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Predicting the Working Alliance over the Course of Long-Term Psychodynamic Psychotherapy with  
the Rorschach Ego Impairment Index, Self-Reported Defense Style, and Performance-Based  
Intelligence: An Evaluation of Three Methodological Approaches

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### Abstract

Better therapeutic alliances are known to predict better treatment outcomes, but little knowledge still exists on the patient characteristics that lead to better alliances. In a sample of 128 outpatients assigned to long-term psychodynamic psychotherapy and suffering from mood and/or anxiety disorder, this study evaluated how the alliance, measured using the Working Alliance Inventory (WAI), is predicted by three different measures for assessing psychological resources and vulnerabilities: the Wechsler Adult Intelligence Scale-Revised (WAIS-R), the Defense Style Questionnaire (DSQ), and the Rorschach-based Ego Impairment Index (EII-2). All the three measures showed some ability to predict the development of the alliance during long-term therapy. The WAIS-R was found to be the strongest independent predictor, with higher intelligence scores predicting favorable development of both the patient- and therapist-rated alliance. Lower DSQ values, indicating less use of immature defenses, predicted greater improvement in the patient- but not the therapist-rated alliance. Higher EII-2 values, indicating more problematic ego functioning, predicted likewise greater patient-rated alliance improvement over the course of treatment. These findings support the value of pretreatment multi-method psychological assessment when tailoring treatment to the individual needs of patients.

*Keywords:* Wechsler Adult Intelligence Scale-Revised, Defense Style Questionnaire, Rorschach, Ego Impairment Index, Psychotherapy, Working Alliance Inventory

A demonstrable relationship between the quality of the alliance and outcome of psychotherapy is well documented: the alliance appears to be a crucial component of the therapeutic relationship and the process of change (Flückiger, Del Re, Wampold, & Horvath, 2018). Reflecting this, the late alliance typically explains more of the therapy outcome than the alliance measured earlier in treatment– while possibly also being an indicator of positive outcomes already achieved (Flückiger et al., 2018). In any case, given the strength of this association, it is arguably important for improving therapy outcomes to understand how better or worse alliances develop over time for patients with different strengths and vulnerabilities.

However, knowledge of the patient characteristics impacting alliance quality is still relatively sparse and mainly derived from short-term therapies. Nevertheless, brief treatments do not suffice for some patients (Knekt et al., 2011, 2017; Laaksonen, Knekt, & Lindfors, 2013; Leichsenring & Rabung, 2011). To optimally match treatment strategies with the needs of individual patients, research is thus needed on how patient qualities predict the initial alliance and the improvement or deterioration of alliance during longer courses of treatment.

Indeed, prior studies indicate that this question merits further study, as the effect of patients' problematic intra- and interpersonal qualities on the alliance may differ depending on when the alliance is investigated. Some studies have found patients' personality-related problems, such as greater interpersonal difficulties, to predict alliance deterioration early in long-term psychotherapy (Hersoug, Høglend, Havik, von der Lippe, & Monsen, 2009; Hersoug, Monsen, Havik, & Høglend, 2002; Puschner, Bauer, Horowitz, & Kordy, 2005). However, the impact of these difficulties on alliance development diminished over the course of treatment (Hersoug et al., 2002), or became non-significant in later phases of long-term therapy (Puscher et al., 2005). Moreover, in some studies, similar interpersonal difficulties at baseline have in fact predicted a better alliance on long-term follow-up,

perhaps reflecting a “corrective emotional experience” (Alexander & French, 1946; Hersoug et al., 2009; Ollila, Knekt, Heinonen, & Lindfors, 2016). Nevertheless, the paucity of research on intra- and interpersonal predictors of the alliance in long-term therapy underlines the need for further studies to shed light on these inconsistencies.

For these reasons, the current study focused on how patient- and therapist-rated working alliances are predicted over the course of long-term psychodynamic psychotherapy. Furthermore, the study aimed to extend current knowledge by simultaneously utilizing three measures that gauge a patient’s psychological resources and vulnerabilities from quite different, and possibly complementary, vantage points: the Rorschach-based measure of ego impairment, the self-reported defense style, and performance-based intelligence.

The Rorschach test is a widely used performance-based personality assessment measure that requires a person to organize and conceptualize emotionally charged and complex visual stimuli within an interpersonal assessment situation. It is thus considered to demand a variety of so-called ego processes: that is, reality testing, logical reasoning, affect regulation, stress management, impulse control, and capacity for interpersonal relatedness. The Comprehensive System (CS; Exner, 2003), along with the recently developed Rorschach Performance Assessment System (R-PAS; Meyer, Viglione, Mihura, Erard, & Erdberg, 2011), is the most frequently used approach to Rorschach providing standardized procedure for administration and coding of the responses as well as recommended interpretive strategies for the method.

The importance of the ego functions on alliance development has been clinically recognized since the earliest conceptualization of the therapeutic alliance (Zetzel, 1956). The Rorschach based assessment of the ego functions, the Ego Impairment Index (EII-2; Perry & Viglione, 1991; Viglione, Perry, & Meyer, 2003), is comprised of CS variables and gauges the level of ego-related psychological impairment. The EII has shown predictive validity in treatment planning (e.g., lower values of the EII

being predictive of better outcomes of antidepressant treatment) (Perry & Viglione, 1991). Subsequent studies have revealed some subcomponent variables of the EII to inconsistently predict premature therapy termination (Charnas, Hilsenroth, Zodan, & Blais, 2010; Hilsenroth, Handler, Toman, & Padaver, 1995). However, predictive impact of the EII on the alliance is so far unknown. Based on both theoretical considerations (Høglend, 2014; Kernberg, 2016) and empirical findings (Perry & Viglione, 1991) we expected that patients' greater ego deficits (e.g., impaired capacity for interpersonal relatedness and impulse control) would have a negative impact on the development of the therapeutic relationship when controlling for the early alliance.

Another central psychological construct associated with personality structure and reflecting individual style of coping with stress and anxiety is a person's defense style, which has shown to be a potential predictor of therapeutic alliance (Bond, 2004; Laconi, Cailhol, Pourcel, Thalamas, Lapeyre-Mestre, & Chabrol 2015). An immature defense style manifests itself, for instance, in the overt use of denial and splitting, as well as an impaired ability to perceive oneself, other people, and interpersonal situations accurately (Kernberg, 1975). Thus, it may interfere with a person's capacity to initially engage in self-exploration with the therapist (Despland, 2001). In line with previous research, we therefore expected less use of self-reported immature defenses to be associated with a better working capacity in therapy (Bond & Perry, 2004) and consequently predict a favorable development of the alliance.

Finally, basic cognitive capacities or intelligence, such as measured by Wechsler Intelligence tests, may help establish relatedness to others (Allen, Coyne, & David, 1986) and facilitate examining oneself and one's life, a basic task in many if not all talking therapies (Trijsburg, Colijn, & Holmes, 2007). They may thus also help in agreeing on the goals of therapy and promote bonding with the therapist, which together form the three central components of the working alliance in Bordin's seminal conceptualization (Flückiger et al., 2018). Performance-based Wechsler Intelligence tests are ranked as

the most frequently used methods for assessing cognitive ability (Camara, Nathan, & Puente, 2000), providing an assessment of a variety of capacities – such as the capacity for complex and higher-order thought processes and interest in intellectual exploration – which might be expected to be particularly important for collaboration in long-term psychodynamic therapies, helping the patient develop deeper self-knowledge through recognizing themes and patterns in their lives (McWilliams, 2011). Further, on an empirical note, higher intelligence has been observed both to be associated with more adequate ego functioning (e.g., higher quality of object relations) (Allen, Coyne, & David, 1986), and to predict better outcome in long-term psychodynamic psychotherapy (Knekt, Saari, & Lindfors, 2014). For these reasons, we expected higher WAIS-R scores to predict greater alliance development.

## **Methods**

### **Study Design and Participants**

The Helsinki Psychotherapy Study (HPS) (Knekt & Lindfors, 2004) is a randomized clinical trial of adult outpatients suffering from mood and/or anxiety disorder. Fuller details of the study design and methods have been published elsewhere (Knekt & Lindfors 2004) and are reported here briefly. The HPS has compared the effectiveness and studied the suitability of four different psychotherapies in a sample of 326 patients randomized into short-term psychodynamic psychotherapy, brief solution-focused psychotherapy, or long-term psychodynamic therapy. In addition, 41 patients were self-selected for psychoanalysis.

The present study is based on the 128 patients assigned to the long-term psychodynamic psychotherapy (LPP). The patients were referred to the HPS from psychiatric services in the Helsinki region and screened for inclusion in the study over a period of 6 years. The inclusion criteria were: an adult patient (aged 20–46 years); a long-standing (>1 year) disorder causing dysfunction in work ability; a diagnosis of anxiety or mood disorder according to *DSM-IV* (APA, 1994); and having a

neurotic to a higher level borderline personality organization (Kernberg, 1996). The exclusion criteria were: psychotic disorder; bipolar type I disorder; severe personality disorder (i.e., DSM-IV cluster A personality disorder and/or lower level borderline personality organization); adjustment disorder; substance abuse; organic disease; and intellectual disability. Psychiatric health employees and individuals who had undergone psychotherapy within the two previous years were also excluded. The study was approved by the ethics council of Helsinki University Hospital. Written informed consent was obtained from the participants at baseline. The patients were monitored over a 5-year follow-up. The drop-out rate over the measurement points has been described in more detail in Knekt et al. (2008).

### **Psychotherapy and Psychotherapists**

LPP is an open-ended therapeutic approach that explores aspects of the self that are not fully known and aims to make them more consciously available, utilizing their manifestations in the therapeutic relationship (Gabbard, 2007; Shedler, 2010). More specifically, LPP utilizes interventions focused on transference phenomena, i.e., exploring interpersonal problems when they are actualized within the therapeutic relationship, since insight into these problems and their resolution is thought to improve overall functioning, including interpersonal capacities and personality functioning (Høglend, 2014). Both explorative and supportive elements are included in the therapy process, based on the therapist's evaluation of patient needs. LPP is presumed to help patients by resolving psychic conflicts via improvement in the self-observing capacity and understanding of psychic problems and their origins (Shedler, 2010). The frequency of sessions in LPP was 2–3 times a week and the mean duration of therapy was 31.3 months ( $SD = 11.9$ ). The therapies were carried out by 41 psychotherapists. The therapists had undergone standard training in psychodynamic orientation lasting at least 3 years. The average psychotherapeutic work experience was 18 years (range 6–30 years).



## Measures

**Predictor variables.** *Ego impairment* was assessed using the Rorschach Ego Impairment Index (EII-2). The Rorschach Inkblot Method was administered and coded by the standard procedure of the CS (Exner, 2003). The administration and coding procedures, as well as interrater reliability, have been described in detail elsewhere (Valkonen, Lindfors, & Knekt, 2012).

The EII-2 is a broad-band composite score of psychological disturbance and deficits in ego functioning. The EII-2 encompasses a combination of the number of responses (*R*) plus six weighted variables obtained from the CS. These variables are: poor perceptual accuracy (*FQ-*), the weighted sum of impaired reasoning and cognitive slippage (*WSum6*), problematic vs. adaptive representations of people and interactions (*Poor Human Representation (PHR)* and *Good Human Representation (GHR)* variables), the expression of primitive and problematic imagery (*Critical Contents*), and distorted perceptions of human activity (*M-*). CS summary scores from the protocols were calculated using the program RIAP-3. The EII-2 score was derived from the summary scores using the Rorschach Research Utilities (RRU) program (Janson, 2008) and SPSS statistical software. *Defenses* were assessed using a self-report inventory, the Finnish translation (Sammallahti, Aalberg, & Pentinsaari, 1994) of the revised 88-item Defense Style Questionnaire (DSQ). Each item describes defenses along an ordinal continuum from no agreement to total agreement (range 1–9). The DSQ enables the scoring and assessment of defenses considered to be mature, neurotic, or immature (Andrews, Singh, & Bond, 1993). *Intelligence* was measured using eight sections of the Wechsler Adult Intelligence Scale-Revised (WAIS-R; Wechsler, 1981) to obtain a full-scale intelligence quotient (IQ), i.e., global estimate of intelligence.

**Other baseline measures.** Descriptive characteristics and potential confounding factors were assessed at baseline. Axis I and II psychiatric diagnoses were assessed using a semi-structured interview (Knekt & Lindfors, 2004) based on the *DSM-IV* diagnostic criteria (APA, 1994). The reliability of the axis I diagnoses used was assessed using 39 videotaped interviews, carried out by

seven clinical interviewers (Laaksonen et al., 2012). Both the repeatability of the individual diagnostic assessments and the agreement between the interviewers were fair or good (Intraclass Correlation Coefficient = 0.45-1.00). The sociodemographic data (sex, age, education, and marital status) and psychiatric history (previous depressive states) of the patients were collected via questionnaires and interviews. Anxiety symptoms were assessed using the Hamilton Anxiety Rating Scale (HARS; Hamilton, 1959). The level of social support was assessed using the Brief Inventory of Social Support and Integration (BISSI; Lindfors, Ojanen, Jääskeläinen, & Knekt, 2014).

**Outcome measures.** The Working Alliance Inventory (WAI) (Horvath & Greenberg, 1989) was used as the outcome measure. The WAI is a self-report measure for assessing the quality of the alliance and consists of 36 items focusing on the therapeutic relationship. The WAI assesses three primary components of the working alliance: 1) the affective bond between the therapist and patient, 2) agreement between the therapist and patient on the goals of therapy, and 3) agreement between the therapist and patient on the tasks of therapy. The participants were asked to rate each statement on a 7-point Likert scale ranging from 1 to 7. The quality of the working alliance was rated by both patients (WAI-P) and therapists (WAI-T) in this study. WAI-P and WAI-T were assessed at four time points: at baseline (3rd psychotherapy session) and at 7-month, 24-month, and 36-month follow-up points.

## Statistical Methods

A cohort study design with repeated measurements was used. Primary “intention-to-treat” (ITT) analyses were performed, in which all the patients who had been randomized were included. The primary analyses were based on the assumption of ignorable dropouts from the outcome measures (Härkänen, Knekt, Virtala, & Lindfors, 2005). Linear mixed models (Verbeke & Molenberghs, 1997) were used in the statistical analysis. The dependent variables in the regression models were the outcome measures (WAI-P and WAI-T). In the first ITT model, the independent variables included

separately one of the three predictive variables (EII-2, DSQ and WAIS-R), the therapy group, and the time of measurement during the follow-up, their first- and second-order interactions, and a correction term including the difference between the theoretical and realized date of measurement. The model also included the six potentially confounding factors (education (categorical), comorbidity of mood and anxiety disorders (categorical), major depressive disorder (categorical), previous depressive states (categorical), social support and integration (BISSI) (categorical), and the anxiety rating scale (HARS)) (continuous) which satisfied the criteria for confounding (Rothman & Greenland, 1998), and, finally, the respective outcome measure at baseline. In a similar second model, all the three main predictive variables (EII-2, DSQ, and WAIS-R) were simultaneously included in the model. To avoid assumptions about the shape of the relationship between the predictive variables and the outcome variable (Breslow & Day, 1980), the predictors were divided by the median into “good” and “poor” categories. Size of the effects, expressed as percentual differences in the mean estimated outcome (i.e., the alliance) between the “good” and “poor” categories of the three variables (EII-2, DSQ, and WAIS-R) at the different measurement points, were calculated from the b-coefficients of the regression models (Lee, 1981). The delta method was used to calculate the confidence intervals of the differences (Migon & Gamerman, 1999). Secondary “as treated” (AT) analyses were performed, taking into account violation of the treatment standards. In these analyses, additional information was included regarding the waiting time from randomization to the initiation of treatment, the completeness of the treatment (i.e., withdrawal after randomization, discontinuation of treatment, and the quality of the treatment), and the use of auxiliary treatment (i.e., additional psychotherapy, psychotropic medication use, and hospitalization) at baseline and during the 5-year follow-up. Since the AT analyses did not show any notable differences from the ITT analyses, we decided not to present the AT results. All statistical analyses were performed with SAS software, version 9.1 (SAS 2007).

## Results

The study population consisted of 128 patients allocated to long-term psychodynamic psychotherapy (Table 1). Their mean age was 31.6 years, one-fifth of them were male, and about one-fourth had a university-level higher education. A mood disorder was present in 88.3% of the patients, and 36.7% had at least two simultaneous diagnoses (axis I or axis II) of a comorbid mental disorder. Since excluding males from the model did not indicate any gender interaction, we decided to present the results for men and women combined. At baseline, no statistically significant intercorrelations were noted either between the predictor variables (WAIS-R, DSQ, and EII-2) or between the outcome variables (WAI-P and WAI-T) (Table 2). Nevertheless, the predictor variable WAIS-R was found to significantly correlate with the therapist-rated alliance (WAI-T) ( $r = .29, p < .05$ ).

### Prediction of Patient-rated Alliance (WAI-P)

The patients in the ‘poor’ EII-2 group, exhibiting greater ego impairment, showed significantly greater improvement in the patient-rated alliance (WAI-P) during the follow-up than patients in the lower EII-2 group ( $p = .04$ ) (Table 3). No early improvement in WAI-P was noted in the ‘good’ group, exhibiting lesser ego impairment. The statistically significant model-adjusted percentual difference in estimated mean alliance between good and poor EII-2 values was 8.0% (95% CI -14.3%, -1.8%). The inclusion of all the three predictors (EII-2, DSQ, and WAIS-R) simultaneously in the same model showed that there were no significant independent differences in WAI-P between the two EII-2 groups.

In contrast, good DSQ values, indicating a more mature defensive style, predicted a more positive development of WAI-P than poor DSQ values throughout the follow-up ( $p = .04$ ). Examination of the individual measurement points showed the means to differ statistically significantly at the 7-month follow-up point with a percentual difference of 7.2%. (1.3%, 13.0%) in the estimated alliances. After adjustment for EII-2 and WAIS-R, we also noted a similar difference in the estimated alliances

between the good and poor DSQ groups at the 24-month and 36-month follow-up points, showing percentual differences of 14.1% and 14.2%, respectively.

Patients with higher total WAIS-R scores, indicating higher intellectual performance, displayed non-significantly greater improvement in WAI-P than patients with lower scores ( $p = .06$ ). Of the single follow-up points, a significance difference was seen at the 36-month follow-up, the mean percentual difference being 13.2% (1.8%, 24.5%). In the model adjusted for EII-2 and DSQ, the association was further strengthened ( $p = .03$ ), with statistically significant differences at the 24- and 36-month follow-up points, with the respective mean differences of 11.5% (0.2%, 22.8%) and 15.2% (4.2%, 26.3%).

### **Prediction of Therapist-rated Alliance (WAI-T)**

No significant differences in the therapist-rated alliance were observed between patient groups with lower vs. higher levels of EII-2 or DSQ (Table 4). Simultaneous inclusion of all the three variables (EII-2, DSQ, and WAIS-R) in the model did not change the outcome. Higher WAIS-R scores predicted non-significantly ( $p = .06$ ), and after adjustment for EII-2 and DSQ, significantly ( $p = .04$ ) greater improvement in WAI-T than lower scores. The difference reached statistical significance at the 24-month follow-up point with the model-adjusted mean difference of 6.6% (0.2%, 12.9%).

## **Discussion**

To our knowledge, this is the first study to investigate how three theoretically important, but empirically rarely investigated psychological resources or vulnerabilities, i.e., ego impairment, defense style, and intelligence, predict how the patient- and therapist-rated alliance develops throughout long-term therapy. At the same time, the study compared three quite different methods for predicting the alliance: i.e., the Rorschach, self-report, and cognitive performance test, respectively. All three

predictors and methods displayed some association with the alliance and are discussed below in the order of their predictive strength.

The WAIS-R was observed to be the strongest independent predictor. As hypothesized, higher WAIS-R scores predicted favorable development of both the patient- and therapist rated alliance. This finding also held when controlling for possible confounding factors. Remarkably, to the best of the authors' knowledge, there has been no previous research on how intelligence predicts alliance development during psychotherapy in patients with mood and/or anxiety disorder. However, our finding that cognitive capacities contribute to the development of therapeutic collaboration between the patient and therapist is consistent with theorizing by Bram and Peebles (2014), suggesting that the process of psychotherapy and therapeutic change inevitably involves problem solving and learning. Moreover, intellectual resources such as verbal abilities have been suggested as indicators of suitability for psychodynamic psychotherapy and psychoanalysis (APA, 1985).

In this context, it also seems noteworthy that the benefit of higher intelligence emerged relatively late in the therapy process, at the 2- and 3-year follow-up points. It therefore appears that intelligence may be particularly useful for sustaining and deepening the therapeutic work after the patient's immediate problems and distress have been addressed earlier in therapy (Kopta, Howard, Lowry, & Beutler, 1994). This may facilitate the development of a deeper, more personally meaningful therapy process in cognitively higher-functioning patients, thus enabling both patients and therapist to experience the relationship as more purposeful. Specifically, qualities often associated with higher intelligence – such as efficient information processing, verbal ability, abstract thinking, or reflective capacity – may facilitate collaboration in psychodynamic therapy, which aims at accessing disavowed strivings, feelings, and conflicts. Higher cognitive capacities may enhance alliance by both helping patients make sense of their inner experiences and their relationship with their therapist and reflect on a “meta level” (cf. Wells, 2011), as well as regulate moments of intense

and potentially harmful affect states, stirred within therapeutic interaction, through being able to verbalize them. Thus, intelligence could be viewed as a factor that enhances the patient's capacity to contain and find solutions to challenges that emerge during therapeutic collaboration. Supporting this interpretation, an earlier study found intelligence to predict better outcomes in long-term psychodynamic therapy and psychoanalysis as compared to short-term therapies, but these differences only emerged at the 5-year follow-up (Knekt, Saari, & Lindfors, 2014). At that point, not only short-term but also most long-term therapies had ended. Taken together, these findings thus suggest that especially in long-term therapies, intelligence may, perhaps through a better therapeutic alliance, facilitate working through problems comprehensively and gaining psychological resources and resilience that promote well-being, even after formal therapy has ended (Falkenström, Grant, Broberg, & Sandell, 2007).

Additional explanations might be offered for why intelligence was the only variable consistently predicting therapist-rated alliance development. For instance, since intelligence is generally highly valued in society (Brand, 1996), cognitively capable patients could have made a more favorable impression on their therapists, this "halo effect" also influencing their assessments of the working alliance. Whatever the explanation, the generally positive relationship of intelligence to patient- and therapist-rated alliance seems noteworthy. It indicates that, even if cognitive abilities may also undermine therapeutic collaboration – e.g., in the case of excessive use of intellectualization as a defense mechanism – this is more the exception than the rule.

As for the patient-rated defenses, they were seen to have little effect on the therapist-rated alliance, while less use of immature defenses, such as devaluation and projection, predicted consistently improved patient-rated alliance during therapy. In contrast to intelligence, its effect was seen relatively early in therapy, already at the 7-month follow-up point. This is consistent with earlier findings, supporting the view that the maturity of defenses will facilitate collaborative work, at least

from the patient's perspective, from the beginning in long-term psychodynamic therapy (Bond & Perry, 2004). A novel finding from this study was that this effect did not fade, but rather was strengthened up to the 2- and 3-year follow-up points. In other words, it seems that patients with more mature defenses are capable of progressively achieving an even greater sense of purposeful striving and affectively bonding with the therapist as therapy continues (Cramer, 2006). This finding also complements earlier results from long-term psychodynamic therapy showing that an improved alliance was predicted by greater self-rated interpersonal problems in patients, which, although apparently surprising, may presumably have signaled greater self-awareness and a lesser need to devalue or project into others (Ollila, Knekt, Heinonen, & Lindfors, 2016).

Higher EII-2 values, indicating more problematic ego functioning, predicted greater patient-rated alliance improvement over the course of therapy. This finding contradicts our hypothesis that ego impairment, i.e., difficulties in areas such as affect regulation and the capacity for interpersonal relatedness, might present challenges in therapy (Kernberg, 2004). However, a long-term therapy process might also provide corrective interpersonal experiences for such patients, as alliance ruptures (such as misunderstandings) are repeatedly worked through and empathically repaired (Safran & Muran, 2000). Rather than a contraindication, the results thus suggest that ego-impaired patients may achieve a positively experienced, meaningful working alliance in long-term psychodynamic therapy (cf. Crits-Christoph, Gibbons, & Mukherjee, 2013). However, it should be noted that the EII-2 did not add to the prediction when DSQ and WAIS-R were included in the model.

### **Summary of Results, Implications, and Future Directions**

In summary, the psychological resources as well as the vulnerabilities of the patients predicted a favorable development of the alliance in the course of long-term psychodynamic therapy. A good cognitive capacity and mature defensive functioning predicted an improved alliance throughout the 3-



year follow-up, possibly reflecting an ability to engage in, sustain, and deepen meaningful collaboration. However, greater ego impairment also predicted a more improved alliance, possibly reflecting an interpersonally and emotionally corrective experience during therapy.

Therefore, these findings speak to the multiple facets of what the therapeutic alliance and its measurement actually signify. Furthermore, some of these facets and the processes involved therein may be intrapsychic or salient only to one of the treatment parties. This was indicated by the fact that some associations (i.e., predictive ability of defense style and ego impairment) were only observed in the patient-rated alliance. This finding may indicate, for example, that therapists may not be sensitive in perceiving the derivatives of patients' ego impairment or maladaptive defenses, even while they have a significant impact on patients' experience of the alliance. However, it is also possible that while these possibly problematic derivatives are detected, therapists consider them (e.g., devaluation or other maladaptive defenses) expectable for the given patient and can manage them in an empathic way that does not hinder development of the alliance from the clinician's perspective. In any case, prior meta-analyses have indicated that patients and therapists appear to view the alliance somewhat differently, suggesting also that patients and therapists may consider different perspectives and factors as crucial when they evaluate the alliance (Tryon et al., 2007).

In a similar fashion, prior studies have demonstrated that therapists' notions of what they are like as persons may predict their ratings of the alliance but have little bearing on the patient-rated working relationship (Heinonen et al., 2014). These findings therefore highlight both the intrapsychic and the interpersonal nature of the alliance, which calls for further exploration (e.g., Zilcha-Mano et al., 2016). Also, the fact that intelligence and defenses were strengthened or became statistically significant with the inclusion of the other two predictors points to potentially interesting and complex "suppressor" effects: these could be further investigated using other treatment process data and measures.

Based on our results, one might surmise that greater alliance development in long-term psychodynamic psychotherapy would be expected for patients with a pre-treatment constellation of higher ego impairment, higher intellectual functioning and lesser self-reported use of immature defenses. A long-term treatment may enable ego development through learning of coping and relating skills; thereby improving also object relations, and being reflected in alliance development. In contrast, intelligence in particular (Groth-Marnat, 2009) and defensive styles possibly also (Akkerman et al., 1999), may be less susceptible to change: hence, a positively deepening therapeutic collaboration would be best facilitated by their initially favorable level.

Whatever the case may be for individual clients, our findings suggest that predictions of alliance development may be enhanced if conclusions are based on a multimethod assessment approach. Accordingly, when training clinicians to plan treatment with the aid of psychological assessment, interpretation of findings from one test measure could be balanced by evaluating information obtained by other measures – e.g., integrating data on WAIS, Rorschach and defense profiles of the patients – to help clinicians understand personality functions relevant for treatment needs. However, more nuanced further research could also still be conducted on the measure level, such as investigating whether some subtests of the WAIS-R are particularly important for the beneficial development of the alliance or some of its subcomponents. As this study only investigated long-term psychodynamic therapy, future research should examine whether similar effects are observed in other types of short- or long-term psychotherapies.

### **Methodological Issues**

The strengths of this study include, first, the large sample size with a long follow-up and multiple measurements during its course, which enabled the detection of nuanced developments in the alliance. Secondly, both the alliance and its predictors were assessed with well-known and validated measures.

Thirdly, using three different methodologies to assess the predictors and assessing both patient and therapist perspectives of the alliance yielded comparative understanding of the intra- and interpersonal aspects of the alliance and their determinants.

There were also some limitations to the study. First, since the therapy sessions were not recorded and the therapy was not manualized, it is not possible to evaluate how the predictors manifested themselves in the sessions or how the therapists responded to them. However, this was in line with the intent to study normal clinical practice. Secondly, although potential confounding factors were included in the models, residual confounding cannot be fully excluded. Relatedly, deviations from the protocol (e.g., discontinuation of psychotherapy) and the use of auxiliary treatment (medication, hospitalization, additional psychotherapy) may cause bias (Knekt et al., 2011). However, taking these factors into account in the AT models did not alter the results to any notable extent. Thirdly, given that patients with, for instance, severe personality pathology, psychosis, or cognitive impairment were excluded, the results should not be generalized to these populations. Fourthly, the number of men in the sample was modest. Thus, the generalizability of findings to males is open to question, although we found no notable gender interaction in our analyses.

### **Clinical Implications**

Our findings show that pre-treatment psychological assessment can inform of patients' capacity to engage in and develop a positively experienced therapy working relationship, as assessed from both the patient and therapist viewpoints. They may thus have utility for clinicians in tailoring a treatment to patients' individual characteristics (e.g., poor defenses) to ensure an optimally effective working relationship right from the start of therapy. It may also be noted that arguably the most "objective" measure, i.e. performance-based intelligence, was the one that most consistently predicted both the patient- and therapist-rated alliance. However, as both convergences and divergences between patient

and therapist viewpoints may be important (Safran & Muran, 2000), the findings as a whole, highlight the potential clinical value in assessing patients with multiple methodologies prior to treatment and caution against relying on only one method when estimating how a patient will engage in therapy (Achenbach, Krukowski, Dumenci, & Ivanova, 2005; Meyer et al., 2001). Further multi-method assessment studies on the working alliance in long-term therapies are still required to more fully understand how the therapeutic relationship evolves over time, the determinants of this evolution, and its impact on the treatment outcome.

## References

- Achenbach, T. M., Krukowski, R. A., Dumenci, L., & Ivanova, M. Y. (2005). Assessment of adult psychopathology: Meta-analyses and implications of cross-informant correlations. *Psychological Bulletin, 131*, 361–382. doi:10.1037/0033-2909.131.3.361
- Akkerman, K., Lewin, T. J., Carr, V. J. (1999). Long-term changes in defense style among patients recovering from major depression. *Journal of Nervous and Mental Diseases, 187*, 80-87.
- Alexander, F., & French, T. M. (1946). *Psychoanalytic Psychotherapy*. New York: Ronald Press.
- Allen, J. G., Coyne, L., & David, E. (1986). Relation of intelligence to ego functioning in an adult psychiatric population. *Journal of Personality Assessment, 50*, 212–221. doi:10.1207/s15327752jpa5002\_8
- American Psychiatric Association. (1985). *Committee on peer review. Manual of psychiatric peer review. Peer review guidelines for psychoanalysis, 3<sup>rd</sup>*. Ed. Washington, DC: American Psychiatric Association.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders*. Washington, DC: American Psychiatric Association.
- Andrews, G., Pollock, C. & Stewart, G. (1989). The determination of defense style by questionnaire. *Archives of General Psychiatry, 46*, 455–460. doi:10.1001/archpsyc.1989.01810050069011
- Andrews, G., Singh, M. & Bond, M. (1993). The defense style questionnaire. *The Journal of Nervous and Mental Disease, 181*, 246–256. doi:10.1097/00005053-199304000-00006
- Bond, M., & Perry, J. C. (2004). Long-term changes in defense styles with psychodynamic psychotherapy for depressive, anxiety, and personality disorders. *American Journal of Psychiatry, 161*, 1665–1671. doi:10.1176/appi.ajp.161.9.1665
- Bond, M. (2004). Empirical studies of defense style: relationships with psychopathology and change. *Harvard Review of Psychiatry, 12*, 263–278.

- Bram, A. D., & Peebles, M. J. (2014). *Psychological testing that matters: Creating a road map for effective treatment*. Washington, DC: American Psychological Association.
- Brand, C. R. (1996). The importance of intelligence in western societies. *Journal of Biosocial Science*, 28, 387–404.
- Breslow, N. E., & Day, N. E. (1980). *Statistical methods in cancer research. Vol 1. The analysis of case-control studies. IARC Scientific Publications no 32*. Lyon: International Association for Research on Cancer.
- Camara, W. J., Nathan, J. S., & Puente, A. E. (2000). Psychological test usage: Implications in professional psychology. *Professional Psychology: Research and Practice*, 31, 141–154.
- Charnas, J. W., Hilsenroth, M. J., Zodan, J., & Blais, M. A. (2010). Should I stay or should I go? Personality Assessment Inventory and Rorschach indices of early withdrawal from psychotherapy. *Psychotherapy Theory, Research, Practice, Training*, 47, 484–499. doi:10.1037/a0021180
- Cramer, P. (2006). *Protecting the self: Defense mechanisms in action*. New York, NY: Guilford Press.
- Crits-Christoph, P., Gibbons, M. B. C., & Mukherjee, D. (2013). Psychotherapy process-outcome research. In Lambert M. J., (Ed.), *Bergin and Garfield's handbook of psychotherapy and Behavior Change*. 6th ed. (pp. 298–354). Hoboken: Wiley.
- Despland, J.-N., de Roten, Y., Despars, J., Stigler, M., & Perry, J. C. (2001). Contribution of patient defense mechanisms and therapist interventions to the development of early therapeutic alliance in a brief psychodynamic investigation. *The Journal of Psychotherapy Practice and Research*, 10, 155–164.
- Exner, J. E. (2003). *The Rorschach: A Comprehensive System. Vol. 1. Basic foundations* (4th ed.). New York, NY: Wiley.

- Falkenström, F., Grant, J., Broberg, J., & Sandell, R. (2007). Self-analysis and post-termination improvement after psychoanalysis and long-term psychotherapy. *Journal of the American Psychoanalytic Association*, 55, 629–674. doi:10.1177/00030651070550020401
- Flückiger, C., Del Re, A. C., Wampold, B. E., & Horvath, A. O. (2018). The alliance in adult psychotherapy: A meta-analytic synthesis. *Psychotherapy*, 55, 316–340. doi:10.1037/pst0000172
- Gabbard, G. O. (2007). Major modalities: psychoanalytic/psychodynamic. In Gabbard, G. O., Beck, J. S., & Holmes, J. (Eds.), *Oxford textbook of psychotherapy* (pp. 2–13). New York, NY: Oxford University Press.
- Groth-Marnat, G. (2009). *Handbook of Psychological Assessment* (5th ed.). New Jersey: Wiley.
- Hamilton, M. (1959). The assessment of anxiety states by rating. *British Journal of Medical Psychology*, 32, 50–55. doi:10.1111/j.2044-8341.1959.tb00467.x
- Heinonen, E., Lindfors, O., Härkänen, T., Virtala, E., Jääskeläinen, T., & Knekt, P. (2014). Therapists' professional and personal characteristics as predictors of working alliance in short-term and long-term psychotherapies. *Clinical Psychology & Psychotherapy*, 21, 475–494.
- Hersoug, A. G., Høglend, P., Havik, O. E., von der Lippe, A., & Monsen, J. T. (2009). Pretreatment patient characteristics related to the level and development of working alliance in long-term psychotherapy. *Psychotherapy Research*, 19, 172–180. doi:10.1080/10503300802657374
- Hersoug, A. G., Monsen, J. T., Havik, O. E., & Høglend, P. (2002). Quality of early working alliance in psychotherapy: Diagnoses, relationship and intrapsychic variables as predictors. *Psychotherapy and Psychosomatics*, 71, 18–27. doi:10.1159/000049340
- Høglend, P. (2014). Exploration of the patient-therapist relationship in psychotherapy. *American Journal of Psychiatry*, 171, 1056–1066. doi:10.1176/appi.ajp.2014.14010121

- Hilsenroth, M., Handler, L., Toman, K. M., & Padaver, J. R. (1995). Rorschach and MMPI-2 indices of early psychotherapy termination. *Journal of Consulting and Clinical Psychology, 63*, 956–965. doi:10.1037//0022-006x.63.6.956
- Horvath, A. O., & Greenberg, L. S. (1989). Development and validation of the working alliance inventory. *Journal of Counseling Psychology, 36*, 223–233. doi:10.1037//0022-0167.36.2.223
- Härkänen, T., Knekt, P., Virtala, E., & Lindfors, O. (2005). A case study in comparing therapies involving informative drop-out, non-ignorable non-compliance and repeated measurements. *Statistics in Medicine, 24*, 3773–3787. doi:10.1002/sim.2409
- Janson, H. (2008). *Calculating and reporting Rorschach intercoder agreement*. Paper presented in Annual Meeting of the Society for Personality Assessment, New Orleans, LA. March 2008.
- Kernberg, O. F. (1975). *Borderline conditions and pathological narcissism*. New York, NY: Jason Aronson.
- Kernberg, O. F. (1996). A psychoanalytic theory of personality disorders. In Clarkin, J. F., Lenzenweger, M. F. (Eds.), *Major theories of personality disorder* pp. 106–140. New York, NY: Guilford Press.
- Kernberg, O. F. (2004). *Contemporary controversies in psychoanalytic theory, techniques, and their applications*. New Haven and London: Yale University Press.
- Kernberg, O. F. (2016). The four basic components of psychoanalytic technique and derived psychoanalytic psychotherapies. *World Psychiatry, 15*, 287–288. doi:10.1002/wps.20368
- Knekt, P., & Lindfors, O. (2004). A randomized trial of the effect of four forms of psychotherapy on depressive and anxiety disorders. Design, methods, and results on the effectiveness of short-term psychodynamic psychotherapy and solution-focused therapy during a one-year follow-up. *Studies in social security and health 77*. Helsinki: The Social Insurance Institution.



- Knekt, P., Lindfors, O., Härkänen, T., Välikoski, M., Virtala, E., Laaksonen, M. A., Marttunen, M., Kaipainen, M., & Renlund, C. (2008). Randomized trial on the effectiveness of long-and short-term psychodynamic psychotherapy and solution-focused therapy on psychiatric symptoms during a 3-year follow-up. *Psychological Medicine*, 38, 689–703. doi:10.1017/S003329170700164X
- Knekt, P., Lindfors, O., Keinänen, M., Heinonen, E., Virtala, E., & Härkänen, T. (2017). The prediction of the level of personality organization on reduction of psychiatric symptoms and improvement of work ability in short- versus long-term psychotherapies during a 5-year follow-up. *Psychology and Psychotherapy: Theory, Research and Practice*, 90, 353–376. doi:10.1111/papt.12115
- Knekt, P., Lindfors, O., Renlund, C., Sares-Jäske, L., Laaksonen, M. A., & Virtala, E. (2011). Use of auxiliary treatment during a 5-year follow-up among patients receiving brief or long-term psychotherapy. *Journal of Affective Disorders*, 135, 221–230. doi:10.1016/j.jad.2011.07.024
- Knekt P., Saari T., & Lindfors, O. (2014). Intelligence as a predictor of outcome in short- and long-term psychotherapy. *Psychiatry Research*, 220, 1019–1027. doi:10.1016/j.psychres.2014.10.011
- Kopta, S. M., Howard, K. I., Lowry, J. L., & Beutler, L. E. (1994). Patterns of symptomatic recovery in psychotherapy. *Journal of Consulting and Clinical Psychology*, 62, 1009–1016. doi:10.1037//0022-006x.62.5.1009
- Laaksonen, M. A., Knekt, P., & Lindfors, O. (2013). Psychological predictors of the recovery from mood or anxiety disorder in short-term and long-term psychotherapy during a 3-year follow-up. *Psychiatry Research*, 208, 162–171. doi:10.1016/j.psychres.2012.09.053
- Laconi, S., Cailhol, L., Pourcel, L., Thalamas, C., Lapeyre-Mestre, M., & Chabrol, H. (2015). Relationship between defense mechanism and therapeutic alliance. *Encephale*, 41, 429-434. doi: 10.1016/j.encep.2014.10.021

- Leichsenring, F., & Rabung, S. (2011). Long-term psychodynamic psychotherapy in complex mental disorders: update of a meta-analysis. *British Journal of Psychiatry*, 199, 15–22. doi:10.1192/bjp.bp.110.082776
- Lee, J. (1981). Covariance adjustment of rates based on the multiple logistic regression model. *Journal of Chronic Diseases*, 34, 415–426. doi:10.1016/0021-9681(81)90040-0
- Lindfors, O., Ojanen, S., Jääskeläinen, T., & Knekt, P. (2014). Social support as a predictor of the outcome of depressive and anxiety disorder in short-term and long-term psychotherapy. *Psychiatry Research*, 216, 44–51. doi:10.1016/j.psychres.2013.12.050
- McWilliams, N. (2011). *Psychoanalytic diagnosis*. Understanding personality structure in the clinical process. (2<sup>nd</sup> ed.). New York: The Guilford Press.
- Meyer, G. J., Finn, S. E., Eyde, L. D., Kay, G. G., Moreland, K. L., Dies, R. R., Eisman, E. J., Kubiszyn, T. W., & Reed, G. M. (2001). Psychological testing and psychological assessment: A review of evidence and issues. *American Psychologist*, 56, 128–165.
- Meyer, G. J., Viglione, D. J., Mihura, J. L., Erard, R. E., & Erdberg, P. (2011). *Rorschach Performance Assessment System: Administration, coding, interpretation, and technical manual*. Toledo, OH: Rorschach Performance Assessment System.
- Migon, H., & Gamerman, D. (1999). *Statistical Inference: An Integrated Approach*. London: Arnold.
- Ollila, P., Knekt, P., Heinonen, E., & Lindfors, O. (2016). Patients' pre-treatment interpersonal problems as predictors of therapeutic alliance in long-term psychodynamic psychotherapy. *Psychiatry Research*, 241, 110–117. doi:10.1016/j.psychres.2016.04.093
- Perry, W., & Viglione, D. J. (1991). The Ego Impairment Index as a predictor of outcome in melancholic depressed patients treated with tricyclic antidepressants. *Journal of Personality Assessment*, 56, 487–501. doi: 10.1207/s15327752jpa5603\_10

- Puschner, B., Bauer, S., Horowitz, L. M., & Kordy, H. (2005). The relationship between interpersonal problems and the helping alliance. *Journal of Clinical Psychology, 61*, 415–429. doi: 10.1002/jclp.20050
- Rothman, K. J., & Greenland, S. (1998). *Modern Epidemiology*. (2<sup>nd</sup> ed.). Philadelphia: Lippincott-Raven.
- Sammallahti, P., Aalberg, V., & Pentinsaari, J. P. (1994). Does defense style vary with severity of mental disorder? An empirical assessment. *Acta Psychiatrica Scandinavica, 90*, 290–294.
- Safran, J. D., & Muran, J. C. (2000). *Negotiating the therapeutic alliance: A relational treatment guide*. New York, NY: Guilford Press.
- SAS Institute Inc. (2007). *SAS/STAT User's guide, version 9.1*. Cary, NC: SAS Institute Inc.
- Shedler, J. (2010). The efficacy of psychodynamic psychotherapy. *American Psychologist, 65*, 98–109. doi:10.1037/a0018378
- Trijsburg, R. W., Colijn, S., & Holmes, J. (2007). Psychotherapy Integration. In Gabbard, G. O., Beck, J. S., & Holmes, J. (Eds.), *Oxford textbook of psychotherapy* (pp. 95–107). New York, NY: Oxford University Press.
- Tryon, G. S., Blackwell, S. H., & Hammel, E. F. (2007). A meta-analytic examination of client-therapist perspectives of the working alliance. *Psychotherapy Research, 17*, 629–642.
- Valkonen, H., Lindfors, O., & Knekt, P. (2012). Association between the Rorschach Ego Impairment Index and the Level of Personality Organization interview assessment in depressive and anxiety disorder patients. *Psychiatry Research, 200*, 849–856. doi: 10.1016/j.psychres.2012.05.012
- Verbeke, G., & Molenberghs, G. (1997). *Linear mixed models in practice: A SAS-oriented approach*. New York, NY: Springer.

- Viglione, D. J., Perry, W., & Meyer, G. (2003). Refinements in the Rorschach Ego Impairment Index incorporating the Human Representational Variable. *Journal of Personality Assessment*, 81, 149–156. doi:10.1207/s15327752jpa8102\_06
- Wechsler, D. (1981). *Manual for the Wechsler Adult Intelligence Scale – Revised*. New York: Corporation.
- Wells, A. (2011). *Metacognitive therapy for anxiety and depression*. New York: The Guilford Press.
- Zetzel, E. R. (1956). Current concepts of transference. *The International Journal of Psychoanalysis*, 37, 369–376.
- Zilcha-Mano, S., Muran, J. C., Hungr, C., Eubanks, C. F., Safran, J. D., & Winston, A. (2016). The relationship between alliance and outcome: Analysis of a two-person perspective on alliance and session outcome. *Journal of Consulting and Clinical Psychology*, 84, 484–496. doi:10.1037/ccp0000058

Table 1

*Characteristics of the 128 Patients*

Variable	
Sociodemographic variables	
Age (years) <sup>1</sup>	31.6 (6.62)
Male gender (%)	21.1
Educational level academic (%)	28.1
Living alone (%)	49.2
Psychiatric diagnoses	
Mood disorder (%)	88.3
Anxiety disorder (%)	36.7
Comorbid psychiatric disorder (%) <sup>2</sup>	36.7
Personality disorder (%)	12.5
Rorschach Ego Impairment Index <sup>1</sup>	0.27 (1.45)
Defense Style Questionnaire <sup>1</sup>	3.39 (0.69)
Wechsler Adult Intelligence Scale-Revised <sup>1</sup>	109 (9.66)

<sup>1</sup> (SD).<sup>2</sup> At least two simultaneous diagnoses (Axis I or Axis II).

Table 2

*Correlation Coefficients Between Predictor Variables (Rorschach Ego Impairment Index (EII-2), Defense Style (DSQ) and Intelligence Score (WAIS-R)), Outcome Measures (Patient-rated Alliance (WAI-P) and Therapist-rated Alliance (WAI-T)) and Potentially Confounding Factors (Education, Comorbidity of Mood and Anxiety Disorders, Major Depressive Disorder, Previous Depressive States, Level of Social Support and Integration (BISSI), and the Hamilton Anxiety Rating Scale (HARS)) at Baseline*

Variable	1	2	3	4	5	6	7	8	9	10	11
1. EII-2	—										
2. DSQ	.14	—									
3. WAIS-R	-.003	.02	—								
4. WAI-P	-.17	-.18	.15	—							
5. WAI-T	.19	.03	.29*	.13	—						
6. Education	-.18*	.07	-.14	-.10	-.16	—					
7. Comorbidity	.13	.20*	-.11	.09	-.17	.008	—				
8. Major depressive disorder	.17	.20*	.05	-.12	.06	-.006	.08	—			
9. Previous depression	.19*	.08	-.02	-.13	.15	-.19*	.09	.44**	—		
10. BISSI	-.15	-.05	-.05	.21*	-.01	-.06	-.08	-.14	.05	—	
11. HARS	.10	.15	-.23	-.02	-.13	.06	.41**	.17	.01	.02	—

Note: \*  $p < .05$

\*\*  $p < .01$

Table 3. Mean Values of Patient-rated Alliance (WAI-P) and Mean Differences (95% Confidence Intervals) Between Good and Poor Levels of the Predictors EII-2, DSQ, and WAIS-R

		N. of patients		Mean in the model including one predictor variable at the time		Mean difference as percentages of the good predictor values (95% CI) <sup>3</sup>	<i>p</i> <sup>1</sup>	N. of patients <sup>4</sup>		Mean in the model including all the predictor variables		Mean difference as percentages of the good predictor values (95% CI) <sup>3</sup>	<i>p</i> <sup>1</sup>
Predictor	Follow-up (months)	Good	Poor	Good	Poor			Good	Poor	Good	Poor		
EII-2 <sup>2</sup>	0	48	46	176.4	172.6		.04	30	22	177.5	169.5		.71
	7	48	44	172.8	183.9	<b>8.0% [-14.3%, -1.8%]</b>		30	21	178.2	183.5	3.8% [-11.3%, 3.6%]	
	12	45	43	177.7	182.4	3.4% [-10.2%, 3.4%]		28	21	186.0	179.9	4.1% [-6.4%, 14.5%]	
	24	36	36	176.6	188.5	8.2% [-16.6%, 0.3%]		24	16	179.3	187.4	4.3% [-16.0%, 7.4%]	
	36	41	42	185.3	196.7	7.2% [-14.9%, 0.6%]		27	20	188.2	195.6	3.3% [-15.1%, 8.6%]	
DSQ <sup>2</sup>	0	50	46	176.8	170.1		.04	32	20	176.1	171.5		.02
	7	49	45	183.2	170.7	<b>7.2% [1.3%, 13.0%]</b>		31	20	186.8	170.2	<b>12.8% [5.4%, 20.3%]</b>	
	12	46	42	183.2	174.8	4.4% [-2.2%, 11.0%]		29	20	187.3	177.7	6.7% [-3.7%, 17.1%]	
	24	41	32	189.5	175.1	7.3% [-0.7%, 15.3%]		26	14	192.7	170.1	<b>14.1% [2.1%, 26.2%]</b>	
	36	47	36	196.5	183.6	6.4% [-0.7%, 13.5%]		30	17	200.5	177.4	<b>14.2% [2.9%, 25.5%]</b>	
WAIS-R <sup>2</sup>	0	27	26	168.0	180.3		.06	27	26	168.2	180.1		.03
	7	26	26	179.6	180.3	6.3% [-1.9%, 14.6%]		26	26	179.7	180.6	7.0% [-0.7%, 14.6%]	
	12	24	26	185.5	181.6	6.7% [-3.2%, 16.7%]		24	26	185.7	181.6	7.6% [-2.8%, 18.1%]	
	24	22	19	188.8	179.3	10.3% [-1.2%, 21.8%]		22	19	188.8	178.7	<b>11.5% [0.2%, 22.8%]</b>	
	36	24	24	199.6	184.6	<b>13.2% [1.8%, 24.5%]</b>		24	24	199.6	182.3	<b>15.2% [4.2%, 26.3%]</b>	

Note. Bold numbers indicate statistically significant differences in alliance between “good” and “poor” values. The model includes the following confounding factors: education, comorbidity of mood and anxiety disorders, social support and integration, major depressive disorder, previous depressive states, and the anxiety rating scale.

<sup>1</sup>Global test for the difference between the good and poor group throughout the follow-up.

<sup>2</sup>The predictors EII-2, DSQ, and WAIS-R scores were classified as poor or good around the median scores (the medians were -0.06, 3.98, and 109, respectively).

<sup>3</sup>Model adjusted for the baseline level of the outcome measure considered.

<sup>4</sup>The smaller number of patients in the EII-2 and DSQ variables in the simultaneous model are due to the smaller number in WAIS-R.

Table 4. Mean Values of Therapist-rated Alliance (WAI-T) and Mean Differences (95% Confidence Intervals) Between Good and Poor Levels of the Predictors EII-2, DSQ, and WAIS-R

Predictor	Follow-up (months)	N. of patients		Mean in the model including one predictor variable at the time		$p^1$	N. of patients <sup>4</sup>		Mean in the model including all the predictor variables		Mean difference as percentages of the good predictor values (95% CI) <sup>3</sup>		$p^1$
				Good	Poor		Good	Poor	Good	Poor			
EII-2 <sup>2</sup>	0	48	48	181.0	178.7	.31	31	23	182.8	167.2			.74
	7	48	46	180.9	181.7		30	21	182.8	176.4	0.3% [-6.1%, 5.5%]		
	12	47	46	182.1	181.7		29	22	183.3	177.2	1.2% [-4.2%, 6.6%]		
	24	37	40	180.7	183.6		25	19	179.0	176.7	1.2% [-7.3%, 4.9%]		
	36	44	42	182.1	189.3		29	20	184.2	184.4	2.8% [-9.6%, 4.1%]		
DSQ <sup>2</sup>	0	50	47	180.1	180.6	.59	32	22	178.4	173.0			.18
	7	50	45	180.3	182.9		31	20	181.5	178.7	0.2% [-5.8%, 5.5%]		
	12	50	44	183.3	179.1		31	20	183.8	176.5	4.0% [-1.0%, 9.1%]		
	24	43	34	184.1	180.9		28	16	182.8	169.7	<b>6.6% [0.8%, 12.4%]</b>		
	36	48	38	184.6	185.8		31	18	186.3	181.7	1.8% [-5.2%, 8.7%]		
WAIS-R <sup>2</sup>	0	28	27	173.0	180.0	.06	28	27	173.2	179.6			.04
	7	26	26	182.1	180.1		26	26	182.0	179.2	3.3% [-2.6%, 9.1%]		
	12	27	25	184.8	177.7		27	25	184.8	176.7	4.2% [-0.8%, 9.3%]		
	24	24	21	184.1	174.3		24	21	184.2	172.9	<b>6.7% [0.5%, 12.8%]</b>		
	36	25	25	189.9	181.4		25	25	189.9	180.0	5.6% [-1.2%, 12.4%]		

*Note.* Bold numbers indicate statistically significant differences in alliance between “good” and “poor” values. The model includes the following confounding factors: education, comorbidity of mood and anxiety disorders, social support and integration, major depressive disorder, previous depressive states, and the anxiety rating scale.

<sup>1</sup> Global test for the difference between the good and poor group throughout the follow-up.

<sup>2</sup> The predictors EII-2, DSQ, and WAIS-R scores were classified as poor or good around the median scores (the medians were -0.06, 3.98, and 109, respectively).

<sup>3</sup> Model adjusted for the baseline level of the outcome measure considered.

<sup>4</sup> The smaller number of patients in the EII-2 and DSQ variables in the simultaneous model are due to the smaller number in WAIS-R.