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RESEARCH ARTICLE

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Alliance rupture profiles by personality disorder pathology in psychotherapy for depression: Tendencies, development, and timing

Ilana Lipsitz-Odess[1] | Hadas Benisty[2] | Tohar Dolev-Amit[1] | Sigal Zilcha-Mano[1]

[1]The Department of Psychology, University of Haifa, Haifa, Israel

[2]The Department of Neuroscience, Yale University, New Haven, Connecticut, USA

Correspondence
Sigal Zilcha-Mano, PhD, Department of Psychology, University of Haifa, Mount Carmel, Haifa 31905, Israel.
Email: sigalzil@gmail.com

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Abstract

Objective: Clinical and theoretical considerations presume that patients with different personality disorder (PD) clusters will be associated with distinct alliance rupture profiles; however, there is scarce empirical literature examining this. The present study adopted a systematic framework for investigating profiles of alliance ruptures for individuals belonging to each of the three PD clusters.

Method: The sample consisted of 94 patients from a randomized controlled trial for treatment of depression. PD cluster features were assessed at intake and ruptures were assessed across treatment. Three sets of multilevel analyses were conducted to test differences between the PD clusters in the general tendency to show a rupture profile, rupture development throughout the treatment, and timing of predicting ruptures by PD within sessions.

Results: The three clusters were associated with distinct profiles of alliance ruptures. Clusters A and B were characterized by a general tendency to show more withdrawal and confrontation ruptures. Cluster A had a greater decrease in confrontation ruptures over the course of treatment, while cluster B had a greater decrease in withdrawal ruptures. Cluster C was characterized by a general tendency to show fewer withdrawal and confrontation ruptures, with a greater increase in both ruptures over the course of treatment. For withdrawal ruptures, the differences between clusters were evident from the beginning of sessions, whereas for confrontation ruptures, there was less of a difference between beginning and end of sessions.

Conclusion: The distinct profiles of alliance ruptures for each PD cluster may contribute to progress towards tailoring treatment to individuals with PDs.

KEYWORDS

alliance, personality disorders, psychotherapy process, ruptures, supportive-expressive treatment

1 | INTRODUCTION

Personality disorders (PDs) are conceptualized as a pervasive way of feeling, thinking, and behaving that deviates from the cultural expectations, leading to distress or functional impairment (American Psychiatric Association [APA], 2013). The various PDs can be categorized into the following three clusters, characterized by their interpersonal patterns: Cluster A includes schizoid, paranoid, and schizotypal PDs, characterized by odd or eccentric patterns. Cluster B includes antisocial, borderline, narcissistic, and histrionic PDs, characterized by dramatic or impulsive patterns. Finally, Cluster C includes avoidant, dependent and obsessive–compulsive PDs, characterized by

anxious or fearful patterns (APA, 2013). PDs can be measured either categorically (presence or absence of PD diagnosis) or dimensionally (levels of PD features) (Widiger & Mullins-Sweatt, 2007). PDs are highly prevalent psychiatric conditions, with estimates of 6.1% to 9.1% in the United States and other samples (Huang et al., 2009; Lenzenweger et al., 2007) and a 35 to 50% comorbidity rate with mood disorders. Comorbidity is especially common among individuals with major depressive disorder (MDD), estimated at approximately 45% in a meta-analysis (Friborg et al., 2014). Extensive research has shown that individuals with MDD and a comorbid PD benefit less from treatment than individuals with MDD without a comorbid PD (Hardy et al., 1995; Moradveisi et al., 2013; Newton-Howes et al., 2014).

Researchers have sought to understand why individuals with MDD and high levels of PD benefit less from treatment compared to individuals with lower levels of PD. Given the centrality of interpersonal dysfunction in PD (APA, 2013), there is an increasing interest in understanding how the therapeutic alliance between patient and therapist may differ between individuals with and without a PD. Individuals with PDs, compared to those without, are theoretically assumed to pose greater challenges to their therapists, which may manifest in the strength of the therapeutic alliance (Benjamin & Karpiak, 2001; Clarkin & Levy, 2004). There is some empirical literature to support this theoretical assumption. For example, patients with high levels of PD features (Muran et al., 1994; Smith et al., 2016; Taft et al., 2004; Zuroff et al., 2000) and belonging to PD clusters A and B (Lingiardi et al., 2005) are associated with poorer therapeutic alliance. In contrast, other studies found no significant association between PD and alliance ratings (e.g., Hersoug et al., 2010; Tufekcioglu et al., 2013). These mixed findings raise a need to closely examine the development of alliance among patients with high levels of PD features compared to patients with low levels of PD features.

One way to expand knowledge about alliance development is to examine alliance patterns over the course of treatment. The most studied type of alliance pattern, and the focus of this article, is ruptures in alliance (e.g., Eubanks et al., 2018; Safran & Kraus, 2014). A rupture in the therapeutic alliance may be defined as tension or a breakdown in the collaborative relationship between patient and therapist (Eubanks et al., 2018). Ruptures are commonly categorized into two subtypes: withdrawal (WD) and confrontation (CF) ruptures (Eubanks et al., 2015; Safran & Muran, 2000a). A WD rupture is characterized by a patient's movement away from the therapist (e.g., falling silent, responding minimally, avoiding the work of therapy by telling stories, or denying an aspect of his or her experience). In contrast, a CF rupture is characterized by a patient's movement against the therapist (e.g., expressing anger or dissatisfaction with the therapist or treatment, or attempting to control the therapist by putting pressure on him or her) (Eubanks et al., 2015). Safran and Muran (1996) suggest that alliance ruptures reveal a window into the patient's interpersonal patterns.

Because of the different interpersonal patterns of the three PD clusters, clinical and theoretical considerations presume that patients with different PD clusters will be associated with different patterns of ruptures in the alliance, such as distinct rupture profiles (Bender, 2005; Tufekcioglu & Muran, 2014). For example, WD ruptures may be more frequent in patients who are overly compliant, fearful and averse to interpersonal conflicts, such as cluster C PD patients. CF ruptures may be more frequent in patients with cluster A or B PDs, as they have difficulties regulating their emotions and behaviour (APA, 2013) and may tend to pressure or criticize the therapist (Bender, 2005). Unfortunately, as far as we know, there is no empirical evidence to support these hypotheses.

The few empirical studies examining ruptures among patients with PDs have analysed how PDs are associated with rupture intensity and frequency. Indeed, these studies reported associations between PD features and ruptures in the alliance. Tufekcioglu et al. (2013) found that patients with cluster C PDs rated a higher rupture intensity than non-PD patients. Furthermore, they found that pretreatment PD features were associated with patient-reported rupture intensity. Similarly, Colli et al. (2019) showed that, in PD cluster B and C patients, rupture markers were observed more frequently than in non-PD patients. Coutinho et al. (2014) found that patients with PDs experienced more frequent WD and CF ruptures, compared to patients with depression and anxiety disorders. In addition, two studies examined rupture profiles over the course of treatment for adolescents (Schenk et al., 2019) and youth (Gersh et al., 2017) with Borderline PD. Gersh et al. (2017) reported that, early in therapy, WD ruptures are more frequent, whereas late in therapy, CF ruptures are more frequent. Additionally, they found that ruptures increase over the course of therapy. In contrast, Schenk et al. (2019) showed that WD ruptures were more frequent than CF ruptures and

Key Practitioner Message

- The findings suggest that there are distinct rupture profiles for each of the personality disorder clusters, both in the general tendency to show different ruptures, and in the patterns of rupture development over the course of treatment.
- Patients with cluster A and B personality disorders have a higher tendency to show confrontation and withdrawal ruptures in comparison to patients with cluster C personality disorders.
- Patients with cluster C personality disorders tend to show an increase in confrontation and withdrawal ruptures over the course of treatment, while patients with cluster A personality disorders tend to show a decrease in withdrawal ruptures, and patients with cluster B personality disorders tend to show a decrease in confrontation ruptures.
- For withdrawal ruptures, the beginning of a session is most informative in predicting the rupture development based on the level of personality disorder, while for confrontation ruptures there is less of a difference between beginning and end.

that the ruptures developed in an inverted U-shaped trajectory across treatment time, with ruptures emerging most intensively in the middle of treatment. These mixed findings raise a need to further examine rupture development and tendencies among patients with PDs.

Although empirical research yields promising results showing an association between PD features and ruptures, there are still two questions left unanswered: (1) Do patients with features of different PD clusters show different rupture profiles? (2) Would the different rupture profiles present as a general (trait-like) tendency across the entire treatment, or rather, distinct patterns that develop throughout the course of treatment (state-like)? The differences between trait-like and state-like constructs may have distinct meanings and consequences in treatment (Zilcha-Mano, 2021). Another question that has never before been addressed, is examining PD rupture patterns within the sessions. Specifically, we were interested in which part of the session is most informative in predicting state-like rupture development from the three PD clusters.

The present study aims to answer these three questions, analysing a sample of patients with MDD and a high rate of comorbid PDs, over the course of 16 sessions of a randomized controlled trial (RCT). The treatment used was a short-term psychodynamic therapy that included a supportive component, with or without an expressive one. We sought to examine PD cluster features in the framework of ruptures in the alliance on three different levels: (1) trait-like tendency to show each rupture, (2) state-like rupture development across sessions, and (3) timing within the sessions in predicting rupture development by PD clusters. Regarding the first aim and in line with the theoretical literature, we hypothesized that Cluster A and B features would predict trait-like CF ruptures, whereas Cluster C features would predict trait-like WD ruptures. As for the other two aims, given the pioneering nature of examining state-like ruptures and ruptures within sessions among patients with features of PD clusters, these analyses were exploratory.

2 | METHOD

2.1 | Participants

Ninety-four patients with MDD were recruited through advertisements offering free treatment for depression. This study was part of the pilot phase and active phase of a larger ongoing RCT comparing supportive and supportive-expressive therapy for MDD (for more details, see Zilcha-Mano et al., 2018). The mean age of the participants was 31.72 years (SD = 8.38), and the majority were female (56.4%). Of the participants, 70.2% were single, 22.4% married or in a relationship, 5.3% divorced or separated, 1.1% widowed, and 1.1% indicated "other." The mean level of education was 14.73 years (SD = 2.82). In addition, 45.7% were employed, 39.4% were students, 11.7% were unemployed, 2.1% were homemakers, and 1.1% indicated "other." At intake, all patients met the criteria for a primary diagnosis of MDD, and 70.7% of the patients were diagnosed with one or more PDs. The most frequent PD cluster among the patients was cluster C, with 63.7% of patients who met at least one cluster C PD. 22.8% of patients met criteria for at least one cluster B PD, and 16% of patients met criteria for at least one cluster A PD. The most frequent PDs were obsessive–compulsive (44.7%), avoidant (31.9%), dependent (17%), borderline (13.8%), narcissistic (11.7%), and histrionic (5.3%).

2.2 | Therapists

Nine therapists, with at least 5 years of expertise in psychodynamic treatment, participated in the study. All had formal training and experience in psychodynamic treatment. The therapists attended a 20-h training workshop in supportive and expressive techniques before seeing patients. All therapists completed treatment of two pilot patients, one of each treatment type, and had to demonstrate sufficient adherence before moving to the trial phase. Throughout the study, the therapists received weekly personal and group supervision, provided by two experienced licensed clinical psychologists, who themselves received supervision on supervision from an international supportive-expressive therapy (SET) expert. Therapists provided both treatment conditions to act as their own controls and avoid nesting of therapists within treatment conditions, which may result in unwanted confounding. Mean clinical experience of the therapists was 11.88 years (SD = 5.72), mean age was 39.88 (SD = 6.15), and 66.7% were women. The mean number of patients treated by each therapist in the current study was 9.55 (SD = 8.202; range = 1–19).

2.3 | Treatments

Patients received 16 weekly 50-min sessions of SET, a time-limited psychodynamic therapy adapted for depression, either in an expressive-focused condition or in a supportive-focused one. Assignment to treatment condition was conducted by an outside institution, not involved in the study. Following the general requirement in psychotherapy research not to break the blindness to conditions before the end of the RCT, in this study, as in other studies in the literature, the two conditions were analysed together. We used comprehensive treatment protocols for SET: the Luborsky manualized treatment (Luborsky, 1984; Luborsky et al., 1995). The supportive condition included all supportive techniques detailed in the manual, but forbade the use of any expressive techniques (as detailed in Leibovich et al., 2018).

2.4 | Measures

2.4.1 | Personality disorders

The patient's personality disorders were measured using the Structured Interview for the Diagnosis of Personality Disorders (SIDP-IV; Pfohl et al., 1997). This instrument is a comprehensive, semi-structured clinical interview for the assessment of DSM-IV Axis II

diagnoses. The SIDP-IV includes nonpejorative questions organized into topical sections to produce a natural flow in the interview. The number of criteria for each PD in the DSM-IV varies from 7 to 9. Criteria were rated as follows: 0 = Absent, 1 = Sub-threshold, 2 = Present, 3 = Strongly present. A score of 2 or more on at least 3–5 criteria (depending on the PD in question) is required for a diagnosis of PD. The instructions for the SIDP-IV specify a scoring rule according to which behaviour typical of the past 5 years represents the basis for the ratings. SIDP-IV interviewers were masters or doctoral level clinical psychologists, who received extensive training and supervision in the administration of the SIDP-IV. Interjudge reliability for the 79 items of the SIDP-IV, assessed by intraclass correlation (ICC; Shrout & Fleiss, 1979), was .93, which is considered excellent (Fleiss et al., 2003). PDs were examined both as a categorical and a dimensional variable. A dimensional assessment of PD was determined by summing up the items of each PD criterion. Symptom scores were aggregated into the traditional DSM clusters, cluster A, B, and C, by tallying the total number of personality features endorsed across all SIDP-IV items within each cluster.

2.4.2 | Ruptures

Ruptures were measured using the Rupture Resolution Rating System (3RS; Eubanks et al., 2015), an observational system for coding ruptures and resolutions. While watching recorded sessions, divided into 5-min segments, coders noted events attesting to lack of collaboration or tension between patient and therapist. Identified ruptures are coded as confrontation (CF) or withdrawal (WD) and clarity was rated as a check minus (a weak or somewhat unclear example of the marker), a check (a solid example of the marker), or a check plus (a very clear, "textbook" example of the marker). All coders received six months of training (approximately 100 hours) from an experienced coder. During the coding phase, all coders received weekly supervision to maintain reliability. Each session was coded by a pair of coders, blind to the study hypothesis. Interrater reliability for CF ruptures in the current study was ICC (1,2) = .94, and for WD ruptures ICC (1,2) = .95.

For the first two levels of analyses, the frequency and severity of each type of rupture was summed up across all the 5-min segments of the session. For the third level of analyses, the scores for each 5-min segment of the session were used. The present study included coding of ruptures at six sessions over the course of treatment (sessions 2, 4, 6, 8, 10, 12).

2.4.3 | MDD diagnosis and symptom severity

To assess symptom severity we used the Hamilton Rating Scale for Depression (HRSD; Hamilton, 1967), a 17-item clinically administered semistructured interview, with higher scores indicating greater severity of depression. The HRSD interviewers received extensive training and supervision in the administration of the instrument. Interjudge reliability for the current study, assessed by intraclass correlation (ICC; Shrout & Fleiss, 1979), was .96, which is considered excellent (Fleiss et al., 2003). In addition, to confirm the presence of MDD, we used the Mini-International Neuropsychiatric Interview (MINI), a clinically administered semistructured interview that has been shown as both a valid and reliable tool (Sheehan et al., 1998).

2.5 | Procedure

For baseline assessments, participants were invited to participate in three assessment meetings. At the first two meetings, we checked inclusion and exclusion criteria (see Zilcha-Mano et al., 2018), explained the research setting and characteristics, and provided information about participation in the research project. Patients willing to participate signed informed consent forms, confirming their understanding that all treatment sessions were to be videotaped, and that they had the right to withdraw from the research at any time. Patients were also told that their anonymity would be preserved. Subsequently, we conducted interviews using the HRSD-17 (Hamilton, 1967) and the MINI (Sheehan et al., 1998) to confirm the presence of a depressive disorder and to determine its severity. Patients with a MINI diagnosis of depressive disorder and HRSD-17 score of 14 or above were included in the study. At the third meeting, we evaluated PDs using the SIDP-IV interview (SIDP-IV; Pfohl et al., 1997). After the three meetings, the 16-session therapy began. All research materials were collected after securing the approval of the Internal Review Board of the institution.

3 | DATA ANALYSIS

To examine the ability of the three PD clusters to predict ruptures (CF, WD) two series of multilevel models were conducted; one focusing on between-individuals effect (Model 1 a + b), the other on within-individual effect (Model 2 a + b). For the between-individuals models, the aggregated level of ruptures across all 6 sessions was used as the outcome variable. For the within-individual models, the centerized level of ruptures (i.e., deviations from the aggregated level for each patient) for each session was used (Wang & Maxwell, 2015). Additionally, to examine the within-session timing of the ability of the PD clusters to predict rupture development, three multilevel models were conducted as specified below.

3.1 | Between-individuals effect

To examine the effect of the three PD clusters on ruptures (CF + WD) at the between-individuals level, a two-level model was conducted with patients nested within therapists. The three PD clusters served as the predictors and the dependent variable was CF (Model 1a) and WD (Model 1b) ruptures. Random effect of the therapist was estimated by intraclass correlation coefficients (ICCs),

using the SAS PROC MIXED procedure for multilevel modelling (Littell et al., 2006). Therapist's random effects were calculated as follows: ICC = σ2therapist/(σ2therapist + σ2error).

3.2 | Within-individuals effect

To examine the effect of the three PD clusters on the development of ruptures (CF + WD) at the within-individuals level, a three-level model was conducted with observations nested within patients nested within therapists. The three 2-way interactions of each of the PD clusters, time, along with all main effects, served as the predictors, and the dependent variable was CF (Model 2a) and WD (Model 2b) ruptures. Random effects of the therapist and patient were estimated by ICCs, using the SAS PROC MIXED procedure for multilevel modelling (Littell et al., 2006). Therapist's random effects were calculated as follows: ICC = σ2therapist/(σ2therapist + σ2patient + σ2error). We evaluated the following trend models for each: linear, linear in log of time, and stability over time, either as fixed or random effects. We started with a model with only a fixed intercept and no random effects, and added sequentially a random intercept, fixed effect of week, and random effect of week in therapy. Next, we examined the models with fixed and random linear effects of log of week. We used the log likelihood test and the Bayesian information criterion (BIC) to determine whether the inclusion of each term improved the model fit.

3.3 | Within-sessions effect

After establishing the effects of PD clusters and time on rupture development (Model 2 a + b), we zoomed in to within sessions to examine which segments of the session are most informative in predicting this effect. First, we modelled the number of ruptures at each segment where the within-individual effect with CF (Model 2a) and WD (Model 2b) served as the dependent variable:

$$\text{Model 3 (a,b)} : y_{i,t}^{s}\tilde{1} + A_i + B_i + C_i + tA_i + tB_i + tC_i,$$

where $y_{i,t}^{s}$ is the centralized number of ruptures (WD or CF) of the *i*th participant on session t (weeks) and segment s. Second, we examined the cumulative effect of ruptures at the beginning of the session by modelling the average number of ruptures observed starting from the first segment to an arbitrary segment s (where $s = 1,2,\ldots, 10$):

$$\text{Model 4 (a,b)} : y_{i,t}^{1:s}\tilde{1} + A_i + B_i + C_i + tA_i + tB_i + tC_i,$$

where $y_{i,t}^{1:s}$ is the average level of ruptures during the first s segments of the session *t* for patient *i*, and a-CF or b-WD. For example, $y_{i,t}^{1:3}$ is the average level of ruptures across the first, second, and third segments of the session *t* for patient *i*. Last, we examined the cumulative effect of ruptures at the end of the session by modelling the average number of ruptures observed, at the last segment (which is the 10th), and counting backwards to an arbitrary segment *s*:

$$\text{Model 5 (a,b)} : y_{i,t}^{10:10-s+1}\tilde{1} + A_i + B_i + C_i + tA_i + tB_i + tC_i,$$

where $y_{i,t}^{10:10-s+1}$ is the average level of ruptures during the last *s* segments of the session and a-CF or b-WD. For example, $y_{i,t}^{10:7}$ counts the level of ruptures observed during the last four segments, that is, segments 7, 8, 9, and 10. For all three models, random effect of the therapist was estimated by ICCs.

4 | RESULTS

4.1 | Model 1

The therapist's random effect was significant for both between-individuals CF ($\sigma 2 = .003$, $p = .03$, ICC = .18) and WD ($\sigma 2 = .2$, $p = .02$, ICC = .45) ruptures, indicating that the therapist's random effects contribute significantly to the variance in between-individuals CF and WD ruptures.

4.2 | Model 1a: Predicting between-individuals CF ruptures by patient PD cluster

The interaction between CF ruptures and cluster A was significant ($\beta = .007$, SE = .003, $p = .01$), such that higher levels of cluster A features were found to predict higher levels of between-individuals CF ruptures, relative to lower levels of cluster A features. The interaction between CF ruptures and cluster B was also significant ($\beta = .01$, $SE = .001$, $p < .0001$): higher levels of cluster B features were found to predict higher levels of between-individuals CF ruptures, relative to lower levels of cluster B features. The interaction between CF ruptures and cluster C was significant ($\beta = -.01$, SE = .002, $p < .0001$): higher levels of cluster C features were found to predict lower levels of between-individuals CF ruptures, relative to lower levels of cluster C features.

4.3 | Model 1b: Predicting between-individuals WD ruptures by patient PD cluster

The interaction between WD ruptures and cluster A was significant ($\beta = .008$, $SE = .004$, $p = .047$): higher levels of cluster A features were found to predict higher levels of between-individuals WD ruptures, relative to lower levels of cluster A features. The interaction between WD ruptures and cluster B was also significant ($\beta = .012$, $SE = .002$, $p = <.0001$): higher levels of cluster B features were found to predict higher levels of between-individuals WD ruptures, relative to lower levels of cluster B features. The interaction between WD ruptures and cluster C was significant ($\beta = -.011$, $SE = .003$, $p = .0003$): higher levels of cluster C features were found to predict lower levels of between-individual WD ruptures, relative to lower levels of cluster C features.

4.4 | Model 2

The therapist's random effect was null for both within-individual CF ($p = .99$, ICC = 0) and WD ($p = .99$, ICC = 0) ruptures. Similarly, the patient's random effect was null for both within-individual CF ($p = .99$, ICC = 0) and WD ($p = .99$, ICC = 0) ruptures. A model of fixed effect of time, random intercept, and random slope of time was found to demonstrate the best model fit in predicting both within-individual CF and WD rupture development over time on the basis of the BIC.

4.5 | Model 2a: Predicting within-individual CF rupture development by patient PD cluster

The interaction between CF ruptures, time and cluster A was significant ($\beta = -.002$, SE = .001, $p = .022$): higher levels of cluster A features were found to predict lower levels of within-individual CF rupture development, relative to lower level of cluster A features. The interaction between CF ruptures, time and cluster C was also significant ($\beta = .002$, SE = .0006, $p = .007$): higher levels of patient cluster C features were found to predict higher levels of within-individual CF rupture development, relative to lower levels of cluster C features. However, the interaction between CF ruptures, time and cluster B was not significant ($\beta = .000$, SE = .001, $p = .44$).

4.6 | Model 2b: Predicting within-individual WD rupture development by patient PD cluster

The interaction between WD ruptures, time and cluster B was significant ($\beta = -.003$, SE = .001, $p = .0007$): higher levels of patient cluster B features were found to predict lower levels of within-individual WD rupture development, relative to lower levels of cluster B features. The interaction between WD ruptures, time and cluster C was also significant ($\beta = .003$, SE = .001, $p = .01$): higher levels of patient cluster C features were found to predict higher levels of within-individual WD rupture development, relative to lower levels of cluster C features. However, the interaction between WD ruptures, time and cluster A was not significant ($\beta = -.002$, SE = .001, $p = .24$).

4.7 | Models 3,4,5 a + b: Predicting within-session rupture development by patient PD cluster

The therapist's random effect was null for all models for both CF ($p = .99$, ICC = 0) and WD ($p = .99$, ICC = 0) ruptures. Similarly, the patient's random effect was null for both CF ($p = .99$, ICC = 0) and WD ($p = .99$, ICC = 0) ruptures.

To quantify the predictability of rupture level during a session by the three PD clusters, we used two criteria; R^2 and log-likelihood, presented in Figure 1: WD (left) and CF (right) ruptures based on specific segments (Model 3: green traces) and cumulative ruptures at the beginning (Model 4: red traces) and end (Model 5: blue traces) of a session. Using a single segment (green traces) did not reveal a clear trend. However, looking into the cumulative effect of sequential segments at the beginning or ending of a session, revealed a clear trend.

For WD and CF, both R2 and log-likelihood monotonically increase when accounting for more segments from the beginning (blue) or end (red) of a session. Moreover, for WD, the saturated goodness of fit suggests that the beginning of a session, and specifically the first three segments, are most informative. For CF, saturation seems to happen after five segments, with no significant advantage to the beginning or end of the session, suggesting that both parts of the session are equally informative.

5 | DISCUSSION

The present study explored whether individuals differing in PDs show distinct rupture profiles. To systematically explore the role of PD on rupture profiles, we distinguished between the three PD clusters (A, B, C) and explored their contributions to understanding PD rupture

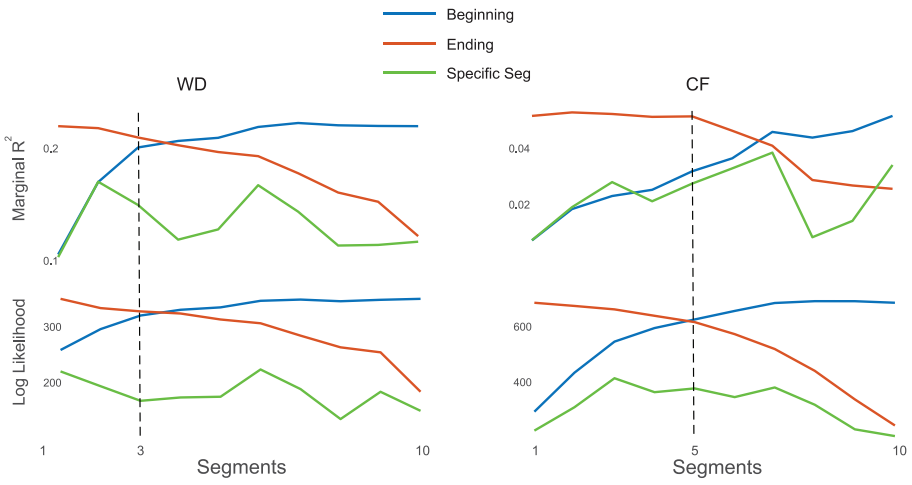

FIGURE 1 Modelling ruptures via segments within session: left—WD ruptures, right—CF ruptures. Top—marginal R^2, bottom—log-likelihood. Blue—modelling ruptures based on beginning of a session, red—based on ending of a session, green—modelling ruptures based on a specific segment [Colour figure can be viewed at wileyonlinelibrary.com]

profiles across the following three levels: First, we focused on differences between the PD clusters in the general (trait-like) tendency to show a rupture profile. Second, we focused on differences between the PD clusters in the state-like development of the ruptures throughout the course of treatment. And third, we focused on the timing of predicting state-like ruptures by PD clusters within the sessions. Our findings suggest that individuals with high levels of PD features of clusters A, B, or C show different rupture profiles, which is consistent with theoretical conceptualizations and clinical observations (Bender, 2005; Tufekcioglu & Muran, 2014).

The results of the first-level analyses suggest that as for CF ruptures, our findings are consistent with theoretical literature and our hypotheses: Patients with high levels of cluster A and B features significantly have a high general tendency to show CF ruptures, in contrast patients with high levels of cluster C features significantly have a low general tendency to show CF ruptures. However, as for withdrawal ruptures our findings are inconsistent with theoretical literature and our hypotheses: Patients with high levels of cluster A and B features significantly have a high general tendency to show WD ruptures, in contrast patients with high levels of cluster C features significantly have a low general tendency to show WD ruptures. A potential post hoc interpretation of the findings is that patients with high levels of cluster A and B may show during the sessions an ambivalent interpersonal patterns, on one hand showing movement away from others (WD), and on the other hand movement against or towards others (CF). There is literature that partially supports this, showing that patients with borderline personality disorder (belonging to cluster B) characterize their interpersonal interactions with ambivalence (Gunderson, 2007; Hopwood & Morey, 2007).

Additionally, the findings on the therapists' random effect, suggest that therapists may differ significantly in the extent to which their patients have a general tendency to show WD and CF ruptures. This is consistent with the perception of two person-psychology. The patient is not the only individual evoking the ruptures, but rather the ruptures are a product of the two individuals in the room, the patient and the therapist working together, and facing the ruptures together (Kramer & Stiles, 2015; Safran & Muran, 2000b). This is also in line with empirical research focusing on the agreement and congruence between patient and therapist in their reports on the alliance (Kivlighan et al., 2014, 2016) showing mutual influence and interdependence between patient and therapist in the alliance.

The results of the second-level analyses suggest that there are differences in the patterns of the development of ruptures across sessions between the three PD clusters. These analyses were exploratory because of the scarce literature. The results indicate that for patients with high levels of cluster A features, CF ruptures decrease over the course of treatment. In addition, among patients with high levels of cluster B features, WD ruptures decrease over the course of treatment. Contrarily, among patients with high levels of cluster C features both CF and WD ruptures increase over the course of treatment. A potential post hoc interpretation of the findings is that patients with high levels of cluster C features have a slow warming style, as they are characterized by emotional inhibition (APA, 2013) possibly leading them to begin therapy with lower levels of ruptures and bring more than their baseline tendencies as the sessions progress. This concurs with theoretical literature which argues that ruptures in the alliance may actually portray a positive sign of a patient progressing from their general tendencies to avoid conflict, and adopting new skills such as assertiveness (Wachtel, 1993).

The third-level analyses aimed to examine which part of the session is most informative in predicting state-like rupture development from the three PD clusters. To our knowledge, this is the first study to examine this question; therefore, these analyses were also exploratory. The results indicate that, for WD ruptures, the beginning of the session is most informative to predict rupture development from PD clusters. Specifically, the first three segments of a session are most informative in predicting WD rupture development based on the level of PD cluster features the patient has. However, for CF ruptures, there was less of a difference between the beginning and end of the sessions in how informative they are in predicting rupture development from PDs.

If replicated in future studies, these findings may have important clinical and empirical implications. The findings illustrate that each PD cluster shows different rupture profiles, both in their general tendency and in their development across sessions. This could be critical information for therapists to forecast their patient's signature rupture tendencies, as well as the patient's state-like rupture development, and thus personalize the treatment for the individual patient (Zilcha-Mano, 2021). For example, if a patient has high levels of cluster C features, the therapist can prepare for overall low levels of WD and CF ruptures, while at the same time anticipating that both kinds of ruptures will increase as the sessions progress. This may assist the therapist in being more alert in knowing what ruptures to expect, while also being aware of times the ruptures are different from what can be expected. For patients with difficulties being in interpersonal intimacy (e.g., cluster C PDs), the increase of ruptures may be a sign of opening up (Dolev et al., 2018; Lingiardi & Colli, 2015), whereas, for patients with dramatic interpersonal patterns (e.g., cluster B PDs), the decrease of ruptures may be a sign of improving regulation (Schenk et al., 2019). It is not sufficient to focus only on trait- or state- like ruptures, as we need to take both into account to understand the meaning of ruptures for the specific patient.

The findings further show that, in the rupture development within-session level, the detection of state-like ruptures by PD clusters is most informative at the beginning of the sessions, especially for WD ruptures. This level of rupture development can assist therapists in knowing which part of the session to be most aware of for examining how PD may manifest in the alliance. This finding may guide therapists in planning the inclusion of video-recorded sessions in supervision. There is much debate on how to use video-recorded sessions within clinical supervision (Huhra et al., 2008). Our findings may help guide supervisors and trainees in this process. For example, a therapist who seeks supervision on a patient with high levels of avoidant (cluster C) features, may consider focusing on the specific

part of the video-taped session that will best manifest how the patient's PD levels affect the alliance.

The present study has several limitations. Relative to other PD literature, our sample is only moderate in size, and findings should be replicated with larger samples, especially the findings regarding timing within the sessions. Given the pioneering nature of the exploratory part of our analyses, these findings should be interpreted carefully. Additionally, the findings regarding the therapists' random effects should be interpreted with caution given the small number of therapists (Wampold & Owen, 2021).

We used clinical interviews to assess PD levels dimensionally; however, there is much debate in the literature about how to measure PD levels (Sharp & Wall, 2021; Widiger et al., 2019). Future studies should examine whether our findings can be replicated using other forms of assessment, as well as other aspects of PD (e.g., specific PDs). The outcome of this RCT is not yet available for analysis and therefore, we were not able to use treatment condition and outcome as variables. Future studies should examine to what extent the results of the current study can be generalized to other types of psychotherapy, specifically, psychotherapies focusing on work with PDs (e.g., dialectical behaviour therapy.) Lastly, the findings of the present study are specific to patients with MDD, and additional studies should examine populations of patients with other diagnoses.

This is the first study to show the effects of each PD cluster on ruptures in the alliance. The findings suggest that there are distinct rupture profiles for each of the PD clusters, both in the general tendency to show different ruptures and in the patterns of rupture development over the course of treatment. The findings further suggest that there are differences between CF and WD ruptures in the timing within the sessions of being able to predict rupture profiles by PD clusters.

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DATA AVAILABILITY STATEMENT

The data are not publicly available due to privacy or ethical restrictions.

ORCID

Sigal Zilcha-Mano https://orcid.org/0000-0002-5645-4429

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