in the prediction of the therapeutic alliance, we found significant positive association between lagged assessment of the alliance by the same perspective (either patient $r(340) = 0.75$, $p < .001$ or therapist $r(382) = 0.72$, $p < .001$; see Table 3). We also analyzed the effects of the cross-lagged -1 predictions (i.e., taking into account the previous alliance score from the patient on the therapist alliance score, and vice-versa). We found again significant association between cross-lagged perspectives (patient-therapist $r(348) = 0.13$, $p = .012$ and therapist-patient $r(351) = 0.18$, $p = .001$). Including both lags from same and cross perspectives in a multivariate analysis, we observe that only the lags from the same perspective stay significant as a predictor of alliance assessment scores in the models (see Table 3), and all other effects found in the non-lagged models above were non-significant.

For exploratory purposes, we attempted to test the link between these session-by-session models and change in the total intensity of general problems (using the OQ-45) at the end of the treatment. No significant effect was found in this regard (not reported in detail to save space).

Discussion

The present study aimed at a) exploring the relevance of translating idiographic material from systematic case formulations into nomothetic variables and b) testing the predictive value of such patient and therapist variables on the session-by-session progression of the therapeutic alliance over the course of brief psychiatric treatment for borderline personality disorder.

We showed that idiographic information – when it is systematically gained from case formulation – may be used reliably, validly and productively for hypothesis-testing paradigms, as suggested in the literature (Eells, 2013; Haynes et al., 2009, 2011; Kramer, 2020; Mumma et al., 2007; Weisz et al., 2011). In the present study focusing on patient's agreeableness, we open a much-needed perspective into possible ways of individualizing the dimensional constructs that are defining the future of personality pathology (Ruggero et al., 2019). So far, very little empirical work has been undertaken to address the individualization of these dimensions, - by breaking them down to the idiosyncracy of the patient – and we propose that case formulation methodologies (Kramer, 2019) may offer a unique contribution to do this.

Consistent with our first hypothesis, the patient's agreeableness, discussed as a psychotherapy-relevant trait domain of personality and personality pathology, predicts the session-by-session alliance, but only in the non-lagged prediction of the progression of the alliance. This effect seemed to be independent of the treatment condition; Hirsh et al. (2012) observed such a predictive effect on the therapeutic alliance only for dialectical-behavior therapy, but not good psychiatric management, no such effect was found in the parent study focusing on means and trajectories of the therapeutic alliance (Zufferey et al., 2019). We must note that the hypothesis in our study involved the interaction of agreeableness with the progression of the therapeutic alliance (session-by-session), while in Hirsh et al. (2012), the focus was on the prediction of the alliance irrespective of its progression. Also, the study by

Hirsh et al. (2012) used self-reported assessments of patient agreeableness using the NEO which may have overlooked subtle aspects in the interaction related to agreeableness (or aspects which were visible, but unaware to the patients) which our study was able to capture using individualized case formulations.

Interestingly, this effect of agreeableness was only found for the *patient* ratings of the therapeutic alliance, but not for the therapist's ratings. Consistently, Caspar et al. (2005) found in their study correlations with the quality of therapist intervention only for the patient-rated symptom change, not the one rated by the therapist. Our observation made on the alliance ratings done by the patient may speak to a different referential context discussed as influencing the therapist's ratings of the therapeutic collaboration and bond: these therapist ratings may be influenced by the therapist's theoretical assumptions, and clinical experience, and less by the actually observed and lived patient-therapist interaction (Horvath, 2000; Stiles & Horvath, 2017). The latter may be the source of the patient's assessment of the therapeutic alliance, thus explaining the differential effect of the agreeableness. Another explanation may be that there is a measurement-perspective issue here: a patient-related construct (as assessed by the PA-AS by a researcher) may be more strongly linked with patient rated alliance than with the therapist rated alliance, in particular in a clinical sample for patients with BPD where a divergence between self-experience and objective behavior may be observed. However, we acknowledge that the fact that the PA-AS was rated by an independent researcher makes this hypothesis less relevant.

Consistent with our second hypothesis, the use by the therapist of the plananalytic case formulation, by implementing the motive-oriented therapeutic relationship (MOTR) in the sessions of therapy, predicted the session-by-session evolution of the therapeutic alliance, but only in the non-lagged model. Interestingly, this effect was only found in the session-by-session prediction of the *therapist* ratings of the therapeutic alliance, but not in the patient

ratings of the therapeutic alliance. The therapist use of the MOTR, based on the case

formulation, may help him/her to appropriately select responses to the patient's in-session

behaviors and experiences (Stiles et al., 1998), thus represents a clinical operationalization of

how therapist responsiveness may be used in practice (Caspar, 2019, 2021). Our results

suggests that this explicit therapeutic work may impact positively the alliance from one

session to the next, but only in the therapist's own mind – or from his/her own rater

perspective. While this may look rather limited in scope, it may impact therapeutic outcome

after two to four months of treatment, in particular via the emotionally vulnerably patient's

reduced use of behaviors aiming at the regulation of stress and emotions which mediated the

effect of therapist responsiveness facing patients with borderline personality disorder

(Kramer et al., 2017). Of note, a therapist using the motive-oriented therapeutic relationship

based on a Plan Analysis was discussed as being highly "responsive" – or appropriately

attuned – to the patient's underlying motives and needs in the moment (Kramer et al., 2015;

Stiles et al., 1998). While this seems clinically meaningful and thus case formulations may

potentially be helpful to the clinical intervention facing patients with personality pathology

(Kramer, 2021), it may also create particularities in the psychotherapy research design (Stiles

et al., 1998). Among others, it was discussed that otherwise strong patient-related intake

predictors of symptom change may be "washed out" (Kramer & Stiles, 2015) in therapeutic

interactions marked by high intensity of therapist responsiveness. While more research on

these particularities of treatments based on therapist responsiveness is needed, our

observation that therapist responsiveness (here in the form of therapist focusing on the

patient's behavior-underlying motives) predicts the session-by-session progression of the

therapist ratings of the alliance is important. It points to very specific relationship

mechanisms involved when using a case formulation that involves then to use this

information to create a more productive therapist relationship over time. Differentiating

between the trait and state aspects of the therapeutic alliance, as proposed by Zilcha-Mano (2017), our pattern of results suggest that case formulation may have a particular impact on the fluctuating and session-dependent *state* aspects of the therapeutic alliance.

When including the therapeutic alliance from the previous session in our analyses (i.e., in the form of the lag-1 predictor), it appears in the multivariate model (Table 3) that this variable overrides all the effects found above. The impact of the alliance score, both from the same rater perspective (therapist-therapist, or patient-patient) and the alternative rater perspective (therapist-patient, or patient-therapist), from the previous therapy session may have a unique impact on the next session. The effects of more distal variables, such as ideographically assessed agreeableness at the first session, or therapy condition, may have been "washed out" by the effects from the scores of the previous therapy session. This results speaks to more detailed analyses of the process of change, as it unfolds in therapy for patients with BPD, by taking into account both the relevant predictor variables (i.e., in our study, interactional agreeableness gained from the idiographic case formulation) and the relevant process variables (i.e., in our study, the immediately previous alliance scores from two perspectives).

Interestingly, while it was not part of the hypotheses, we did not find an impact of the tested models on the main outcome (i.e. decrease in problems at the end of the brief therapy). While the parent study showed decrease in symptoms across several relevant domains, the agreeableness linked with the session-by-session therapeutic alliance was not predictive of the outcome in our study. While this result may tone down the expectations of what we can learn from presumable alliance-outcome links in studies with patients presenting with BPD (see Levy et al., 2010; Kivity et al., 2020), it may also help researchers focus on the clinically relevant and vital links between personality pathology variables as predictors (i.e., agreeableness) and the therapeutic collaboration as key process to be fostered in therapy.

The present study has several clinical implications. Firstly, therapist may be advised to carefully assess the subtleties of interactional agreeableness early in therapy, as the development of the therapeutic alliance may depend on the presence of – sometimes hidden – antagonistic features from the get-go. Secondly, in order to get a comprehensive understanding of the patient's functioning, therapists are advised to use case formulations to help them develop appropriate responses to patient's in-session behaviors and experiences. These case formulations, although sometimes time-consuming for an individual clinician, may go a long way in the understanding of relationship challenges, the definition of goals and means of the therapy and the construction of a positive therapeutic relationship. Knowing that at each session, under certain conditions (i.e., when using MOTR), an increase of almost one point on the alliance scale can be achieved is precious and may be helpful for clinicians. More critically and related with the non-significant effect of the MOTR in the lagged models, clinicians may also be advised to get the patient's feed-back of their alliance from immediately previous therapy sessions, as these scores may crucially inform the quality of the collaboration of a given therapy session. All of the above is crucial in several, if not all, evidence-based models for personality pathology, in particular borderline personality disorder, and in particular in the beginning of therapy (Bateman, Gunderson, & Mulder, 2015, Gunderson et al., 2018; Kramer, 2019).

Methodological strengths of the study involve the multi-method approach to hypothesis-testing, by including both nomothetic and idiographic sources of information, as well as multiple assessment perspectives (i.e., from patients, therapists and trained research raters). The study is a secondary analysis from a randomized controlled study, increasing the internal validity. The study had minimum exclusion criteria, increasing its relevance for diverse clinical contexts, and diverse psychotherapeutic practice. The study also offers a fresh look at the dimensional constructs in personality pathology and extends their validity by

proposing case formulation methodology as one way to individualize these constructs. However, there are several limitations to note. The sample size may be rather small (for formal hypothesis-testing), while the amount of time necessary for the idiographic formulations may be large. Therefore, there is a tension between the effort worth spending in detailed case formulation analyses and the statistical power required to test the hypotheses. The scale developed for the purpose of the analysis was anchored within the same clinical material than the material used for hypothesis-testing, which may introduce problems of generalizability to other samples and contexts.

In conclusion, personality trait assessment using nomothetic assessments may overlook more subtle, yet clinically relevant, manifestations that may be captured using idiographic assessments via case formulation methodology. While extensively used in clinical practice, case formulation bears great potential to be included in psychotherapy research designs to translate idiographic data into data that is accessible to hypothesis-testing. Idiographically anchored patient's agreeableness predicts patient's session-by-session evolution of the therapeutic alliance in brief treatment for borderline personality disorder. Therapists using plananalytic case formulations, by implementing the motive-oriented therapeutic relationship in session, predicts the therapist's session-by-session evolution of the therapeutic alliance in brief treatment. However, these effects seem to be washed out when we control for the alliance scores from the immediately previous session. More research should use other case formulation methodologies attempting to translate the idiographic nature of psychotherapy into quantitative research designs (Haynes et al., 2009; Kramer, 2020). More research should examine from an idiographic viewpoint different dimensional constructs associated with personality and personality pathology, in order to anchor them more fully into the vast heterogeneity of clinical observations.

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Table 1

Characteristics of the patients as a function of group at baseline ($N = 60$)

Variables	Conditions		χ^2	p-value
	GPM (G)	G & MOTR		
	$n = 29$	$n = 31$		
Gender (female)	20 (69%)	20 (65%)	2.54	.70
Age (years)	31.41 (11.41)	35.23 (10.04)	1.37[1]	.36
Education (years)	11.21 (2.08)	11.90 (1.64)	1.44[1]	.07
BPD symptoms	6.86 (1.38)	6.71 (1.44)	-0.42[1]	.96
Current axis I	1.86 (0.83)	1.90 (1.19)	0.16[1]	.16
Current axis II	0.62 (0.82)	0.68 (0.75)	0.28[1]	.64

Note. MOTR: Motive-Oriented Therapeutic Relationship; GPM: General Psychiatric Management; Values are expressed as numbers (with percentages in brackets); Are reported means (and SDs in brackets).

[1]these are t-values

Table 2: Interactional agreeableness and condition as predictors of increase in the therapeutic

alliance, rated by the patient and by the therapist ($N = 60$)

Predictors	Patient rating of the therapeutic alliance			Therapist rating of the therapeutic alliance		
	Estimate	CI	*p*-value	Estimate	CI	*p*-value
Intercept	**60.30**	**45.82 – 74.78**	**.00**	**49.03**	**39.11 – 58.95**	**.00**
Age	-0.08	-0.44 – 0.29	.68	-0.19	-0.44 – 0.05	.12
Gender	-3.49	-11.42 – 4.44	.39	3.37	-1.78 – 8.52	.20
Session	0.46	-0.19 – 1.11	.17	**1.10**	**0.61 – 1.58**	**.00**
Agreeableness	-0.87	-8.61 – 6.88	.83	-0.76	-6.07 – 4.56	.78
Condition	-3.09	-11.31 – 5.12	.46	-4.03	-9.62 – 1.55	.16
Agreeableness*Session	**0.88**	**0.16 – 1.60**	**.02**	-0.18	-0.73 – 0.36	.51
Condition*Session	0.21	-0.51 – 0.94	.56	**0.80**	**0.25 – 1.34**	**.00**

Note. Session: Number of the session in therapy. Patient alliance Intra-Class Correlation

Coefficient (ICC) = .66; Therapist alliance Intra-Class Correlation Coefficient (ICC) =

.59. Agreeableness*Session interaction: for high agreeableness scores, the progression

of the patient alliance is more positive (by 0.88 per session). Condition*Session

interaction: for MOTR, the progression of the therapist alliance score is more positive

(by 0.80 per session).

Table 3: Lagged therapeutic alliance and linear session-by-session trend as main predictors of the increase in the therapeutic alliance, rated by the patient and by the therapist ($N=$ 60)

	Patient rating of the therapeutic alliance			Therapist rating of the therapeutic alliance		
Predictors	Estimate	CI	*p*-value	Estimate	CI	*p*-value
Intercept	**34.56**	**21.34 – 47.78**	**0.00**	**21.75**	**13.50 – 30.00**	**0.00**
Age	0	-0.26 – 0.27	0.97	-0.06	-0.21 – 0.09	0.40
Gender	-2.34	-8.09 – 3.41	0.43	3.13	-0.13 – 6.38	0.06
Session	**0.51**	**0.04 – 0.98**	**0.04**	**0.55**	**0.20 – 0.90**	**0.00**
Agreeableness	3.13	-1.86 – 8.13	0.22	-1.36	-4.18 – 1.47	0.35
Condition	-1.77	-7.08 – 3.54	0.51	-0.28	-3.25 – 2.70	0.86
L(WAI_P)	**0.31**	**0.21 – 0.41**	**0.00**	0.03	-0.04 – 0.10	0.43
L(WAI_T)	0.08	-0.07 – 0.22	0.29	**0.50**	**0.40 – 0.60**	**0.00**

Note. L(WAI_P) is the first lagged value of the Patient Alliance Rating; L(WAI_T) is the first lagged value of Therapist Alliance Rating. Patient alliance Intra-Class Correlation Coefficient (ICC) = .49; Therapist alliance Intra-Class Correlation Coefficient (ICC) = .31. L (WAI_P): including the lagged-1 of the patient alliance score, the progression of the patient alliance is more positive (by 0.31 per session). L (WAI_T): including the lagged-1 of the therapist alliance score, the progression of the therapist alliance score is more positive (by 0.50 per session).