

The relationship between overall defensive functioning and the Personality Assessment Inventory borderline and treatment outcome scales

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ABSTRACT

Mature defense mechanisms support patients' engagement in psychotherapy. The Overall Defensive Functioning (ODF) scale of the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (DSM-IV) Defensive Functioning Scale (DFS) is a measure of the maturity of patients' defenses. Immature defenses (e.g., splitting) and poor emotion regulation are hallmarks of borderline personality organization, and both can interfere with positive treatment engagement. We predicted that ODF would significantly and negatively correlate with the Personality Assessment Inventory Borderline (PAI-BOR) scales, PAI Treatment Rejection (PAI-RXR) scale, and the PAI Treatment Process Index (PAI-TPI). To our knowledge, no studies have examined the relationship between ODF scores, as measured by the DFS rating of Thematic Apperception Test (TAT) narratives, and defense levels, PAI-BOR Full Scale (PAI-BOR-FS), PAI-RXR, and PAI-TPI scales. The sample included 73 outpatients from an academic hospital. Patients were administered the PAI and a TAT protocol. Two psychologists independently rated 40 TAT protocols with the observer-rated DFS for reliability. Healthy defenses showed significant negative correlations with PAI-BOR-FS ($r = -.27$), PAI-BOR Negative Relationships (PAI-BOR-N) ($r = -.38$), and PAI-RXR ($r = .30$). The pathological defenses had positive correlations with four of the five PAI-BOR scales and the PAI-TPI. There were significant correlations between ODF and the treatment related scales, PAI-RXR ($r = .37$, $p < .01$) and PAI-TPI ($r = -.32$, $p < .01$). ODF significantly and negatively correlated with the PAI BOR-FS ($r = -.36$, $p < .01$) and its subscales, Affective Instability ($r = -.35$, $p < .01$) and Negative Relationships ($r = -.39$, $p < .01$). High and low ODF groups had significant and meaningful differences on all seven PAI scales. Overall, these findings provide support for the construct validity and clinical utility of the DFS defense levels (healthy, neurotic, and pathological) and the global ODF.

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Key words: defense mechanisms, PAI Treatment Process Index, borderline personality organization.

Introduction

Defense mechanisms are automatic psychological processes that mediate one's response to internal conflicts associated with the self and others, as well as external stressors (Cramer, 2000; Vaillant, 1992). They are also developmental processes that emerge as key indicators of interpersonal functioning in psychotherapy, ranging in adaptiveness from mature to immature. The assessment of defenses helps inform diagnosis and treatment outcomes (Defife & Hilsenroth, 2005). More specifically, defense mechanisms assessment provides essential information regarding the level of personality organization (Lingiardi & McWilliams, 2017).

The introduction of the Alternative Model for Personality Disorders (AMPD; Section III, *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition [DSM-5]) and the *Psychodynamic Diagnostic Manual* (PDM-2; Lingardi & McWilliams, 2017) has reaffirmed personality as a central component of mental health. Both systems emphasize the importance of personality in clinical work and the need to assess the level of personality organization/functioning (AMPD, Criterion A) and maladaptive personality traits (AMPD, Criterion B). Unfortunately, the assessment of maladaptive personality traits has overshadowed the assessment of personality functioning (Hopwood, 2024). However, maladaptive traits and level of functioning are inseparable if personality pathology is to be considered distinct forms of psychopathology (Hopwood, 2024).

Kernberg's (1967, 1984) influential theory of personality organization identified defense mechanisms (especially primitive defenses) as a primary indicator of the level of personality functioning. Originating in psychoanalytic theory (Erikson, 1963; Freud, 1905), defenses play a crucial role in regulating one's sense of identity and ability to understand others. In Kernberg's model, defense mechanisms differentiate levels of personality organization along a developmental continuum: healthy (normal), neurotic, borderline, and psychotic. Although they are closely related to personality functioning, they have not been widely utilized in research on personality disorders (Natoli, 2020). In the current study, we use pathological defenses to describe both borderline and psychotic levels of personality organization.

Perry's (1990) Defense Mechanisms Rating Scale (DMRS), which operationalizes Vaillant's (1992) theory of defensive adaptiveness and the hierarchical organization, is often considered the "gold-standard" measure of defense mechanisms (Di Giuseppe & Perry, 2021). The DSM-IV Defensive Functioning Scale (DFS; American Psychiatric Association, 1994) extends the DMRS by including a psychotic level of defenses. Both are observer rating scales that classify defenses along a continuum from mature to intermediate to immature. Both the DFS and the DMRS generate healthy, neurotic, and pathological levels of defenses and an overall defensive functioning (ODF) score.

The ODF provides a single score representing the overall level (maturity) of defensive functioning. Research has shown ODF scores to have good convergent and discriminant validity, as well as predictive value distinct from self-report and observer ratings of psychopathology (Hilsenroth *et al.*, 2003). This study will explore the relationship between the ODF scores derived from the Thematic Apperception Test (TAT) narratives and self-report measures of borderline personality and the readiness for, as well as the capacity to engage in, psychotherapy.

Overall defensive functioning and borderline personality functioning

The study by Blais *et al.* (1996) was among the first studies to demonstrate the strong relationship between the DFS and DSM-IV personality disorders. Since then, ODF scores have become well-established markers of personality functioning (Perry & Bond, 2012; Petraglia *et al.*, 2015; Porcerelli *et al.*, 2009; Porcerelli *et al.*, 2010), with a substantial portion of this research focusing on borderline personality disorder (BPD). Research has consistently shown that BPD patients predominantly employ maladaptive defenses. For example, major image distortion and action level defenses, which fall under the immature defense category, are associated with BPD (Di Giuseppe *et al.*, 2019; Euler *et al.*, 2025; Kramer *et al.*, 2013). Lower ODF at the start of dialectical

behavior therapy (DBT) has been associated with smaller reductions of self-harm in outpatients with BPD (Euler *et al.*, 2025). The three defense levels, healthy (mature), neurotic, and pathological (immature), comprised of the seven defense categories and underlying ODF, have consistently proven to be in the expected direction with defenses in a population with BPD (Perry *et al.*, 2013; Zanarini *et al.*, 2009).

The Personality Assessment Inventory Borderline Full Scale (PAI-BOR-FS) and subscales capture the defining features of BPD, including Negative Relationships, Identity Confusion, Self-harm Behaviors, and Affective Instability. The PAI-BOR-FS shows conceptual convergence with Kernberg's (1975) description of borderline personality organization, without implying full construct equivalence. Multiple studies have shown that the PAI-BOR-FS scale captures clinically significant borderline features (*e.g.*, Morey, 1991; Trull, 1995; Trull *et al.*, 1997) and is highly correlated with a structured interview-based assessment of BPD (Kurtz & Morey, 2001; Stein *et al.*, 2007). In addition, research shows that the BPD criteria primarily load onto the general personality pathology factor, suggesting that it may reflect general impairments in personality functioning rather than a distinct personality disorder (Sharp & Wall, 2021). Such a view is consistent with Kernberg's concept of borderline personality organization and is compatible with the DSM-5 and International Classification of Diseases - 11th Revision (ICD-11) dimensional models of personality disorders (Sharp & Wall, 2021). Taken together, the research supports the use of the PAI-BOR-FS (and its subscales) as a measure of general or overall personality functioning.

Overall defensive functioning and psychotherapy

ODF scores have been utilized in a wide range of psychotherapy research (Conversano *et al.*, 2023; Kramer *et al.*, 2010). For example, ODF scores have been shown to mediate change in psychodynamic psychotherapy (Keefe & DeRubeis, 2019; Kramer *et al.*, 2020). To extend this line of research, the present study will investigate the relationship between ODF scores, defense levels (healthy, neurotic, and pathological), the PAI Treatment Rejection (RXR) scale, and the PAI Treatment Process Index (TPI). The PAI-RXR and PAI-TPI assess important but different aspects of treatment readiness. The PAI-RXR scale assesses qualities important for patients entering treatment, including openness to self-change, acknowledgment of problems, and acceptance of help from others (Morey, 1991, 2007).

As such, PAI-RXR is thought to capture a patient's motivation for treatment. Elevated PAI-RXR scores suggest limited insight and motivation to change, placing the patient at risk for non-compliance and early termination but elevated scores also measure a patient's sense of comfort with themselves (Morey, 2007). The PAI-TPI is a cumulative index of 12 features from PAI profiles that correspond to treatment amenability factors described in the psychotherapy literature (Morey, 1991, 2007). Features tapped by the PAI-TPI include hostility, low psychological mindedness, defensiveness, limited social support, and impaired impulse control (Charnas *et al.*, 2010; McCredie *et al.*, 2018). While PAI-RXR taps treatment motivation, the PAI-TPI assesses characteristics that can serve to disrupt or derail effective treatment. High PAI-TPI scores indicate the presence of these disruptive characteristics and the potential for conflict and challenges during the course of treatment.

To date, research into the utility of PAI-RXR and PAI-TPI has been limited (McCredie *et al.*, 2018). However, studies have shown that PAI-RXR scores strongly differentiate individuals in treatment from those not in treatment (see Morey, 2007, p. 254)

and that PAI-RXR is significantly but modestly correlated with the length of outpatient treatment (Everson, 1999). A recent study found that PAI-RXR scores (*i.e.*, a lack of readiness for treatment) were negatively associated with patient-rated treatment outcomes (Cersosimo *et al.*, 2025).

To our knowledge, no studies have examined the relationship between ODF scores, as measured by the DFS rating of TAT narratives, and defense levels, PAI-BOR-FS, PAI-RXR, and PAI-TPI scales.

Study aims

The current study has three goals. First, we aim to extend prior research through multimethod assessment by testing the association between ODF and levels of personality functioning. Second, we predict that ODF will be significantly and negatively correlated with BPD characteristics, further linking defensive functioning to personality functioning. Third, we hypothesize that integrated DFS-rated TAT narratives with PAI treatment scales (RXR and TPI) will demonstrate a meaningful relationship between ODF and treatment indicators.

Materials and Method

Participants

The sample consisted of 73 adult outpatients (mean=39.0 years, standard deviation [SD]=15.21; 56% male, 44% female). Participants had on average 14 years of education (SD=2.77), 21% were married or living with a partner, 68% were single, 9.3% were divorced or separated, and 1% were widowed. Regarding ethnicity, 89% identified as White, 2.7% as African American, 2.7% as Asian, and 5.3% as Other. Additional demographic information is reported in Table 1.

Procedure for data collection

Participants were outpatients referred for psychological assessment in the Department of Psychiatry within an academic medical center in the northeastern United States. As part of the assessment procedure, self-report and performance-based measures of psychopathology are regularly administered, including the PAI and the TAT. The study data were drawn from an archival dataset maintained as part of regular clinical work and were approved by the Institutional Review Board. Once the evaluation

was complete, the examiner scored the measures and entered them into the IRB-approved database (Protocol #2010P000886).

Measures

Defense mechanisms. George Vaillant, along with other notable researchers (Bellak *et al.*, 1973; Haan, 1963; Semrad, 1973), pioneered the hierarchical and experimental methods of studying defenses (Vaillant, 1976, 1992). The DFS was introduced as a provisional scale in the DSM-IV to capture clinicians' judgments of patients' functioning on a continuum from healthy to unhealthy, based on clinical interviews or narrative data. The DFS has seven hierarchical levels, from the most adaptive to the least adaptive, with a total of 31 defenses. The DFS levels include: (7) High adaptive level: affiliation, altruism, anticipation, humor, self-assertion, self-observation, sublimation, and suppression; (6) Mental inhibition level: isolation of affect, intellectualization, undoing, repression, dissociation, reaction formation, and displacement; (5) Minor image-distorting level: idealization, devaluation, and omnipotence; (4) Disavowal level: denial, projection, and rationalization; (3) Major image-distorting level: autistic fantasy, projective identification, and splitting; (2) Action level: acting out, apathetic withdrawal, help-rejecting complaining, and passive aggression; (1) Defensive dysregulation level: delusional projection, psychotic denial, and psychotic distortion. The Healthy level is made up of level 7, the Neurotic level is made up of levels 6, and the Pathological level is made up of levels 5 through 1. The ODF score is calculated by multiplying each defense by a weight corresponding to its place in the hierarchy. ODF scores range from 1 to 7, with higher scores representing greater maturity (Porcerelli *et al.*, 2022). Validity of the defense hierarchy and levels for both DMRS and DFS has been supported through numerous studies (Hilsenroth *et al.*, 2003; Høglend & Perry, 1998; Perry & Bond, 2012; Perry & Høglend, 1998; Perry *et al.*, 1998; Porcerelli *et al.*, 2010; Porcerelli *et al.*, 2011; Soldz & Vaillant, 1998). Clinicians code a defense each time it emerges within TAT card narratives. Inter-rater agreement for this study was within the excellent range (ODF score, intraclass correlation coefficient [ICC]=.82) based on Shrout and Fleiss's (1979) criterion. Inter-rater agreement was excellent for Healthy (ICC=.77) and Neurotic (ICC=.81), and good for Pathological (ICC=.74).

Thematic Apperception Test (TAT; Morgan & Murray, 1935; Murray, 1943). A narrative method that allows the participant to create their own story based on a stimulus card presented to them. In the present study, we used seven stimulus cards for the protocol: 1, 2, 3BM, 4, 13MF, 12M, and 14. After being provided with the stimulus, the participants were asked to make up a story surrounding the picture. They were asked to provide a beginning, middle, and ending for each story. If needed, they were prompted to elaborate on what the people in the story were thinking and feeling. The examiner wrote down the participant's words *verbatim* for each story and protocol.

Personality Assessment Inventory (PAI; Morey, 1991). The PAI is a 344-item self-report measure that assesses multiple constructs, covering a wide range of psychological functioning. 11 clinical full scales measure psychological constructs independently of one another. The subscales were created for 9 clinical scales and one supplemental treatment scale. The scales are Somatization (SOM), Anxiety (ANX), Anxiety-Related Disorders (ARD), Depression (DEP), Mania (MAN), Paranoia (PAR), Schizophrenia (SCZ), Borderline (BOR), and Antisocial (ANT). The scales examined in the present study are the BOR Full Scale and the BOR subscales, which measure findings connecting BPD

Table 1. Demographic characteristics (n=73).

Variable	%
Gender	
Male	56
Female	43
Ethnicity	
White	89
African American	2.7
Asian	2.7
Other	5.5
Marital status	
Married/live with partner	21
Single	67
Divorced/separated	9.6

functioning to object relations and defenses. The four subscales of the PAI-BOR-FS are Affective Instability (PAI-BOR-A), Identity Problems (PAI-BOR-I), Negative Relationships (PAI-BOR-N), and Self-harm (PAI-BOR-S), as well as the two treatment scales, PAI-RXR and PAI-TPI.

Statistical analyses

First, we will conduct zero-order correlations (Pearson's r) between the defense levels and the PAI scales. We will report Spearman's rho for any variable found to be nonparametric. Following these analyses, we will create high- and low-defense functioning groups and conduct independent t -tests to explore between-group differences. Effect sizes (Cohen's d) will also be reported.

Results

Mean, SD, skewness, and kurtosis are reported in Table 2 for all study variables. Table 2 shows that the distribution of all variables, except for the healthy defenses, was essentially normal. The correlations among the defense levels, ODF, PAI-BOR-FS, and PAI Treatment scales are reported in Table 3 (Spearman's rho is provided for the Healthy defense level; all others are Pearson's r).

As shown in Table 3, the DFS defense levels and ODF had significant correlations in the expected direction with all the PAI scales. The healthy defenses showed significant negative correlations with PAI-BOR-FS ($r=-.27$), PAI-BOR-N ($r=-.38$), and sig-

nificant positive correlation with PAI-RXR ($r=.30$; Spearman's rho). The pathological defenses had positive correlations with four of the five PAI-BOR scales, ranging from PAI-BOR-N ($r=.26$) to PAI-BOR-A ($r=.44$) and the PAI-TPI ($r=.45$). It was also negatively correlated with the PAI-RXR scale ($r=-.32$). ODF was significantly correlated with three PAI-BOR scales, PAI-BOR-FS ($r=-.37$), PAI-BOR-A ($r=-.35$), and PAI-BOR-N ($r=-.39$), with one additional correlation approaching significance, PAI-BOR-I ($r=-.22$). ODF was also significantly correlated with the PAI-TPI ($r=-.33$) and PAI-RXR ($r=.37$). Elevated PAI-RXR scores are associated with self-satisfaction as well as low motivation for treatment. Findings indicate that being satisfied with one's current state is associated with more adaptive defenses. Higher PAI-TPI scores suggest greater obstacles for treatment (Morey, 2007). Thus, the more maladaptive an individual's global defensive functioning is, the greater the likelihood of experiencing treatment-interfering dynamics.

To further explore the clinical utility of ODF, subjects were divided into two groups: high ODF and low ODF. The cut point for the groups was determined by adding half a standard deviation ($.90/2=.45$) to the mean ODF ($5.16+.45=5.61$). The high ODF group consisted of 24 subjects (mean ODF=6.08, SD=0.40), while the low ODF group consisted of 49 subjects (mean ODF=4.73, SD=0.72). Independent t -tests were conducted to identify group differences. Table 4 presents the results of these analyses, along with effect size measures (Cohen's d [Cohen, 1988] with 95% confidence intervals). As Table 4 shows, the high and low ODF groups had significant and meaningful differences on all seven PAI scales. The differences fell within the large effect size range

Table 2. Study variables ($n=73$).

Defenses	M	SD	Skewness	Kurtosis
Healthy	0.56	0.96	2.3	7.0*
Neurotic	2.4	1.7	.48	-.17
Pathological	2.8	2.6	1.0	.38
ODF	5.16	0.90	-.65	1.21
PAI				
PAI-BOR-FS	61	12.5	.25	-.51
PAI-BOR-A	60	13.3	.17	-.72
PAI-BOR-N	59	12.5	.24	-.59
PAI-BOR-I	60	11.4	.03	-.77
PAI-BOR-S	53	13.3	.90	.25
PAI-RXR	58	14.0	.77	-.62
PAI-TPI	39	11.2	.68	.06

M, mean; SD, standard deviation; PAI, Personality Assessment Inventory; BOR-FS, Borderline Full Scale; BOR-A, Affective Instability; BOR-I, Identity Problems; BOR-N, Negative Relationships; BOR-S, Self-harm; RXR, Treatment Rejection; TPI, Treatment Process Index. *The distribution is nonparametric.

Table 3. Correlations (Pearson r) among defense levels, ODF, PAI-BOR scales, and PAI-Treatment scales ($n=73$).

	Healthy [#]	Neurotic	Pathological	ODF
PAI-BOR-FS	-.27*	-.14	0.37**	-.37**
PAI-BOR-A	-.18	-.15	0.44**	-.35**
PAI-BOR-I	-.19	-.20	0.14	-.22***
PAI-BOR-N	-.38**	-.10	0.26*	-.39**
PAI-BOR-S	0.01	0.02	0.35**	-.16
PAI-RXR	0.30*	0.17	-.32*	0.37**
PAI-TPI	-.09	-.04	0.45**	-.32**

ODF, overall defensive functioning; PAI, Personality Assessment Inventory; BOR-FS, Borderline Full Scale; BOR-A, Affective Instability; BOR-I, Identity Problems; BOR-N, Negative Relationships; BOR-S, Self-harm; RXR, Treatment Rejection; TPI, Treatment Process Index; *Spearman's rho, * $p<.05$, ** $p<.01$, *** $p=.055$.

Table 4. Group differentiation by ODF high and low groups.

	Low ODF n=49 (M/SD)	High ODF n=24 (M/SD)	t-test (df=71)	Sig.	ES	95% CI
PAI-BOR-FS	64.49 (11.88)	54.13 (11.88)	-3.56	.001	.887	.36-1.35
PAI-BOR-A	64.29 (13.14)	53.28 (10.82)	-3.59	.001	.888	.38-1.39
PAI-BOR-I	63.27 (10.31)	55.40 (11.85)	-2.93	.004	.725	.22-1.22
PAI-BOR-N	63.00 (11.47)	53.48 (12.46)	-3.26	.002	.806	.30-1.30
PAI-BOR-S	55.71 (14.98)	49.00 (7.99)	-2.08	.04	.514	.02-1.00
PAI-TPI	61.49 (15.52)	52.68 (8.40)	-2.63	.01	.652	.15-1.14
PAI-RXR	35.77 (9.43)	45.76 (11.69)	3.94	.001	.974	.46-1.48

ODF, overall defensive functioning; PAI, Personality Assessment Inventory; BOR-FS, Borderline Full Scale; BOR-A, Affective Instability; BOR-I, Identity Problems; BOR-N, Negative Relationships; BOR-S, Self-harm; TPI, Treatment Process Index; RXR, Treatment Rejection; ES, effect size (Cohen's *d*); CI, confidence interval. ODF high and low groups were determined by adding half of the standard deviation (.45) to the mean.

for PAI-RXR, PAI-BOR-FS, PAI-BOR-A, and PAI-BOR-N, while the group differences for PAI-BOR-I, PAI-BOR-S, and PAI-TPI were within the medium range.

Discussion

Overall, these findings provide support for the construct validity and clinical utility of the DFS defense levels (healthy, neurotic, and pathological) and the global ODF. Additionally, consistent with the literature, pathological defenses significantly correlated with key characteristics of borderline personality functioning (Defife & Hilsenroth, 2005; Drapeau *et al.*, 2011). The pattern of findings is consistent with psychodynamic theory, which holds that healthy defenses reflect adaptive personality functioning while pathological defenses are indicative of maladaptive personality functioning. Regarding treatment scales, self-dissatisfaction, desire for personal change, and conflicted efforts to continue treatment were in the theoretically correct direction with maladaptive defense use (Morey, 2007).

Both the DSM-5 and the PDM-2 emphasize the importance of assessing the level of personality functioning as part of the diagnostic process (Carone *et al.*, 2025; Patriarca *et al.*, 2023). The use of multimethod assessment further strengthens the complementary data self-report measures and performance-based measures provided in assessing personality functioning (Natoli, 2019). Self-reported personality traits are known to be strong predictors of treatment progress and early termination (Hopwood *et al.*, 2007). Defensive functioning has also been shown to be a strong predictor of treatment outcome (Tavoloni *et al.*, 2024). Lower ODF, which may be viewed as an implicit measure of severity in functioning, has been associated with treatment dropout amongst patients with severe psychopathology (Perry, 2001). However, defenses and other automatic psychological processes are less amenable to self-report methodology.

These findings suggest that defenses can be used as markers for therapeutic change, especially in difficult-to-treat populations. They can also be reliably used as an assessment of progress and/or re-evaluation of treatment goals during the course of therapy (Yilmaz *et al.*, 2025). This further supports that selection of treatment interventions based on defense level adaptiveness can inform planning at different stages of treatment (Siefert *et al.*, 2006). The global ODF also performed well. It was negatively associated with the Borderline Full Scale, two of the four subscales, and the PAI-TPI. ODF was also positively correlated with PAI-RXR (higher PAI-RXR scores are associ-

ated with self-satisfaction [Morey, 2007]). Furthermore, 11 (out of 13) of the cross-method correlations were within the medium effect size range ($r \geq 0.30$) (Cohen, 1988). These findings have broad clinical relevance given the growing evidence that borderline personality, as defined by the DSM, is similar to general personality functioning (Sharp & Wall, 2021).

Limitations

Due to the limited sample size, the relationship between each of the 7 defense levels, individual defenses, and their association with PAI subscales was not explored. Furthermore, the cross-sectional nature of the data, lack of control for comorbid psychopathology, and medication status are also limitations of the study's transparency. Another limitation is that all participants were at varying levels of engagement in their treatment, and thus, treatment scales did not directly correspond to their current therapy status. The sample is predominantly White and less diverse, a characteristic that does not extend cross-culturally when considering factors related to diagnosis and treatment approaches.

Conclusions

Future research should attempt to replicate these findings using the PAI treatment and borderline scales while assessing defenses *via* psychotherapy transcripts. This was the first study to use the TAT for the coding of defenses. Future studies could also assess the convergent validity of this method with other previously studied narrative methods (Di Giuseppe *et al.*, 2024). It might also be beneficial to study longitudinal treatments to examine whether ODF changes over the course of therapy and predicts long-term adjustment. Additionally, it may be helpful to study the connection between ODF and defensive flexibility, which assesses one's consistent use of a few *vs.* a variety of defenses. Examining the presence of rigid and flexible defenses extends beyond the limitations of the current model for assessing defense adaptiveness.

Drapeau and colleagues (2011) found that in an outpatient sample, both defensive flexibility and ODF predicted symptom severity. Mentalization-based therapy, for instance, is a treatment for patients with BPD and focuses on improving cognitive and affective flexibility and reflective capabilities (Bateman, 2022). Defense mechanisms and PAI treatment scales may be utilized as a measurement of progress in forms of treatment geared toward acknowledging and improving mental states of self and others.

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