JYU DISSERTATIONS 378

Jaakko Stenius

The Rorschach Ego Impairment Index (EII-2) as a Predictor of Psychotherapy Outcome and Alliance Development

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FACULTY OF EDUCATION AND PSYCHOLOGY

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Esitetään Jyväskylän yliopiston kasvatustieteiden ja psykologian tiedekunnan suostumuksella julkisesti tarkastettavaksi kesäkuun 19. päivänä 2021 kello 12.

Academic dissertation to be publicly discussed, by permission of
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JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

JYVÄSKYLÄ 2021

Editors
Noona Kiuru
Department of Psychology, University of Jyväskylä
Päivi Vuorio
Open Science Centre, University of Jyväskylä

Permanent link to this publication: http://urn.fi/URN:ISBN:978-951-39-8633-9

ISBN 978-951-39-8633-9 (PDF)
URN:ISBN:978-951-39-8633-9
ISSN 2489-9003

ABSTRACT

Stenius, Jaakko
The Rorschach Ego Impairment Index (EII-2) as a predictor of psychotherapy outcome and alliance development
Jyväskylä: University of Jyväskylä, 2021, 74 p.
(JYU Dissertations
ISSN 2489-9003; 378)
ISBN 978-951-39-8633-9 (PDF)

The aim of the research was to evaluate the predictive ability of the Rorschach-based Ego Impairment Index (EII-2) on psychotherapy outcome and alliance development in patients suffering from depressive or anxiety disorders, using data from the Helsinki Psychotherapy Study. As various patient characteristics are among recognized predictors of psychotherapy outcome, it is important to understand how different patient qualities contribute to outcomes of therapies of different types and lengths. As a performance-based method the Rorschach provides a different, potentially complementary approach to the interviews traditionally used when evaluating patient qualities. Patients (n = 326) who participated in the research were randomly assigned to two short-term therapies – solution-focused therapy (SFT, n = 97) and short-term psychodynamic psychotherapy (SPP, n = 101) – and one long-term (psychodynamic) psychotherapy (LPP, n = 128). In a cross-sectional Study I, involving the whole study group, weak associations were found between the patients' EII-2 (and subcomponent) scores and both interview- and introspection-based assessments. In a Study II, the predictive ability of three divergent assessment measures of alliance development over the course of LPP was examined. The results indicated that higher performance-based intelligence scores predicted favorable development of both patient- and therapist-rated alliance. Less use of immature defenses predicted improved patient-rated alliance during therapy, as did higher ego impairment, when effects of predictors was evaluated one at a time. In a Study III, the predictive validity of the EII-2 for the outcome of the two short-term psychotherapies (SFT and SPP) and long-term psychotherapy (LPP) was assessed. Patients with lower EII-2 values indicating lower ego impairment were found to gain benefit more rapidly from both short-term therapies than from long-term psychodynamic psychotherapy. The findings suggest that Rorschach-based evaluation of ego functioning may provide clinically useful information for selection of treatment length. However, as these were the first investigations of the EII-2's predictive ability for psychotherapy outcome and alliance development more research is needed to confirm and extend the findings.

Keywords: psychotherapy, working alliance, prediction of psychotherapy outcome, suitability for psychotherapy, Rorschach, Ego Impairment Index

TIIVISTELMÄ (FINNISH ABSTRACT)

Stenius, Jaakko
Rorschach Ego Impairment Index (EII-2) psykoterapian tuloksellisuuden ja allianssin kehittymisen ennustajana
Jyväskylä: Jyväskylän yliopisto, 2021, 74 s.
(JYU Dissertations
ISSN 2489-9003; 378)
ISBN 978-951-39-8633-9 (PDF)

Tutkimuksen tavoitteena oli selvittää Rorschach Ego Impairment Indexin (EII-2) ennustekykyä psykoterapian tuloksellisuuden ja allianssin kehittymisen osalta mieliala- tai ahdistuneisuushäiriöstä kärsivillä potilailla perustuen Helsingin Psykoterapiatutkimuksen aineistoon. Potilaiden psykologisten ominaisuuksien on havaittu osaltaan ennustavan psykoterapian tuloksellisuutta, joten on perusteltua pyrkiä tarkemmin ymmärtämään sitä, miten erilaiset potilastekijät vaikuttavat erilaisten ja eripituisten terapioiden tuloksellisuuteen. Rorschach tutkittavan toimintaan perustuvana menetelmänä saattaa tarjota täydentävän näkökulman suhteessa perinteisiin haastattelupohjaisiin menetelmiin arvioitaessa psykoterapiasoveltuvuuteen yhteydessä olevia persoonallisuustekijöitä. Tutkimuksessa mukana olleet potilaat (n = 326) satunnaistettiin voimavarasuuntautuneeseen terapiaan (n = 97), lyhyeen psykodynaamiseen psykoterapiaan (n = 101) tai pitkään psykodynaamiseen psykoterapiaan (n = 128). Ensimmäisessä, koko potilasryhmän sisältäneessä poikkileikkaustutkimuksessa, havaittiin heikkoja yhteyksiä EII-2:n ja sen alamuuttujien sekä haastatteluun ja itsearviointiin perustuvien menetelmien välillä. Toisessa osatutkimuksessa seurattiin kolmen erilaisen arviointimenetelmän ennustevaikutusta allianssin kehitykseen pitkän psykodynaamisen terapian aikana. Tulosten mukaan parempi suoriutuminen kognitiivista kykytasoa arvioivassa menetelmässä ennusti parempaa allianssin kehittymistä sekä potilaiden että terapeuttien arvioimana. Vähäisempi itsearvioitu kypsymättömien defenssien käyttö samoin kuin heikompi egon toiminnan taso ennustivat parempaa potilaiden arvioimaa allianssin kehitystä analyyseissa, joissa tarkasteltiin ennustevaliditeettia yksi ennustemuuttuja kerrallaan. Kolmannessa osatutkimuksessa EII-2:n ennustevaliditeettia psykoterapian tuloksellisuuden ennustajana arvioitiin suhteessa kahteen lyhytterapiaan (voimavarasuuntautunut ja psykodynaaminen terapia) sekä pitkään psykodynaamiseen psykoterapiaan. Potilaat, joilla ilmeni vähemmän egon toiminnan haavoittuvuutta, hyötyivät nopeammin molemmista lyhytterapioista kuin pitkästä psykoterapiasta. Tutkimustulosten perusteella Rorschachin menetelmään perustuva egon toiminnan arviointi saattaa tarjota kliinisen työn kannalta hyödyllistä tietoa arvioitaessa potilaan kykyä hyötyä lyhytterapiasta tai mahdollista pidemmän psykoterapian tarvetta. Lisätutkimusta tarvitaan havaintojen vahvistamiseksi ja laajentamiseksi, koska tämä tutkimus oli ensimmäinen, jossa tarkasteltiin EII-2:n ennustevaliditeettia suhteessa psykoterapian tuloksellisuuteen ja siihen yhteydessä oleviin tekijöihin.

Avainsanat: psykoterapia, allianssi, psykoterapian tuloksellisuuden ennustaminen, psykoterapiasoveltuvuus, Rorschach Ego Impairment Index

Author

Jaakko Stenius
Department of Psychology
University of Jyväskylä
Niuvanniemi Hospital,
Department of Psychiatry
Kuopio University Hospital
Kuopio, Finland
jaakko.stenius@niuva.fi

Supervisors

Professor Juha Holma
Department of Psychology
University of Jyväskylä

Professor emeritus Paul Knekt
Finnish Institute for Health and Welfare
Department of Health and Well-being Promotion

Associate Professor Erkki Heinonen
Department of Psychology, University of Oslo, Norway
Finnish Institute for Health and Welfare
Department of Psychology and Logopedics, Faculty of Medicine, University of Helsinki

Adjunct Professor Olavi Lindfors
Finnish Institute for Health and Welfare
Department of Psychology and Logopedics,
Faculty of Medicine
University of Helsinki

Reviewers

Adjunct Professor Tuula Ilonen
Department of Psychiatry
University of Turku

Adjunct Professor, Ilpo Lahti
Department of Psychiatry
University of Oulu

Opponent

Adjunct Professor Tuula Ilonen
Department of Psychiatry
University of Turku

ACKNOWLEDGEMENTS

The present thesis is part of the Helsinki Psychotherapy Study (HPS) at the Finnish Institute for Health and Welfare (THL). I feel privileged to have been able to participate in the work of the HPS over a period of ten years and I gratefully acknowledge the commitment of the highly skilled researchers working in this project that was initiated in the early 1990s. I sincerely thank the patients, therapists, and members of the HPS group for their efforts and co-operation, without which this thesis would not have been possible.

First, my deepest gratitude goes to my supervisor, the director of the HPS, Professor emeritus Paul Knekt. His extensive knowledge on research methodology, statistics, and many other areas, as well as his help and support have been of the utmost importance throughout this research process. I am most grateful for his guidance, availability, timely feedback, and willingness to discuss, which were especially important as I carried out this thesis alongside my clinical work far away from Helsinki. I am also extremely grateful that Associate Professor Erkki Heinonen joined the supervising team during this journey. I am deeply indebted to him for sharing his vast scientific talent and expertise, and for his excellent guidance, always given in his supporting and motivating way. I would also like to thank him for helping me with the development of my own scientific thinking and writing, as well as for sharing his expertise in many other issues related to research and other common interests in the field of psychology. I want to thank Adjunct Professor Olavi Lindfors for sharing his insight and deep understanding in both clinical and research areas. I also appreciate his in-depth and constructive comments over the whole period of the research process. I would also like to thank him for providing me an important professional role model. I also want to thank Professor Juha Holma, my supervisor at the University of Jyväskylä during the latter half of the research process, for all the help, advice, and valuable comments.

I would also like to thank my supervisors at the early phases of the thesis. I would like to express my gratitude to Professor emeritus Jarl Wahlström for his valuable thoughts and comments, as well as for guiding me in the research practices. I also owe my thanks to Adjunct Professor Risto Antikainen, whose support and advice were especially important at the beginning of this process. I would also like to express my gratitude to Senior Lecturer Maarit Laaksonen for all the help during the initial phases of the thesis.

I am grateful to the official reviewers of this dissertation, Adjunct Professor Ilpo Lahti and Adjunct Professor Tuula Ilonen, for the constructive comments that helped me improve the summary of the dissertation. I also thank Tuula for accepting the role of my opponent.

I also want to thank the researchers, collaborators, and student colleagues from the HPS group, whose participation was essential to make this thesis possible. I greatly appreciate the help from Laura Sares-Jäske, Julius Rissanen, and Tuija Jääskeläinen in carrying out the statistical analyses.

Secretaries of the Department of Forensic Psychiatry, Tarja Koskela and Aija Räsänen, deserve my deepest thanks for their kind assistance in countless practical issues and their help in formatting this work.

I would like to thank Tiina Volanen for her help in all the practical issues and dissertation affairs. I also want to thank scientific editor Noona Kiuru and publishing editor Päivi Vuorio for the editing and the final layout of this dissertation.

I also want to express my special thanks to Olli Salo for the many clarifying discussions on theoretical concepts and Mikko Korhonen for his valuable help in practical issues at the different phases of this project.

At the Niuvanniemi Hospital, I have had the pleasure of working and sharing an office with Katja Häkkinen, Tatu "David" Teräväinen, and Petri Naakka, earlier also with Emilia Suominen and Sini-Sofia Savola. This community has offered a place to share the highs and lows of this project and beyond, as well as to have countless funny and inspiring moments together.

I am also grateful to my current and previous employers, the Niuvanniemi Hospital and the Kuopio University Hospital, for providing excellent research facilities.

Finally, I want to thank my family, friends, and close ones for all the support and encouragement, which have helped me carry on through hard times during this journey.

Kuopio, 15 April 2021

LIST OF THE ORIGINAL PUBLICATIONS

I Stenius, J., Lindfors, O., Antikainen, R., Wahlstöm, J., Sares-Jäske, L., & Knekt, P. (2018). Associations between the Rorschach Ego Impairment Index and measures on intrapsychic and interpersonal functioning. *Open Journal of Psychiatry, 8,* 1–19.

II Stenius, J., Knekt, P., Heinonen, E., Holma, J., Antikainen, R., & Lindfors, O. (2021). 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. *Psychoanalytic Psychology, 38,* 58–67.

III Stenius, J., Heinonen, E., Lindfors, O., Holma, J., & Knekt, P. (2021). Ego Impairment Index (EII-2) as a predictor of psychotherapy outcome during a five-year follow-up. Submitted manuscript.

Taking into account the instructions given and the comments made by the co-authors and supervisors, the author of the thesis participated in designing the research plan, contributed to the statistical analyses, and took the main responsibility for interpreting the results and writing the report of the three original publications.

FIGURES

TABLES

CONTENTS

1 INTRODUCTION

Depressive and anxiety disorders are the most prevalent mental disorders both globally and in Finland (WHO, 2017), leading to considerable losses in health and huge amounts of suffering. Psychotherapy, along with pharmacological treatment, is a widely applied and effective treatment option for these conditions (cf. Churchill et al., 2001; Knekt, Virtala, Härkänen, Vaarama, Lehtonen, & Lindfors, 2016). Clearly, referring patients to the most suitable treatments for them is important to optimize treatment outcomes and reduce frequencies of inappropriate or inadequate treatment. Despite the typically beneficial effect of psychotherapy for patients suffering from depressive and anxiety symptoms, it is widely recognized that different types of patients need different kinds of treatments and therapeutic relationships (Norcross & Wampold, 2018). Thus, pre-treatment evaluation of patients' qualities may be essential for tailoring treatments in terms of length and modality. However, for this, appropriate assessment guidelines or criteria are required, and little knowledge is currently available on associations between specific patient qualities and processes or outcomes of specific psychotherapies (Clarkin & Levy, 2004). Hence, there is substantial variation in clinicians' pre-treatment evaluation methods and practices. Therefore, to help clinicians tailor treatment choices and strategies according to patients' individual needs, more knowledge is needed of associations between specific patient characteristics and both psychotherapy outcomes and essential capacities for benefiting from psychotherapy, such as capacity for collaborative work in psychotherapy.

Regarding the effectiveness of psychotherapy, most empirical research has compared the efficacy of specific psychotherapies for specific psychiatric diagnoses (i.e., combining patients with single diagnosis) (Lambert, 2011) following 'evidence-based practice' with prioritization of randomized controlled trials. Generally, however, no significant differences in effectiveness have been found between psychotherapy modalities (cf. Cuijpers, van Straten, Andersson, & van Oppen, 2008; Steinert, Munder, Rabung, Hoyer, & Leichsenring, 2017).

Another perspective on psychotherapy and related research is provided by the so-called common factors approach, which broadens the lens through which psychotherapy processes and factors affecting its outcome are perceived (Laska, Gurman, & Wampold, 2014; Wampold, 2015). This approach focuses on factors that influence the psychotherapy process: individuals' unique characteristics and contextual variables that affect outcomes of all psychotherapies, such as therapeutic alliance, positive expectancy of change, and therapist characteristics. Its potential value is shown by consistent findings that generally such individual factors influence treatment outcomes more than the particular treatment methods, although some forms of psychotherapy may produce better outcomes for patients with some disorders (Norcross & Wampold, 2018).

The concept of working alliance is a central component of the common factors approach as it refers to collaborative aspects of the relationship between the patient and therapist, whatever specific treatment model is applied. The quality of the working alliance, i.e., affective bond between patient and therapist and their shared understanding both of their tasks in the therapy process and the therapy's goals (Bordin, 1979), is one of the most intensively investigated pantheorical elements of psychotherapy outcome. The alliance is associated with the success of therapies across a broad array of patient problems and treatments (Flückiger, Del Re, Wampold, & Horvath, 2018). However, limited research evidence is available on patient qualities predicting alliance quality and its development. Thus, in order to improve psychotherapy outcomes, more knowledge is needed on how different patient qualities (psychological strengths and vulnerabilities) predict the improvement or deterioration of alliance over the course of psychotherapy. Some promising qualities are ego impairment, psychological qualities of defense style and basic cognitive capacities, which are often clinically evaluated, but rarely investigated in the context of treatment planning (Allen, Coyne, & David, 1986; Bond, 2004; Laconi, Cailhol, Pourcel, Thalamas, Lapeyre-Mestre, & Chabrol, 2015). Hence, no research-based guidelines are available to inform interpretation of these qualities to guide treatment recommendations.

With respect to effects of patient characteristics on psychotherapy outcome, patients with different psychological qualities beyond diagnosis have been shown to benefit variably from treatments of different types and lengths (Laaksonen, Knekt, Sares-Jäske, & Lindfors, 2013; Norcross & Wampold, 2018). More specifically, higher interview-based scores for psychological functions and capacities, such as coherent self-concept and capacity for affect modulation, are reportedly indicative of faster recovery in short-term psychotherapies, whereas vulnerabilities in these qualities and personality structure are indicative of need for long-term psychotherapy (Laaksonen, Knekt, & Lindfors, 2013; Knekt, Lindfors, Keinänen, Heinonen, Virtala, & Härkänen, 2017).

The concept of *ego functioning* (e.g., Freud, 1923/1961; Hartmann, 1939/1958) captures many of the above qualities with demonstrated predictive ability for psychotherapy outcome. Ego functioning is seen to comprise various

mature capacities (such as problem-solving, interpersonal relatedness, affect regulation and impulse control) that enable adaptive functioning when encountering everyday challenges and demands**,** and to be derived from both ones' own mental processes (e.g., thoughts or feelings) and external events. However, the level of ego functioning's potential utility for selecting optimal treatment lengths or types for patients has not been investigated, although it appears both theoretically and clinically plausible.

There is also limited knowledge of the predictive ability of methods other than interview-based psychological assessment for therapy outcome. Traditionally, patient qualities considered beneficial or disadvantageous for psychotherapy have been evaluated by interviewers familiar with the suggested indicators and contraindications for a given form of psychotherapy (Davanloo, 1978). Accordingly, the evaluation has generally been based on inclusion and exclusion criteria proposed by proponents of specific psychotherapeutic orientations (Malan, 1976; Sifneos, 1978). Although interview is the most common assessment method in clinical psychology (Norcross & Karpiak, 2012), and interview-based suitability assessment is generally considered sufficiently reliable and objective for evaluating suitability for psychotherapy, interviews (and self-report instruments) may have specific limitations (cf. Ganellen, 2007; Wilson & Dunn, 2004). Hence, it is important to examine the predictive ability of additional, potentially complementary, methods of assessing psychological qualities (e.g., ego strengths and weaknesses) relevant for treatment planning. From the clinical perspective, psychologists – as well as their patients – invest a lot of time and effort in psychological assessment, and implications of assessment are often utilized in treatment planning (Bram, 2013). Unfortunately, however, this is often done with relatively little empirical research evidence backing specific treatment recommendations.

As a performance-based method, the Rorschach provides a different perspective of suitability assessment in relation to interview-based assessments, while yielding information on patient qualities apart from diagnoses or psychiatric symptoms. The Rorschach-based Ego Impairment Index (EII-2; Perry & Viglione, 1991; Viglione, Perry, & Meyer, 2003) provides an assessment of ego impairment and psychological functions potentially related to capacity to gain benefit from treatment, such as reality-testing, impulse control, affect regulation, and interpersonal relatedness. However, the EII's ability to predict development of working alliance and outcomes of psychotherapies of specific modalities and lengths has not been empirically investigated. Thus, the studies this thesis is based upon were designed to obtain more knowledge of patients' qualities with potential utility for predicting treatment outcome and alliance development. A more specific aim was to examine the predictive utility of Rorschach-based assessment of ego functioning, using data from the Helsinki Psychotherapy Study (HPS; Knekt & Lindfors, 2004).

The primary purpose of the thesis was to evaluate predictive utility of the performance-based Rorschach EII-2 in treatment choice, i.e., its ability to predict alliance development and outcome of psychotherapy with different theoretical

models and durations of therapy. The second purpose was to examine associations between EII-2 scores and other measures often used in treatment planning, and the utility of the intelligence and defense style for predicting alliance development. In study I, a cross-sectional design was applied to study the associations between EII-2 (and subcomponent) scores and measures of both suitability for psychotherapy and interpersonal functioning. In study II a longitudinal design was applied to assess the predictive ability of the EII-2, intelligence and defense style for alliance development. Finally, in Study III, the predictive utility of the EII-2 for psychotherapy outcome was examined. The results provide information on the EII-2's potential utility in treatment planning.

1.1 Ego functioning and its assessment

Sigmund Freud (1895) first introduced the concept of ego and subsequently (1923/1961) formulated a structural model of the human mind in *The Ego and the Id*, which regards it as having three components: id, ego, and superego. Freud defined the ego as a mediating structure between conflicts of the immediate internal needs generated by the id and the demands of the environment. He postulated ego as a coherent organization of mental processes in the mind that regulates all its constituent processes. Following Freud, Hartmann (1939/1958) broadened the definition of ego functions to comprise a range of adaptive capacities, such as perception, reality-testing, choice of defence, and capacity to learn.

Currently, ego functioning is seen to comprise a variety of psychological capacities, such as perception, problem-solving, reality-testing, interpersonal relatedness and affect regulation. Some authors have emphasized the synthetic and integrative functions of the ego, manifested, for example, in mastery of aggressive impulses (Bley, & King, 1981). Ego resources enable coping and productive adjustment with everyday events and life challenges, which are associated both with ones' own mental processes (e.g., thoughts, desires or feelings) and external reality. In contrast, insufficient resources or their ineffective use often leads to adjustment difficulties and susceptibility to psychological disturbances (Weiner, 2017).

During the history of personality assessment, many measures have been developed in efforts to quantify ego functioning. The measures have comprised self-reports, such as the *Ego-Strength* (*Es*) Scale (Barron, 1953) of the Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1940) and Bell Object Relations Reality Testing Inventory (BORRTI; Bell, Billington, & Becker, 1985), and implicit measures, particularly Rorschach scales used from the 1950s, but currently not widely used, e.g., the Rorschach Genetic-Level Scale (Becker, 1956) the Rorschach Ego-Strength Scale (Last & Weiss, 1976) and Rorschach Prognostic Rating Scale (RPRS; Klopfer, Ainsworth, Klopfer, & Holt, 1954; Klopfer, Kirkner, Wisham, & Baker, 1951).

1.2 The Rorschach method

The Rorschach method (Rorschach, 1921/1942) is a widely used personality assessment method (Camara, Nathan, & Puente, 2000) that provides an in-vivo sample of behavior in a relatively unstructured, but standardized assessment situation. It requires a person to organize and conceptualize visual stimuli in an interpersonal and affectively charged situation. Thus, it is considered to demand application of a variety of so-called ego processes, such as reality-testing, affect regulation, self-perception, impulse control, and capacity for interpersonal relatedness. As a performance-based approach, it provides a different, possible complementary understanding of behavioral dispositions and ego functioning (e.g., reality-testing, impulse control, relatedness to other people, and affect regulation) to introspection-based approaches, such as interviews (Weiner, 2004).

The stimuli used in the Rorschach method are 10 inkblot figures created by the Swizz psychiatrist Hermann Rorschach. He aimed to develop a method primarily to explore and understand the idiosyncratic perceptual processes of patients with Bleuler's then newly-described dementia praecox, later called schizophrenia. Indeed, Rorschach was more interested in perceptual features than contents of responses. First, Rorschach designed a larger set of figures that presumably consisted of about 30-40 inkblots, which he intensively studied and refined. He added specific detailed features to the figures that most people would have familiarity with and be able to identify. Thus, although usually called inkblots the figures are actually paintings. As Rorschach studied responses to the figures of patients with schizophrenia, he noted differences in their perceptions of these stimuli from those of other populations. As a talented artist, Rorschach continually revised the figures. Before the publication of the Rorschach method in 1921, he studied hallucinations in his doctoral studies, which were directed by Bleuler. Rorschach developed a set of scores – some of which are still in use – to classify response characteristics. He cautioned that his results were preliminary and stressed the importance of continuous development of the method. He prematurely died from acute peritonitis at the age of 37, just seven months after his method was published. Over the following decades the Rorschach procedure was fractured, as many different coding systems were developed. The primary systems were developed by Samuel Beck, Bruno Klopfer, Zygmunt Piotrowski, Marquerite Hertz, and David Rapaport. The disparate systems were integrated in 1974 when Exner, after several years of work, published the Rorschach Comprehensive System (CS; Exner, 1974; 2003), which synthesized the most reliable and valid components of the previous systems. Currently, the CS and Rorschach Performance Assessment System (R-PAS; Meyer, Viglione, Mihura, Erard, & Erdberg, 2011) are the most common Rorschach-based approaches, and both provide systematic guidelines for administration, coding and interpretive strategies for the method. This 'structural' (i.e., nomothetic) approach, based on

coded variables (e.g., scales, ratios, and indices) and utilization of normative data, forms the basis for the interpretation.

Additional, more individually oriented approaches to the Rorschach can also be utilized, in which a clinician may synthesize data from various sources, such as sequence analysis (i.e., detailed analysis of both structural and thematic features of the consecutive responses), analysis of defenses and thematic contents of responses, descriptions of relationships in responses, and examinees' stances (e.g., critical, dismissive or fearful) to responses given, and test equipment (such as Rorschach cards) manifested in expressions of feelings and other testing behavior. From a more theoretical perspective, the Rorschach provides various avenues for addressing networks of personal meanings and values (cf. Leiman, 2011), as they are manifested in a person's responses and stances in regard to the myriad of objects during the assessment process. Overall, the Rorschach method enables a psychologist to put idiographic understanding of a patient into a nomothetic perspective, provided a clinician has sufficient knowledge and expertise to analyze and integrate the available information (Santala, 2009).

In addition to the test-related data, relevant information can be obtained during the assessment process from observations of the patient-psychologist relationship**.** Relevant features include the examinee's attitude towards the psychologist, the psychologist's observations of his/her own mental processes when interacting with the examinee, and observations of the examinee's reactions to interventions by the psychologist during the process. Information about these elements and other relevant patient-related data must be evaluated and carefully weighed before suggestions for a treatment plan are formulated (Bram, 2013; Exner, 2000).

Since the 1980's an alternative approach to this more traditional information-gathering approach for psychological assessment has been developed by Stephen Finn and colleagues called Therapeutic Assessment (TA; Finn, 2007). In TA, psychological assessment is used as a therapeutic intervention and the Rorschach has proven to be an important tool for promoting therapeutic changes in clients' lives, with specific developed methods, such as 'extended inquiry' to foster capacity to recognize disavowed aspects of self.

Regarding the CS variables' reliability, a meta-analysis of their test-retest (temporal) consistency using 26 datasets (n = 904) with an average retest interval of 38 months yielded an average stability coefficient of r = .65 (Grønnerød, 2003). Another type of reliability is inter-rater reliability, which in the Rorschach case concerns the reliability of scoring as well as the reliability of interpretation across clinicians (Meyer & Viglione, 2008). Meta-analyses of scoring reliability have demonstrated that CS can be scored reliably, as indicated by average Pearson or intraclass correlations for summary scores above .85 and average kappa values for scores assigned to each response above .80, although reliability is dependent on coder skills (Meyer, 1997; Meyer et al., 2002). In addition, Meyer, Mihura, & Smith (2005) found substantial

interpretation reliability in a sample of 20 clinicians' interpretations of CS protocols. However, variability was found between clinicians in ability to draw reliable conclusions about patients.

There is a vast literature, as well as long history of debate, regarding empirical support for the interpretation of the Rorschach variables. The most recent and comprehensive meta-analysis of the Rorschach's validity in relation to both externally (e.g., observer-ratings) and internally assessed (e.g., self-reports) criteria considered 215 sets of samples with 25,795 participants in total and 65 main variables of the CS (Mihura, Meyer, Dumitrascu, & Bombel, 2013). The results showed that the mean validity across all variables for externally and internally assessed characteristics was r = .27, and = .08, respectively. The study found the strongest support for variables that target perceptual and cognitive processes.

1.3 Associations between Rorschach CS variables and other measures used in evaluating suitability for psychotherapy

Alpher, Perfetto, Henry, and Strupp (1990) studied the relationship between values of 15 rationally chosen CS variables and Capacity for Dynamic Process Scale (CDPS; Thackrey, Butler, & Strupp, 1993) scores obtained for 42 adult patient candidates for short-term psychotherapy. The CDPS is an observational rating scale that a clinician can apply in a semi-structured interview to assess a patient's potential to engage collaboratively in short-term psychodynamic psychotherapy. In the cited study, two independent judges also rated videotapes of the interviews. When summarizing results of the two analyses (CDPS ratings by interviewers and independent judges) the most robust associations were found between CDPS scores and three CS variables: *Organizational Frequency* (*Zf*), indicating ability to meaningfully synthesize perceptions; *Deviant Response* (*DR*), indicating circumstantial phrases, and *Experience Potential* (*ep*). *Ep*, currently labelled *Experienced Stimulation* (*es*) and indicative of experienced emotional demands, was found to be a suppressor variable (i.e., a variable that shares variance with the predictor variables, but is not predictive of the criterion).

Nygren (2004a) compared differences in 17 rationally selected CS scores for three groups of subjects differing in suitability for therapy. Two groups (n = 25 and n = 43) comprised patients who were evaluated as sufficiently high functioning to be suitable for treatment limited to individual psychodynamic psychotherapy. Results for these two groups combined were compared with results for a third group (n = 25) comprised of patients with more personality pathology, serious lack of motivation and low quality of object relations, for whom an individually designed outpatient program was considered necessary. Nygren hypothesized that patients in the first two groups would have higher CS scores conceptually related to suitability for psychodynamic psychotherapy,

and lower CS scores with potentially negative indicators of psychotherapy than the patients in the third group. The results were consistent with the predictions, showing higher values in the first two groups for the following variables: *Experience Actual* (*EA*) indicating available psychological resources, (*Zf*), *Blends* indicating psychological complexity, *Human Movement* responses of good form quality (*MQo*) indicating empathic capacity, *Form Dimension* (*FD*) indicating capacity for self-examination, *Aggressive Movement* indicating assertive interaction with other people (*AG*), and *Cooperative Movement* (*COP*) indicating positively anticipated interactions with other people. In addition, as hypothesized, among the first two groups lower values were found for relative amount of *Pure Form* responses (*F%*) indicating detachment and lack of flexibility.

Nygren (2004b) studied correlations between the same set of 17 rationally selected CS-variables and suitability for psychodynamic psychotherapy as represented by interview-based ratings of Ego Strength and Dynamic Capacity for 52 psychotherapy applicants. As hypothesized, Dynamic Capacity ratings negatively correlated with non-form dominant Diffuse Shading responses (*YF+Y*) indicating stress-related helplessness, and correlated positively with *EA*, form dominant colour responses (*FC*) indicating affective experiences that are cognitively directed and better controlled, *Blends*, *Zf* and *MQo*. Ego Strength ratings correlated with *EA*, *FC*, *YFY*, *Blends*, and *F%* in the predicted direction. In addition, Nygren found that mean *EA*, *FC*, *YFY*, *Zf* and *MQo* and *F%* values differed between the patients selected and not selected for psychotherapy. Nygren interpreted the results for *Blends*, *Zf* and *F%* as corroborating findings by Alpher et al. (1990) and Nygren (2004a), and the significant results for variables *MQo* and *EA* as corroborating her previous findings (Nygren, 2004a).

1.4 The Rorschach as a predictor of treatment outcome

To date, there is limited evidence for the Rorschach method's validity for predicting effects of psychotherapy. More precisely, as Teglasi, Nebbergall, & Newman (2012) have pointed out, measures as such do not predict actual functioning; constructs do as they connect test responses to real world conditions. Nevertheless, many features have been recognized that make it difficult to summarize the Rorschach's predictive validity for treatment outcome (see Meyer & Handler, 1997). Factors weakening the findings' generalizability include the failure in many studies to specify explicitly the Rorschach-based constructs and their expected relationships with the outcome criteria, often leading to a large number of Rorschach variables that are expected to predict the treatment outcomes. Moreover, as there are few replication studies with large samples and concordant designs, evidence on relationships between predictors and criterion variables has accumulated slowly (Meyer & Handler, 1997).

The Rorschach Prognostic Rating Scale (RPRS), introduced in 1951, is a Rorschach scale with historically the most research support regarding its validity as a predictor of treatment outcome. The RPRS was developed by Bruno Klopfer and colleagues, utilizing both clinical experience and theoretical knowledge, as a scale for predicting psychotherapy outcome and measuring both ego strength and functional capacity. They envisioned it as enabling quantification of the most important components of ego strength: "reality testing, emotional integration, self-realization, and mastery of reality situations" (Klopfer, Kirkner, Wisham, & Baker, 1951, p. 688). They postulated that the RPRS would identify both currently available ego strength and potential ego strength that may become mobilized during the course of psychotherapy. RPRS scores include inputs related to form quality, thought organization, colour and shading features of the responses, generated using an administration and coding system developed by Klopfer et al. that is currently rarely taught. Accordingly, the RPRS is not incorporated into CS or R-PAS. Nevertheless, there is some congruence between the RPRS and Ego Impairment Index (EII; Perry & Viglione, 1991; EII-2; Viglione, Perry, & Meyer, 2003). A meta-analysis by Meyer & Handler (1997) found that the RPRS had the ability to predict subsequent outcome (r = .44), n = 783). In addition, regarding incremental validity, the RPRS has been found to predict subsequent outcome over intelligence and the MMPI Ego Strength scale (Meyer, 2000).

1.5 The Ego Impairment Index (EII) as a predictor of outcome

The original EII was introduced in 1991 by Perry and Viglione. It was created to measure underlying psychological capacity and level of ego impairment. The EII provides a composite score obtained from factor analysis of the CS variables, designed to gauge deficits in ego functions. Theoretically, the EII is based on a model of ego functions and assessment described by David Beres (1956) in his article *Ego Deviation and the Concept of Schizophrenia*. He postulated that measures of progression and regression may be applied to structural components of the psyche (i.e., the id, ego and superego). According to Beres, the concept of the ego is defined by its separate functions, so its development can only be described in terms of these functions' development. Beres listed seven functions of the ego to illustrate some clinical data in his paper, emphasizing that the list is far from conclusive. These functions were: 1) Relation to reality, 2) Regulation and control of instinctual drives, 3) Object relationships, 4) Thought processes, 5) Defense functions, 6) Autonomous functions and 7) Synthetic function. The EII was designed to incorporate subcomponent variables corresponding to the ego functions elaborated by Beres. The ego functions tapped by the EII include reality-testing, quality of object relations, defensive functioning and thought disturbance.

The revised version EII-2 was published in 2003 by Viglione, Perry, and Meyer. The original EII and EII-2 are calculated based on the CS codes, but

neither the EII nor EII-2 has officially been incorporated in the CS. As the R-PAS was published in 2011, a slightly modified new EII version (EII-3) was introduced (Viglione, Perry, Giromini, & Meyer, 2011) taking into account modifications in the administration and coding of the R-PAS that affect the index, thereby enabling incorporation of the EII-3 into the R-PAS. A correlation coefficient of .99 between EII-2 and original EII scores was obtained by Viglione, Perry, & Meyer (2003). In addition, the EII-3 is nearly identical to the two previous versions, as indicated by reported rank order correlations with the EII and EII-2 of .95 and .98, respectively (Viglione, Perry, Giromini, & Meyer, 2011).

Studies on EII's reliability have demonstrated considerable temporal consistency. For example, a test-retest correlation coefficient of .78 was obtained during a 9-week follow-up with antidepressant treatment and decreased depressive symptoms (Perry & Viglione, 1991), and a rank order correlation of r = .68 over the course of a 5-year follow-up period with 17 of the 49 patients in the 1991 study (Perry, McDougall, & Viglione, 1995). In addition to temporal consistency, acceptable to excellent inter-rater reliability has been demonstrated (Perry, McDougall, & Viglione, 1995; Perry & Viglione, 1991; Stokes, Pogge, Powell-Lunder, Ward, Bilgner, & DeLuca, 2003).

A meta-analysis including 13 independent sets of samples (total n = 1402**)** found that the EII had demonstrable validity as a measure of personality disturbance (Diener, Hilsenroth, Shaffer, & Sexton, 2011), with an overall weighted effect size with other measures of psychiatric severity of r = .29. Within the context of treatment planning, in a study designed to test the EII's ability to predict treatment outcome, lower EII values (indicating lesser ego impairment) predicted positive response to antidepressant treatment for patients with major depression (Perry & Viglione, 1991), which would be expectable given these patients showed less psychological impairment. Perry & Viglione omitted the variable *MOR* from their analyses to avoid its potential confounding effects on their results, since *MOR* was designed to be associated with depression. In two studies focusing on dropping out of psychotherapy some subcomponent variables of the EII were found to inconsistently predict premature therapy termination (Charnas, Hilsenroth, Zodan, & Blais, 2010; Hilsenroth, Handler, Toman, & Padaver, 1995). In a study utilizing the same population as the studies underlying this thesis (thus focusing on patients suffering from depressive and anxiety disorder without severe personality pathology**)** the EII-2 and its thought disorder component, WSum6, were found to be modestly associated with the Level of Personality Organization (LPO) interview scale and psychiatric diagnoses, symptoms, and history (Valkonen, Lindfors, & Knekt, 2012). In addition, a study of 52 children treated in child psychiatric units providing intensive inpatient services a moderate correlation between EII-2 values (reflecting ego impairment) and long-term outcome of the treatment (worsening of parent-rated symptoms between 30-day and 120-day follow-up) was detected (Stokes, Pogge, Powell-Lunder, Ward, Bilginer, & DeLuca, 2003). On the other hand, the EII-2 did not predict short-term treatment outcome. The cited authors interpreted the EII-2 as having moderate

predictive ability for the presence of vulnerability to long-term problems and relapse of symptoms as the children move from hospital settings to less intensive levels of care.

In sum, to date, there is no empirical information on the global EII-2's utility for predicting suitability for psychotherapy, psychotherapy outcome or alliance development, nor its relations with results of introspection-based assessment methods (i.e., self-report and interview) for assessing suitability for psychotherapy.

1.6 Ego impairment, defense style and intelligence as predictors of alliance development

An individual's psychological level of functioning can be usefully considered in terms of both *maximal* and *typical* performance. Maximal performance refers to the person's innate capability manifested and required in performance conditions that are well-defined and provide a limited range of 'correct responses'. In contrast, typical performance is manifested in ill-defined, open-ended conditions with unclear expectations, such as situations in everyday life that require a person to impose characteristic ways of responding, thus referring also the extent to which an individual can apply his or her maximal capacities (Cronbach, 1990). People's real-life conditions are likely to range along a continuum from well-defined to ill-defined (Sackett, 2007). The differentiation between maximal and typical performance may be helpful when attempting to identify the type of psychological assessments that best target real-life behavior under specific conditions. The higher the similarity of the functional requirements of the test and real-life settings, the more the test scores are postulated to predict real-world functioning (Teglasi, Nebbergall, & Newman, 2012). Well-structured and clearly defined intelligence tests, such as WAIS, thus provide assessments of maximal performance that are predictive of performance in a wide range of well-defined contexts, such as academic outcomes (cf. Sackett, Borneman, & Connelly, 2008). In contrast, more ambiguous and open-ended personality assessments, such as Rorschach, may yield information on functioning in less normative, social and emotion-provoking situations. This approach can be applied by a clinician, for example, when integrating findings of divergent assessments.

Further, personality constructs can be divided into *implicit* constructs (i.e., automatic, unconscious patterns of perception, motivation and behavior) and *explicit* constructs (i.e., self-attributed motives and aspects of self that are accessible to conscious introspection) that are captured by different assessment methodologies. Implicit constructs are targeted by performance-based personality measures (such as Rorschach, storytelling and drawing instruments), whereas explicit constructs are best assessed by self-reports and interviews (Ganellen, 2007; Teglasi, Nebbergall, & Newman, 2012). In other

words, self-reports typically reflect people's conscious views of themselves, whereas Rorschach and other performance-based methods generally excel at revealing psychological problems that arise in emotionally arousing or stressful situations (Finn, 2007). Hence, rather than attempting to determine which method is the most accurate – or yields the most direct evidence about a specific construct – it may be more productive to determine which method is the most suitable for a given situation since self-reports and performance-based measures target different phenomena and hence different constructs (cf. Ganellen, 2007; Teglasi, Nebbergall, & Newman, 2012). Moreover, from a clinical perspective, integrative use of the divergent assessment methods often yields more clinically useful and comprehensive understanding of the patient than relying on a single type of methodology (e.g., Finn, 2007).

Both implicit and explicit, or unconscious and conscious, aspects of personality may also impact therapeutic collaboration, which has long been considered a central aspect of treatment process. As early as a century ago, Freud (1913) referred to attachment and collaboration between patient and therapist as he wrote about the importance of rapport in the initial stages of psychotherapy. Since patients enter psychotherapy with different backgrounds, life experiences, and psychological characteristics, these variable qualities likely affect their capacity to build positively attuned relatedness with therapist.

Knowledge of the patient characteristics impacting alliance quality is still relatively sparse and mainly derived from studies of short-term therapies. Thus, paucity of research on associations between patients' psychological qualities and alliance development over the course of long-term psychotherapy underlines the need for further studies. Although ego impairment, defense style, and intelligence are theoretically important constructs in the context of treatment planning, their facilitating or undermining effect on alliance development has rarely been investigated.

The importance of the ego functions for the therapeutic relationship has been acknowledged since the original theorization of the therapeutic alliance by Elizabeth Zetzel (1956). She emphasized the fundamental role of developmental experiences, reflected in patients' object relations, as a basis for therapeutic alliance, suggesting that the level of patients' object relations is related to their capacity to form a trusting relationship with their therapists. Hence, patients with low levels need specific attention from the therapists' side to gradually develop a trusting therapeutic alliance. Despite the theoretical and clinical importance of both the ego functioning and therapeutic alliance, the potential effect of ego functioning (as measured by performance-based assessment) on alliance development over the course of long-term psychotherapy has not been directly investigated.

Defense style is a psychological construct that is closely associated with the level of personality organization and, more specifically, individuals' style of coping with stress and anxiety. The maturity of defense style is reportedly a potential predictor of therapeutic alliance (Bond, 2004; Laconi, Cailhol, Pourcel, Thalamas, Lapeyre-Mestre, & Chabrol, 2015). An immature defense style, for

instance, may interfere with the ability to perceive oneself and other persons accurately and realistically (Kernberg, 1975), which may weaken the capacity to work together with a therapist in psychotherapy (Despland et al., 2001).

Likewise, within the treatment context, cognitive capacities may facilitate examination of oneself and one's life, a basic task in many if not all talking therapies (Trijsburg, Colijn, & Holmes, 2007). Thus, they may help establish a beneficial mutual relationship for the therapy process**.** Performance-based Wechsler Intelligence tests are the most frequently used methods for assessing cognitive capacities (Camara, Nathan, & Puente, 2000), such as the capacity for higher-order thought processes as well as interest in intellectual exploration and self-understanding, which are central targets for collaboration in psychodynamic therapies. Accordingly, intelligence has been found to be predictive of outcome in long-term psychodynamic psychotherapy (Knekt, Saari, & Lindfors, 2014).

1.7 Aims of the research

The main aim of the research was to determine the utility of Rorschach-based assessment of ego-related psychological impairment for predicting psychotherapy outcome and alliance development in patients with mood or anxiety disorder.

More specific aims of the research were:

- To investigate the associations between the EII-2 and measures of intrapsychic and interpersonal functioning (Study I)
- To examine and compare predictions based on the EII-2, self-reported defense style, and performance-based intelligence for alliance development in long-term psychodynamic psychotherapy during a 3-year follow-up (Study II)
- To examine the ability of the EII-2 to predict psychotherapy outcome, as assessed in terms of psychiatric symptoms, work ability, and social functioning in two short-term (psychodynamic and solution-focused) therapies and a long-term psychodynamic psychotherapy over the course of a 5-year follow-up (Study III).

2 METHODS

2.1 The Helsinki Psychotherapy Study (HPS)

2.1.1 Patients and settings

This dissertation is based on data from the Helsinki Psychotherapy Study (HPS) (Knekt & Lindfors, 2004), a randomized clinical trial of 326 adult outpatients suffering from mood and/or anxiety disorder (*DSM-IV*; American Psychiatric Association, 1994). The HPS compared the effectiveness and studied the suitability of three psychotherapies for patients randomly assigned to short-term psychodynamic psychotherapy, brief solution-focused psychotherapy, or long-term psychodynamic therapy (Knekt & Lindfors, 2004; Knekt et al., 2008). In addition, 41 patients were self-selected for psychoanalysis.

Patients included were 20–46 years old and had a longstanding (>1 year) disorder causing work disability. Patients had to be estimated on a psychodynamic scale of suffering from neurosis to high-level borderline disorder. Patients were excluded from the study on the basis of the severity of the disorder and type of co-morbidity (i.e., the presence of psychotic disorder, bipolar I disorder, severe personality disorder (*DSM-IV* cluster A personality disorder and/or lower level borderline personality organization), adjustment disorder, substance abuse, organic brain disease or other diagnosed severe organic disease, and mental retardation). Individuals who had undergone psychotherapy within the previous two years and psychiatric health employees were also excluded. The patients were predominantly female and one in four of them had completed a university degree (Table 1). Most of the patients had mood disorder and less than half had been diagnosed with anxiety disorder. Personality disorder was diagnosed in almost a fifth of the patients.

TABLE 1 Clinical features of the 326 patients by treatment group.

	All	Short-term psychodynamic therapy	Solution-focused therapy	Long-term psychodynamic psychotherapy	P-value for difference[1]
Characteristic	*n* = 326	*n* = 101	*n* = 97	*n* = 128	
Patient characteristics					
Age in years (S.D)	32.3 (6.9)	32.1 (7.0)	33.6 (7.2)	31.6 (6.6)	0.08
Gender (% men)	23.9	25.7	25.8	21.1	0.63
Academic education (%)	25.8	19.8	28.9	28.1	0.26
Diagnoses					
Mood disorder (%)	84.6	78.2	86.6	88.3	0.09
Anxiety disorder (%)	43.6	49.5	46.4	36.7	0.12
Comorbidity of mood and anxiety disorders (%)	28.2	27.7	33.0	25.0	0.42
Personality disorder (%)	18.1	24.8	18.6	12.5	0.06
Psychiatric symptoms and psychological functioning					
Symptom Check List, Global Severity Index (SCL-90-GSI)	1.28 (0.52)	1.26 (0.53)	1.31 (0.50)	1.27 (0.55)	0.84
Ego Impairment Index (EII-2)	0.26 (1.51)	0.36 (1.70)	0.16 (1.38)	0.27 (1.45)	0.67
Work Ability Index (WAI)	33.7 (6.9)	34.1 (7.0)	33.6 (7.0)	33.4 (6.8)	0.75
Social Adjustment Scale (SAS-SR)	2.19 (0.38)	2.16 (0.36)	2.21 (0.39)	2.19 (0.39)	0.64

[1]Test for heterogeneity (categorical variables) and test for trend (continuous variables)

2.1.2 Therapies

SFT is a short-term, strength- and future-focused therapeutic approach that helps clients change by constructing solutions to identified problems (Johnson & Miller, 1994). SFT was based on an approach developed by De Shazer et al. (1986) and builds on existing resources and how they can be applied to the change process toward a future that the patient would prefer. The frequency of SFT sessions was flexible, usually once every 2 or 3 weeks, and the mean length of therapy was 7.5 months (*SD* = 3.0).

SPP is a brief psychodynamic approach based on a clearly formulated focus of treatment, active therapeutic utilization of transference and its interpretation, with the goal of exploring and working through the patient's specific intrapsychic and interpersonal core conflicts. The SPP was based on approaches developed by Malan (1976) and Sifneos (1978). SPP was scheduled once a week and the mean duration of therapy was 5.7 months (*SD* = 1.3).

LPP is an intensive, transference-based therapeutic approach that helps patients by exploring and working through a broad area of unconscious conflicts of personality. The orientation followed the clinical principles of LPP (Gabbard, 2004). LPP utilizes the therapeutic relationship in accessing dissociated beliefs, feelings and conflicts, as well as exploration of attempts to avoid these aspects of experience and, consequently, develop introspective awareness and reflective function, which promote psychic integration (McWilliams, 2011). 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).

In this study, SFT was manualized and clinical adherence was monitored. Both psychodynamic therapies were conducted in accordance with clinical practice, with no monitoring.

2.1.3 Therapists

In total, 55 licensed psychotherapists provided the therapies. SFT was conducted by six, SPP by 12, and LPP by 41 therapists (Heinonen, Lindfors, Laaksonen, & Knekt, 2012; Knekt et al., 2008). All therapists delivering SPP and LPP had formal post-graduate training in psychodynamic orientation. Therapists practicing SPP had completed additional short-term psychodynamic therapy training. Therapists providing SFT had received a qualification in it from a local institute. All therapists had at least 2 years of psychotherapy experience. Therapists' average psychotherapeutic work experience was 18 years in LPP (range 6–30 years), 16 years in SPP (range 10–21), and 9 years in SFT (range 3–15).

2.2 Assessment methods

2.2.1 The Rorschach Ego Impairment Index (EII-2) (Studies I, II, III)

The Rorschach CS was administered at baseline and scored according to CS guidelines (Exner, 2003). To assess inter-rater agreement, 20 protocols were chosen at random and rescored independently by another psychologist. Intraclass correlation (ICC) coefficients, calculated to assess the inter-rater agreement of the EII-2 and its subcomponents, were all excellent (Valkonen, Lindfors, & Knekt, 2012).

The EII-2 is a composite score of psychological disturbance and deficits in ego functioning. It is derived from six CS variables: poor perceptual accuracy (*FQ-*), disorganized language and thought (*WSum6*), the expression of disturbed contents that are typically censored (*Critical Contents*), distortions in object representations (*M-*), *Good Human representation* (*GHR*), and *Poor Human representation* (*PHR*). *FQ-* is coded from responses with poor match between the percept of the respondent and shape of a blot. *WSum6* is the weighted sum of six codes targeting various kinds of thought disturbance (e.g., strained reasoning and inappropriate integration of percepts). *Critical Contents* include anatomy, blood, fire, explosions, sex, X-ray, aggressive movement, and morbid content responses. *M-* is coded from human movement responses with distorted form quality. *GHR* and *PHR* variables respectively reflect adaptive and problematic representations of people and interactions, based on an algorithm that combines data on the quality of responses with human content or interaction. In combination**,** *GHR* and *PHR* form a *Human Representational variable (HRV)*. Total EII-2 scores were calculated using specific weights (coefficients shown in Table 2) for each of the variables while controlling for the number of responses (*R*). Summary scores from protocols were calculated using the RIAP-3 program. EII-2 scores and scores for its *GHR* and *PHR* subcomponents were derived from the summary scores using the Rorschach Research Utilities (RRU) program (Janson, 2008) and SPSS statistical software.

TABLE 2 Weighting coefficients for the EII-2 components[1]

Subcomponent	Coefficient
FQ-	.141
WSum6	.049
Critical Contents	.072
M-	.198
PHR	.117
GHR	(–.104)
R	(–.066
Constant	(–.038)

[1]Viglione, Perry, & Meyer (2003).

2.2.2 Intrapsychic and interpersonal functioning and psychological suitability for psychotherapy assessed at baseline (Study I)

Data on participants' demographic variables (sex, age, marital status, and education) and psychiatric history (previous psychotherapy and previous medication) were collected through interviews and questionnaires. The manualized, semi-structured interviews were partly based on a modification of Kernberg's Structural Interview (Kernberg, 1981), and conducted by experienced and trained interviewers. The interviews covered the participants' self-image and interpersonal relations, psychological suitability for psychotherapy, current psychological problems, and setting of diagnoses (Knekt & Lindfors, 2004; Laaksonen, Lindfors, Knekt, & Aalberg, 2012; Lindfors, Knekt, Virtala, & Haaramo, 2013). Psychiatric diagnoses were based on DSM-IV criteria (APA, 1994).

2.2.2.1 The Quality of Object Relations Scale (QORS)

The Quality of Object Relations Scale (QORS; Azim, Piper, Segal, Nixon, & Duncan, 1991) is a semi-structured interview-based assessment measure, based on psychoanalytic object relations theory and designed to quantify a person's overall quality of object relations. The assessment targets object relational levels observed during the interview. The QORS score ranged from 1 to 9 and reflected the quality of object relations from low to high: primitive, searching, controlling, triangular, and mature. The QORS scores were dichotomized using a cut-off point of 5.0 to form *low* (≤5) and *high* QORS (>5) groups. The QORS has been found to have adequate reliability and concurrent validity (Lindfors, Knekt, Virtala, & Haaramo, 2013).

2.2.2.2 The Suitability for Psychotherapy Scale (SPS)

The Suitability for Psychotherapy Scale (SPS; Laaksonen, Lindfors, Knekt, & Aalberg, 2012) is an interview-based measure of psychological suitability for psychotherapy developed in the HPS. It covers three domains of psychological functioning. One is ego strength (covered by three items: affect modulation, flexibility of social interaction, and the relationship between the current self-concept and ego ideal). Another is self-observing capacity (covered by three items: reflective ability, motivation, and response to trial interpretation). The third is the nature of problems (i.e., focality of the problems). The total SPS score ranged from 0 to 7, and was categorized into three groups: *low* (0–3), *intermediate* (4–6), and *high* (7), where a low score indicated good suitability for psychotherapy, while intermediate and high values indicated poor suitability. The SPS has shown adequate reliability, good criterion and discrimination validity, and good ability to predict the outcome of short- and long-term psychotherapy (Laaksonen, Lindfors, Knekt, & Aalberg, 2012; Laaksonen, Knekt, & Lindfors, 2013; Laaksonen, Knekt, Sares-Jäske, & Lindfors, 2013).

2.2.2.3 The Inventory of Interpersonal Problems (IIP)

The Inventory of Interpersonal Problems (IIP-64; Horowitz, Alden, Wiggins, & Pincus, 2000) is a 64-item self-report instrument that provides information on interpersonal problems in two sections: "The following are things that you find hard to do with other people" and "The following are things that you do too much". The responses are scored on a 5-point scale ranging from 0 (*not at all*) to 4 (*extremely*). The total IIP score reflecting the overall severity of each participant's current interpersonal problems was obtained by summing all 64 scores of both sections.

2.2.3 Predictors of alliance development (Study II)

2.2.3.1 Defense Style Questionnaire (DSQ)

Defenses were evaluated by the Finnish translation (Sammallahti, Aalberg, & Pentinsaari, 1994) of the revised 88-item Defense Style Questionnaire (DSQ). Each item of the self-report inventory assesses defenses along an ordinal continuum from no agreement to total agreement ranging from 1 to 9. The DSQ enables assessment of defenses and their grouping into three main defense styles: mature, neurotic, or immature (Andrews, Singh, & Bond, 1993).

2.2.3.2 Wechsler Adult Intelligence Scale-Revised (WAIS-R)

Intelligence was assessed by eight subtests of the Wechsler Adult Intelligence Scale-Revised (WAIS-R; Wechsler, 1981) to obtain a full-scale intelligence quotient (IQ), i.e., global estimate of participants' intelligence.

2.2.4 Working alliance (Study II)

The Working Alliance Inventory (WAI; Horvath & Greenberg, 1989) self-report instrument was used to measure working alliance quality. The WAI consists of 36 items focusing on three aspects of the therapeutic relationship: 1) the affective bond between the therapist and patient, 2) agreement between the therapist and patient on the therapy goals, and 3) agreement between the therapist and patient on the therapy tasks. The participants were asked to rate each statement on a 7-point Likert scale (range 1-7). The quality of the working alliance was rated by both patients (WAI-P) and therapists (WAI-T). WAI-P and WAI-T were assessed at four time points: baseline (3rd psychotherapy session) and 7-, 24-, and 36-month follow-up points.

2.2.5 Psychotherapy outcome (Study III)

Psychotherapy outcome assessments covered psychiatric symptoms, work ability, and social functioning. General psychiatric symptoms were assessed using the Global Severity Index of the Symptom Checklist (SCL-90-GSI; Derogatis, Lipman, & Covi, 1973). The SCL-90 was applied at baseline and seven times (3, 7, 12, 24, 36, 48, and 60 months) during a 5-year follow-up. Work

ability was evaluated using a modified form of the Work Ability Index self-report inventory (WAI; Ilmarinen, Tuomi, & Klockars, 1997; Tuomi, Ilmarinen, Martikainen, Aalto, & Klockars, 1997), which measures patients' evaluation of work-related resources and capacities. The WAI was applied at baseline and six time points (7, 12, 24, 36, 48, and 60 months) during the 5-year follow-up. The Social Adjustment Scale self-report inventory (SAS-SR; Weissman & Bothwell, 1976) was used to assess social functioning at baseline and seven times (3, 7, 12, 24, 36, 48, and 60 months) during the follow-up.

2.2.6 Other methods

Anxiety symptoms were evaluated with the Anxiety Scale of the Symptom Checklist (SCL-90-Anx; Derogatis, Lipman, & Covi, 1973). Level of psychosocial functioning was evaluated by the Global Assessment of Functioning scale (GAF; American Psychiatric Association, 1994). Depressive symptoms were assessed with the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961).

2.3 Statistical analyses

All statistical analyses were performed with SAS software, version 9.1 (SAS Institute Inc., 2007).

2.3.1 Study I

Study I was a cross-sectional study on the association between the EII-2 and its subcomponents and both intrapsychic and interpersonal functioning. A linear covariance analysis model was used to estimate the strength of association between the EII-2 and its subcomponents and other measures (QORS, SPS, and IIP) (Cohen & Cohen, 1975). The EII-2 and its subcomponents were included in basic models as dependent variables and the QORS, SPS, and IIP in separate models as independent variables. In addition, confounding factors were included in a complete model. The three continuous independent variables of interest (QORS, SPS, and IIP) were categorized (QORS as dichotomous, SPS in three categories, and IIP as quartiles) in parallel models. Model-adjusted mean levels of the dependent variables were estimated from the regression coefficients in the categories of the independent variables of interest using predictive means (Lee, 1981). The significance of the associations between the independent and dependent variables was computed using the F-test. A test for trend was performed in the case of continuous independent variables, and a test for heterogeneity in the case of categorical variables.

2.3.2 Study II

Study II was a longitudinal study of the ability of the EII-2, WAIS-R, and DSQ to predict the quality of the working alliance over the course of long-term psychotherapy. A cohort study design with repeated measurements was used. "Intention-to-treat" (ITT) analyses were performed and ignorable dropouts were assumed (Härkänen, Knekt, Virtala, & Lindfors, 2005). The statistical analyses were based on linear mixed models (Verbeke & Molenberghs, 1997). The dependent variables in the regression models were the outcome measures (WAI-P and WAI-T). In the first model, the independent variables included separately one of the three predictive variables (EII-2, DSQ or 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 confounding factors, and the respective outcome measure at baseline. In a similar second model, all three main predictive variables (EII-2, DSQ, and WAIS-R) were simultaneously included. The predictors were divided by the median into 'good' and 'poor' categories. In complementary analyses to the median-based analyses, EII-2 scores were divided into quartiles. Size of the effects, expressed as percentual differences in the model-adjusted mean of the outcome variable (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 (Lee, 1981).

2.3.3 Study III

In study III, a longitudinal study was designed to evaluate the predictive ability of the EII-2 on psychotherapy outcome. A cohort study design with repeated measures was used. The predictive ability of the EII-2 on psychotherapy outcome was evaluated following the 'intention-to-treat' (ITT) design, in which all the patients were included in the analyses according to their initial treatment assignment. The analyses were based on the assumption of ignorable dropouts (Härkänen, Knekt, Virtala, & Lindfors, 2005). Statistical analyses were performed using linear mixed models (Verbeke & Molenberghs, 1997). The dependent variables in the models were the outcome measures (SCL-90-GSI, WAI, and SAS). The independent variables included the EII-2 score at baseline, the therapy group, and time (i.e., follow-up measurement points), their first- and second-order interactions, and a correction term (i.e., the difference between the theoretical and realized date of measurement), confounding factors, and the outcome measure at baseline. The model-adjusted differences in outcomes between patients with 'low' and 'high' ego impairment at the different measurement points were calculated (Lee, 1981), and confidence intervals were computed (Migon & Gamerman, 1999).

2.4 Ethical considerations

The study was approved by the ethics council of Helsinki University Hospital. All the participants gave written informed consent.

3 SUMMARY OF THE RESULTS

3.1 Study I: Associations between the Rorschach Ego Impairment Index and measures of intrapsychic and interpersonal functioning

The aim of the Study I was to explore the relationship between the Rorschach-based evaluation of ego functioning (the EII-2 and its subcomponents) and other measures (SPS, QORS and IIP) targeting central personality functions and psychological problems related to suitability for psychotherapy.

The analyses showed a statistically significant association between the EII-2 and its subcomponents (Table 3). In addition, most of the subcomponents of the EII-2 were statistically significantly associated with each other.

In the models including the confounding factors (SCL-90-GSI, SCL-90-Anx, GAF, BDI, and the onset of the primary psychiatric disorder), no statistically significant associations between the global EII-2 score and other measures (SPS, QORS, and IIP) were found (Original article 1, Tables 2–4). However, high scores for good human representational responses (GHR) subcomponent of the EII-2, reflecting adaptiveness of interpersonal behaviors to the situation, were associated with low SPS values indicating suitability for psychotherapy (r = .18, p-value for trend = .001) (Original article 1, Table 2). In addition, there were statistically significant differences in mean scores between *PHR* and the IIP quartiles in the personality disorder group, reflected by more flawed representations of interactions (i.e., higher values in PHR) among patients with greater self-reported interpersonal distress in IIP (r = .42, p-value for heterogeneity = .04).

TABLE 3 Descriptive statistics and correlation coefficients between the EII-2 and its subcomponents (n = 315).

Variable	Mean (SD)	1	2	3	4	5	6	7	8
1. EII-2, Ego Impairment Index	0.26 (1.51)	–							
2. R, Number of Responses	25.6 (9.52)	.17**	–						
3. Critical Contents	6.65 (4.47)	.58***	.51***	–					
4. GHR, Good Human Representations	5.02 (2.45)	-.17**	.43***	.08	–				
5. PHR, Poor Human Representations	4.17 (3.40)	.78***	.56***	.57***	.19**	–			
6. M-, Distorted object representations	1.27 (1.46)	.70***	.41***	.35***	.24***	.74***	–		
7. FQ-, Distorted perceptions	4.43 (3.31)	.57***	.70***	.48***	.21***	.69***	.67***	–	
8. WSum6, Disorganized thought	13.4 (13.6)	.85***	.20***	.48***	.001	.62***	.49***	.36***	–

* $p < .05$. ** $p < .01$. *** $p < .001$.

The results also showed that patients with lower QORS indicating lower quality of object relations had higher ego impairment according to EII-2 scores than patients with a higher QORS among those without personality disorder (r = .14, p-value for heterogeneity = .03). In addition, patients with lower QORS values indicating more pathological object relations had a non-significantly greater level of arbitrary thinking according to *WSum6* scores in the total study group (r = .11, p-value for trend = .05) (Original article 1, Table 4). In the personality disorder group, a statistically significant association was found between *M-* and the continuous QORS, indicating more distortions in interpersonal perceptions among patients with a higher level of object relations as assessed by the QORS (r = .33, p-value for trend = .02).

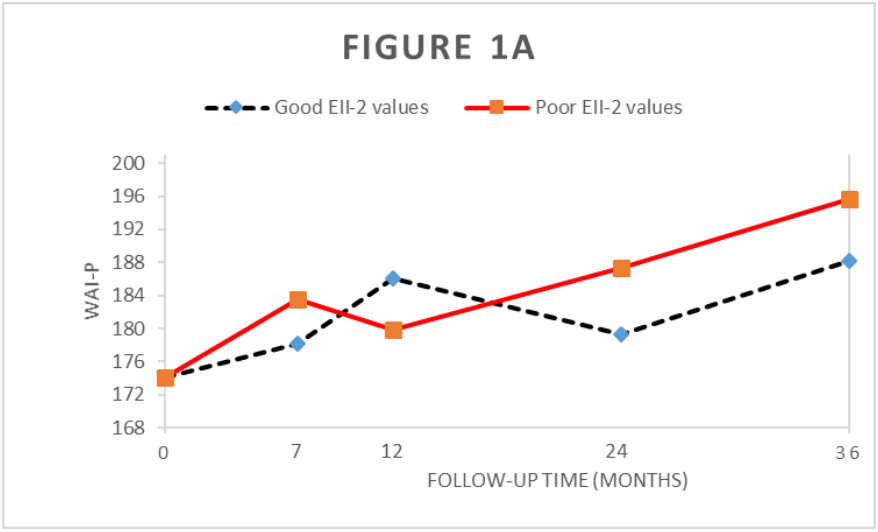
3.2 Study II: Predicting the working alliance over the course of long-term psychodynamic psychotherapy with the Rorschach Ego Impairment Index, self-reported defense style, and performance-based intelligence: An evaluation of three methodological approaches

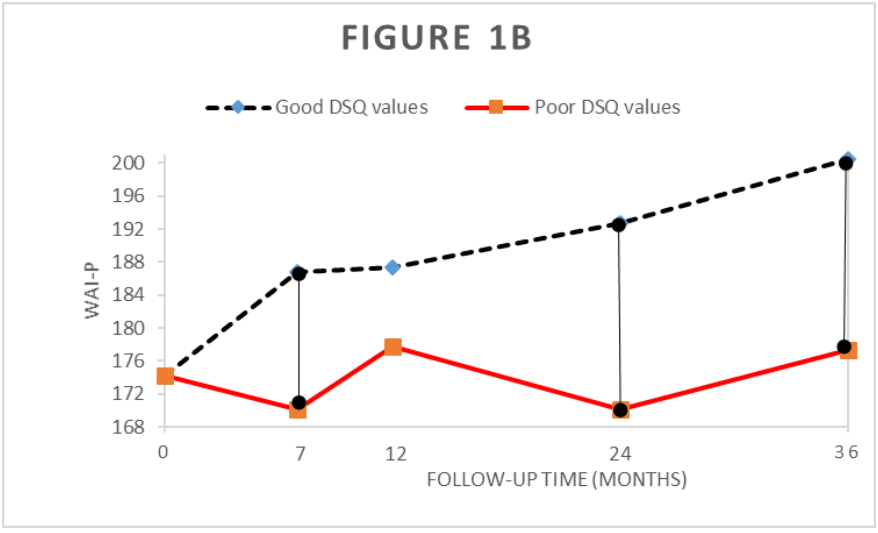
The main objective of Study II was to investigate the ability of three divergent measures targeting different facets of psychological functioning (the EII-2, DSQ, and WAIS-R) to predict alliance development in a population of 128 patients allocated to long-term psychodynamic psychotherapy (see Table 1, page 26). At baseline, no statistically significant associations were noted either between the predictor variables (WAIS-R, DSQ, and EII-2) or between the outcome variables (WAI-P and WAI-T) (Original article 2, Table 2). Nevertheless, the WAIS-R was found to significantly correlate with the therapist-rated alliance (WAI-T) (r= .29, $p < .05$).

According to the results, the patients with 'poor' EII-2 values, exhibiting greater ego impairment, showed statistically significantly greater improvement in patient-rated alliance (WAI-P) than patients in the 'good' EII-2 group over the course of follow-up (p = .04) (Original article 2, Table 3). Inclusion of all three predictors (EII-2, DSQ, and WAIS-R) in the same model showed that there were no significant independent differences in WAI-P between the two EII-2 groups. Likewise, there were no significant differences between the good and poor EII-2 groups at the individual measurement points (Figure 1A).

In contrast, good DSQ values, indicating a more mature defensive style, predicted a more positive development of WAI-P than poor DSQ values during the follow-up (p = .04) (Original article 2, Table 3). Investigation of the individual measurement points showed that the means statistically significantly differed at the 7-month follow-up point. After adjustment for the EII-2 and WAIS-R, a similar difference was also observed in estimated alliances between the good and poor DSQ groups at the 24- and 36-month follow-up points, showing percentual differences of 14.1% and 14.2%, respectively (Figure 1B).

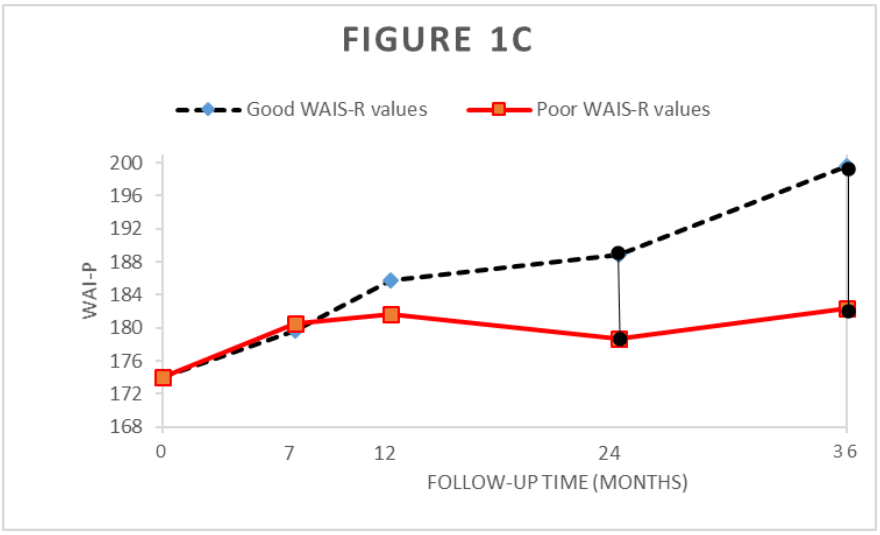
FIGURE 1 Changes in patient-rated alliance (WAI-P) scores during a 3-year follow-up according to the good and poor levels of the three predictors (EII-2, DSQ, and WAIS-R), adjusted for the baseline level of WAI-P.





Vertical lines indicate statistically significant differences between good and poor DSQ values.

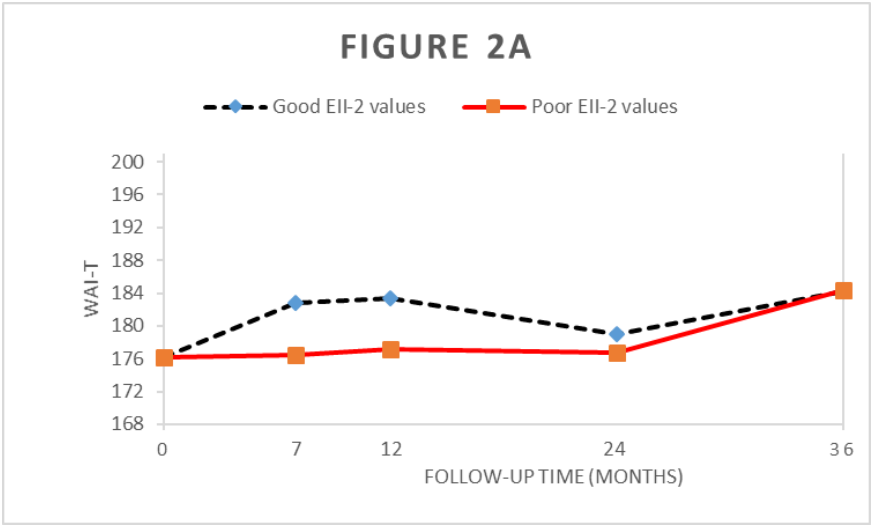
Patients with higher WAIS-R scores, indicating higher cognitive capacity, displayed non-significantly greater improvement in WAI-P than patients with lower scores (p = .06) (Original article 2, Table 3). However, a significant difference was noted at the 36-month follow-up. In the model adjusted for EII-2 and DSQ, the association was further strengthened (p = .03), with statistically significant differences at both 24- and 36-month follow-up points (Figure 1C).

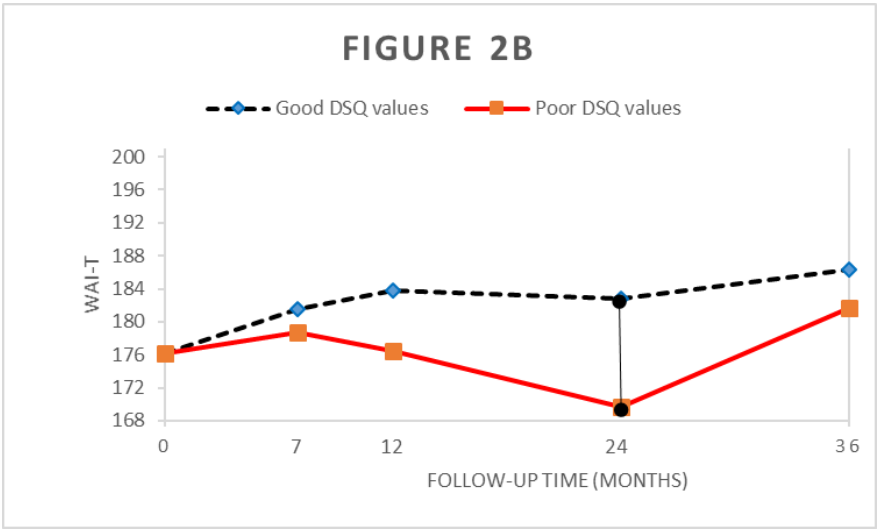


Vertical lines indicate statistically significant differences between good and poor WAIS-R values.

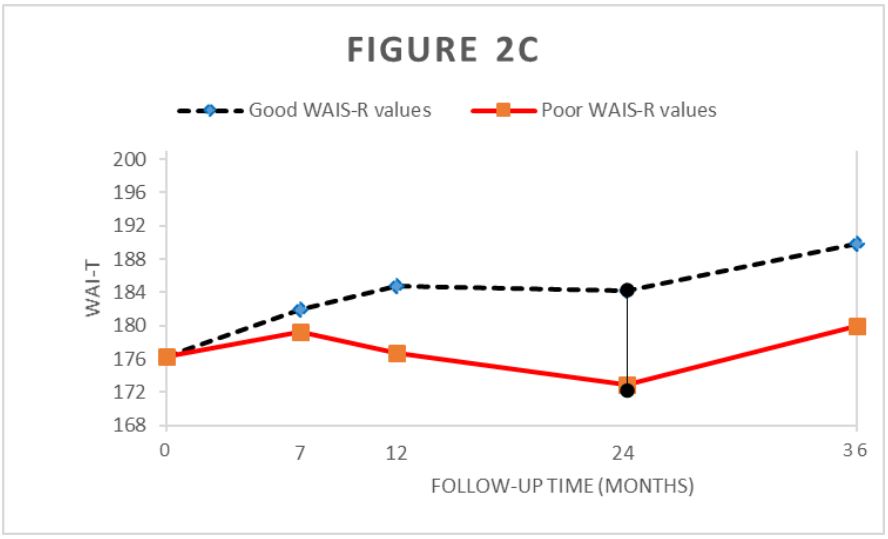
Regarding the therapist-rated alliance, no statistically significant differences were seen between dichotomized patient groups with lower vs. higher EII-2 or DSQ levels (Original article 2, Table 4). This also applied when all three variables (EII-2, DSQ, and WAIS-R) were included in the model. Regarding EII-2, no differences between lower and higher values were detected at the individual measurement points (Figure 2A). Nevertheless, with respect DSQ, there was a statistically significant difference at the 24-month follow-up point, reflecting more favorable therapist-rated alliance development in patients with more mature reported defense style (Figure 2B). 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 (Original article 2, Table 4). The difference was statistically significant at the 24-month follow-up point (Figure 2C).

FIGURE 2 Changes in therapist-rated alliance (WAI-T) scores during a 3-year follow-up according to the good and poor levels of the three predictors (EII-2, DSQ, and WAIS-R), adjusted for the baseline level of WAI-T.





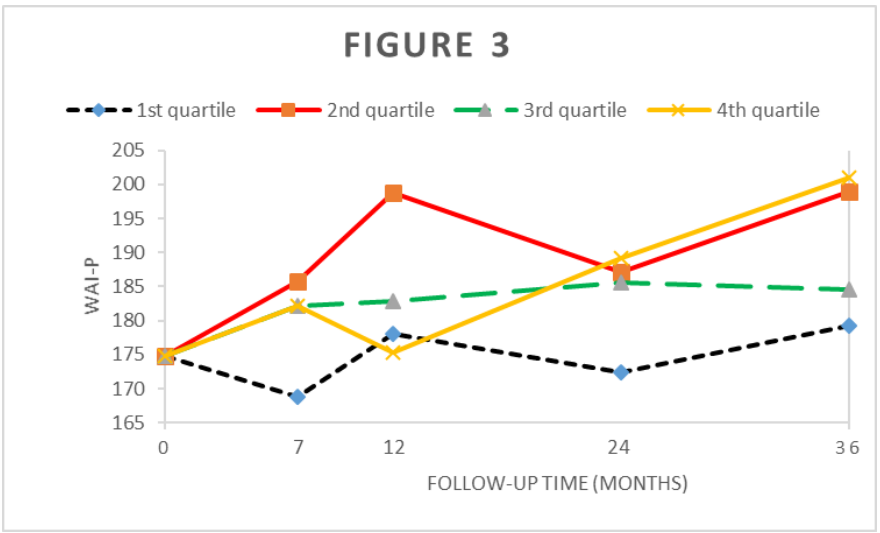
The vertical line indicates a statistically significant difference between good and poor DSQ values.



The vertical line indicates a statistically significant difference between good and poor WAIS-R values.

In efforts to more fully understand the EII-2's ability to predict alliance development, in further analyses EII-2 scores were divided into quartiles (these results were not published in the original article 2). The patient demographics by EII-2 quartiles are presented in Table 4 and the mean WAI-P and WAI-T values according to quartiles of the EII-2 predictor variable are presented in Tables 5 and 6, respectively. In the model adjusted for DSQ and WAIS-R, no statistically significant differences were found in the predictions between EII-2 quartiles regarding patient-rated alliance development (Figure 3, Table 5).

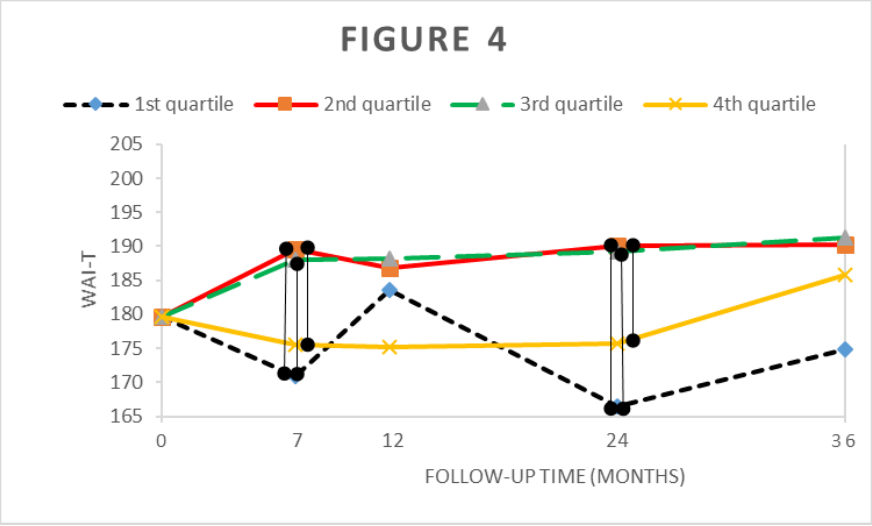
FIGURE 3 Changes in patient-rated alliance (WAI-P) scores during a 3-year follow-up according to the EII-2 quartiles, adjusted for the baseline level of WAI-P.



The 1st and 4th quartiles indicate the least and greatest ego impairment, respectively.

Nevertheless, statistically significant differences were detected between EII-2 quartiles in prediction of therapist-rated alliance development throughout the follow-up period (p = .01) (Table 6). The intermediate EII-2 scores (quartiles 2 and 3) predicted more improvement in WAI-T than both the lowest scores reflecting the least ego impairment (quartile 1) and the highest scores reflecting the most ego impairment (quartile 4) (Figure 4). More specifically, the therapist-rated alliance development in patients with the lowest EII-2 values reflecting the least ego impairment was outperformed by the patients with the second-lowest EII-2 values at the 7-month (p = .002) and 24-month follow-up points (p = .0002). Similarly, therapist-rated alliance development in patients with the lowest EII-2 scores was outperformed by the patients with the second highest EII-2 scores (indicating the second highest level of ego impairment) at the 7-month (p = .02) and 24-month follow-up points (p = .009). In contrast, patients with the highest EII-2 scores reflecting the highest level of ego impairment showed statistically significantly less improvement in WAI-T than patients with the second-lowest scores at the 7-month (p = .03) and 24-month follow-up points (p = .04).

FIGURE 4 Changes in therapist-rated alliance (WAI-T) during a 3-year follow-up according to the EII-2 quartiles, adjusted for the baseline level of WAI-T.



The 1st and 4th quartiles indicate the least and greatest ego impairment, respectively. Vertical lines indicate statistically significant differences between the EII-2 quartiles.

TABLE 4 Patient demographics by EII-2 Quartiles

Characteristic	1st quartile (n = 31)	2nd quartile (n = 30)	3rd quartile (n = 32)	4th quartile (n = 31)	p-value for difference[2]
Sociodemographic variables					
Age (years)[1]	32.5 (5.58)	31.3 (5.67)	29.7 (7.26)	32.8 (7.58)	0.23
Male gender (%)	32.2	16.7	15.6	22.6	0.37
Educational level academic (%)	22.6	20.0	21.9	48.4	0.04
Living alone (%)	0.55	0.50	0.47	0.55	0.91
Psychiatric diagnoses					
Mood disorder (%)	83.9	90.0	87.5	90.3	0.86
Anxiety disorder (%)	35.5	30.0	46.9	38.7	0.59
Comorbid mood and anxiety disorder (%)	35.5	30.0	40.6	45.2	0.65
Personality disorder (%)	6.45	10.0	12.5	22.6	0.27
Rorschach Ego Impairment Index[1]	-1.11 (0.31)	-0.33 (0.15)	0.34 (0.29)	2.16 (1.56)	< .0001

[1]Mean (SD).

[2]Test for heterogeneity (categorical variables) and test for trend (continuous variables).

TABLE 5 Mean values of patient-rated alliance (WAI-P) according to the four categories of the predictor variable EII-2.

		Unadjusted mean values (standard errors) of WAI-P by EII-2 quartile				Model-adjusted[1] mean values (standard errors) of WAI-P by EII-2 quartile				p^2
Predictor variable	Follow-up (months)	1st quartile (n = 31)	2nd quartile (n = 30)	3rd quartile (n = 32)	4th quartile (n = 31)	1st quartile	2nd quartile	3rd quartile	4th quartile	
EII-2	0	173.0 (4.7)	182.0 (6.5)	179.1 (7.0)	165.6 (6.3)					0.49
	7	166.4 (6.6)	181.2 (6.5)	191.3 (5.7)	175.5 (7.3)	168.9 (6.0)	185.8 (7.0)	182.2 (9.4)	182.1 (7.4)	
	12	173.4 (6.4)	182.9 (8.2)	188.6 (7.0)	177.3 (6.3)	178.0 (8.6)	198.8 (9.9)	182.9 (13.3)	175.4 (10.4)	
	24	178.5 (6.9)	184.3 (9.8)	199.1 (6.6)	182.0 (10.2)	172.4 (9.2)	187.1 (9.9)	185.6 (15.0)	189.2 (10.9)	
	36	180.3 (7.7)	195.0 (8.9)	199.3 (5.9)	195.9 (8.0)	179.2 (10.0)	198.9 (10.6)	184.5 (14.9)	201.0 (11.4)	

[1]The model includes the following confounding factors: education, comorbidity of mood and anxiety disorders, social support and integration, major depressive disorder, previous depressive states, the anxiety rating scale, and baseline level of the outcome measure.
[2]Global test for difference between the quartiles throughout the follow-up.

TABLE 6 Mean values of therapist-rated alliance (WAI-T) according to the four categories of the predictor variable EII-2.

		Unadjusted mean values (standard errors) of WAI-T by EII-2 quartile				Model-adjusted[1] mean values (standard errors) of WAI-T by EII-2 quartile				p^2
Predictor variable	Follow-up (months)	1st quartile (n = 31)	2nd quartile (n = 30)	3rd quartile (n = 32)	4th quartile (n = 31)	1st quartile	2nd quartile	3rd quartile	4th quartile	
EII-2	0	180.7 (3.2)	178.7 (4.7)	172.3 (7.4)	186.8 (4.3)					.01
	7	175.8 (4.8)	184.6 (3.8)	181.7 (4.6)	184.7 (5.4)	170.9 (4.0)	189.6 (4.3)	188.1 (5.9)	175.6 (4.6)	
	12	182.1 (4.7)	181.7 (5.2)	184.5 (4.1)	182.3 (5.7)	183.5 (4.3)	186.8 (4.2)	188.2 (6.6)	175.2 (4.9)	
	24	179.5 (4.6)	192.3 (4.3)	189.5 (4.9)	188.4 (6.2)	166.4 (4.3)	190.1 (4.4)	189.3 (7.5)	175.8 (5.1)	
	36	178.6 (5.9)	189.3 (5.7)	190.4 (5.2)	194.2 (5.2)	174.9 (5.5)	190.3 (5.8)	191.3 (7.7)	185.8 (6.4)	

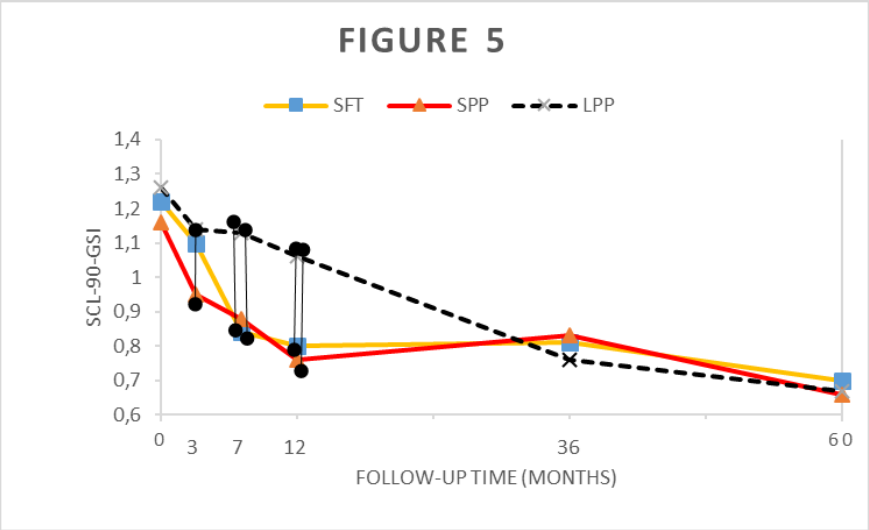
[1]The model includes the following confounding factors: education, comorbidity of mood and anxiety disorders, social support and integration, major depressive disorder, previous depressive states, the anxiety rating scale, and baseline level of the outcome measure.
[2]Global test for difference between the quartiles throughout the follow-up.

3.3 Study III: Ego Impairment Index (EII-2) as a predictor of psychotherapy outcome during a five-year follow-up

Study III investigated the EII-2's ability to predict psychotherapy outcome, as assessed by measures targeting psychiatric symptoms, social functioning and work ability. First, the outcomes were compared among EII-2 groups within therapy groups, and the patients with greater ego impairment showed a significantly greater reduction in psychiatric symptoms (SCL-90-GSI) and improved social functioning (SAS-SR) than patients with lower ego impairment in the SFT treatment group (Original article 3, Table 2). However, the difference between EII-2 groups was only significant in the SFT group at the three-month follow-up point.

Second, outcomes for patients assigned to different treatments within the EII-2 groups were compared (Figures 5–10 and Original article 3, Table 3). The analyses revealed that during the first year of the follow-up period SPP was more beneficial than LPP for the patients with lower EII-2 values indicating less ego impairment. More specifically, patients who had received SPP showed more improved psychiatric symptoms (SCL-90-GSI scores) than patients in LPP at the 3-, 7-, and 12-month follow-up points (Figure 5).

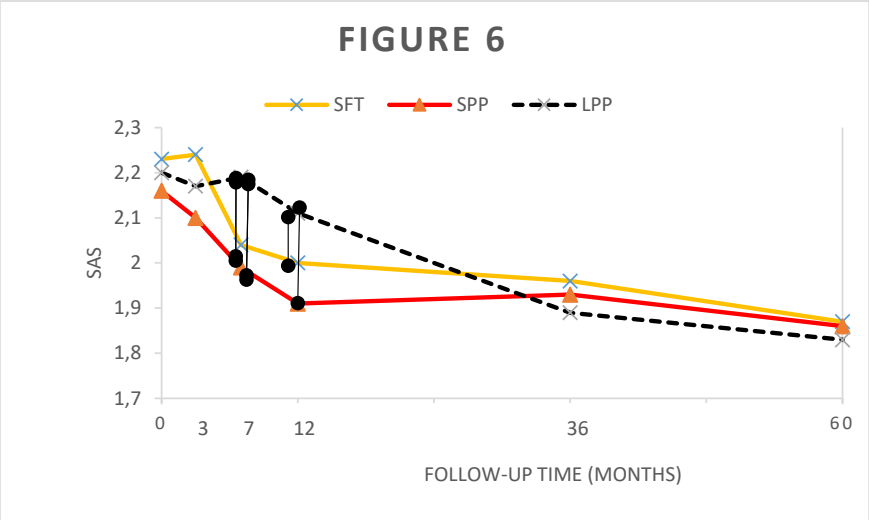
FIGURE 5 Changes in psychiatric symptoms (SCL-90-GSI) in SFT, SPP, and LPP during a 5-year follow-up in patients with low values of ego impairment.



Vertical lines indicate statistically significant differences between treatment groups in the model when further adjusted for baseline of the SCL-90.

A similar result was found for patients with lesser ego impairment between SPP and LPP for social functioning (SAS-SR) at the 7- and 12-month follow-ups (Figure 6). Further, over the course of the first year of the follow-up period among patients with low EII-2, LPP was outperformed by SFT at the 7- and 12-month measurement points, as SFT patients showed more improvement in psychiatric symptoms (Figure 5) and social functioning (Figure 6) than LPP patients at these time points.

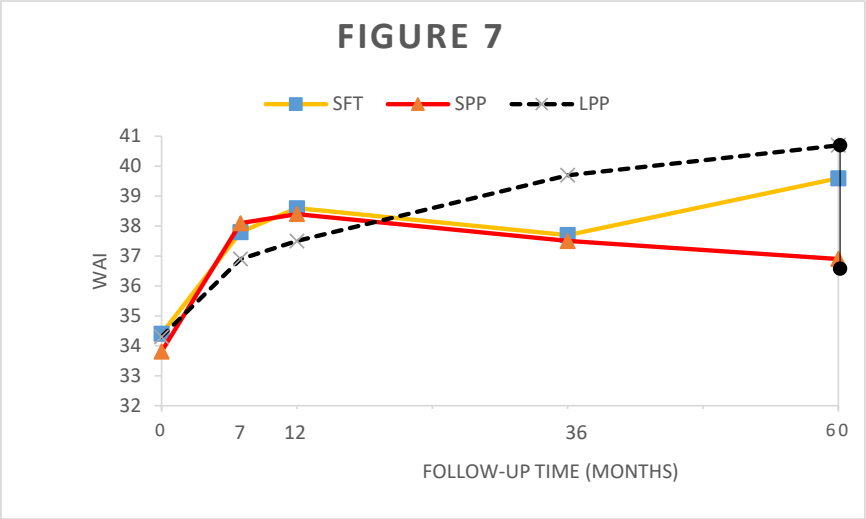
FIGURE 6 Changes in social functioning (SAS) in SFT, SPP, and LPP during a 5-year follow-up in patients with low values of ego impairment.



Vertical lines indicate statistically significant differences between treatment groups in the model when further adjusted for baseline of the SAS.

Finally, the short-term therapies yielded no greater improvements in work ability (WAI) than long-term psychotherapy during the early stages of therapy in patients with lesser ego vulnerability (Figure 7). In contrast for this patient-group, LPP yielded better results in work ability than SPP at the five-year follow-up point.

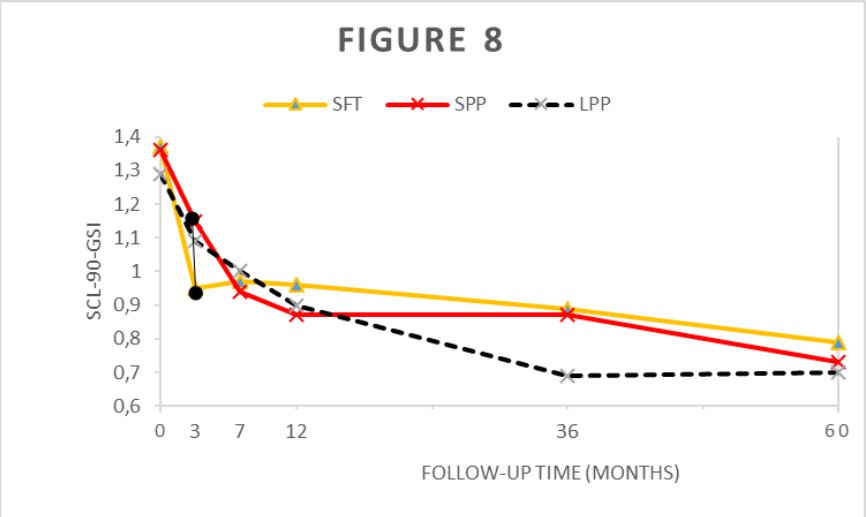
FIGURE 7 Changes in work ability (WAI) in SFT, SPP, and LPP during a 5-year follow-up in patients with low values of ego impairment.



The vertical line indicates statistically significant difference between treatment groups in the model when further adjusted for baseline of the WAI.

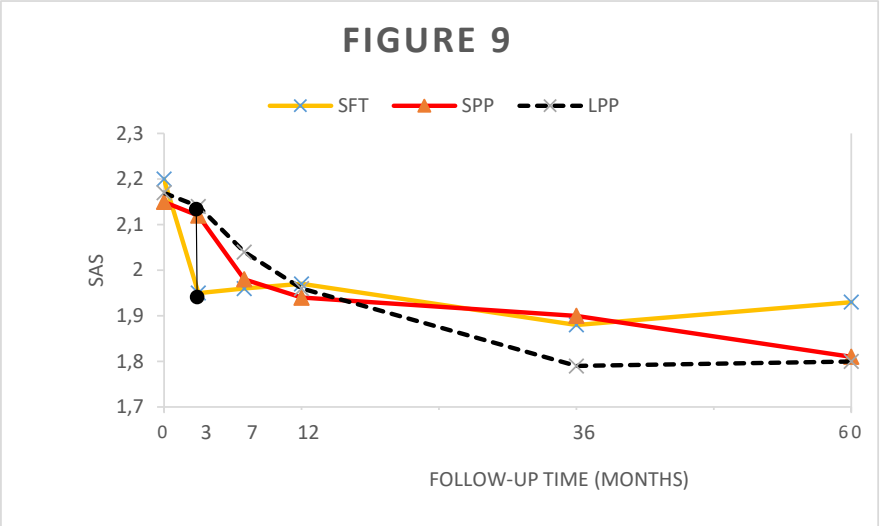
Somewhat smaller differences between therapy groups were detected among patients with higher EII-2 values reflecting greater ego deficits. At the three-month follow-up point, patients with more problematic ego functioning responded better to SFT than LPP in terms of reduction in psychiatric symptoms (SCL-90-GSI) (Figure 8) and improvement in social functioning (SAS-SR) (Figure 9). Patients with higher EII-2 scores also reported greater improvements in work ability from SPP than LPP at the seven-month follow-up time point (Figure 10).

FIGURE 8 Changes in psychiatric symptoms (SCL-90-GSI) in SFT, SPP, and LPP during a 5-year follow-up in patients with high values of ego impairment.



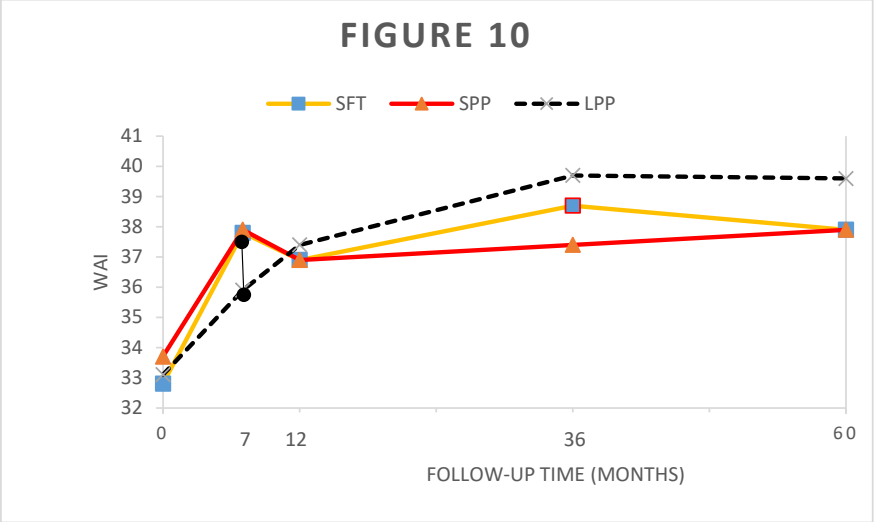
The vertical line indicates statistically significant difference between treatment groups in the model when further adjusted for baseline of the SCL-90.

FIGURE 9 Changes in social functioning (SAS) in SFT, SPP, and LPP during a 5-year follow-up in patients with high values of ego impairment.



The vertical line indicates statistically significant difference between treatment groups in the model when further adjusted for baseline of the WAI.

FIGURE 10 Changes in work ability (WAI) in SFT, SPP, and LPP during a 5-year follow-up in patients with high values of ego impairment.



The vertical line indicates statistically significant difference between treatment groups in the model when further adjusted for baseline of the SAS.

4 DISCUSSION

4.1 Associations between the EII-2 and other measures of suitability for psychotherapy

To the best of the author's knowledge, Studies I-III were the first investigations of associations between the EII-2 and its subcomponents, and between measures of suitability for psychotherapy (SPS), quality of object relations (QORS), and interpersonal problems (IIP).

Generally, the detected associations between the EII-2 and the other assessment measures were weak to modest. Models adjusted for confounding factors detected no associations in the total sample between global EII-2 score and SPS, IIP, or QORS. However, the EII-2 subcomponent *GHR* was weakly associated with the SPS. This result indicates an association between interview-based assessment of the psychological suitability for psychotherapy and *GHR*-related measurement of adaptive interpersonal behaviors. As SPS has weak associations with psychiatric symptoms (Laaksonen, et al., 2012), the results indicate that both the SPS and *GHR* have potential utility as measures of underlying psychological capacity beyond the symptom level. Better SPS values indicate higher ability to process problems within a psychotherapeutic relationship, and thus reflecting higher intrapsychic and/or interpersonal capacities. Better *GHR* scores are interpreted as indicating more accurately perceived, intact mental representations of people and interactions, manifested in more effective and positive interpersonal relatedness. The detected association between the SPS and *GHR* presumably reflects the partial salience for SPS interviewers of the non-observable underlying aspects of psychological structure that *GHR* measures. In sum, the finding that the *GHR* was associated with the SPS suggests that the *GHR*, like the SPS, might have utility for predicting the outcome of psychotherapy.

The EII-2 values were found to differ in clinically meaningful ways, as reflected by the finding that when IIP, SPS, and QORS scores were the least problematic the EII-2 scores usually indicated minimum impairment, according to interpretive ranges suggested by Viglione, Perry, and Meyer (2003). In contrast when IIP, SPS, and QORS scores were most problematic, EII-2 scores typically indicated mild to severe ego impairment. The large impact of confounding factors (e.g., psychiatric symptoms) on the detected associations was a somewhat unexpected finding, but in line with previous indications of an association between psychiatric severity and the EII-2 (Diener et al., 2011).

The EII-2 showed ego impairment most notably in patients with personality disorder, and personality pathology appeared to modify some of the associations between the EII-2 and other measures, as expected. Personality disorder was found to modify the results regarding associations between the *PHR* and the IIP. Higher *PHR* values (reflecting unrealistic, damaged, or incomplete human representations) were found to correlate with more reported interpersonal problems, according to IIP scores, among patients in the personality disorder group. Thus, according to the IIP and *PHR* scores, high values for interpersonal problems and *PHR* scores were specifically prevalent among patients with personality disorder. This observation is consistent with normative data and elaboration by Exner (2003) that numerous *PHR* responses, reflecting unrealistic, incomplete, or damaged human representations, typically appear in protocols of individuals with personality disorder and propensity to maladaptive interpersonal behavior.

The association between the EII-2 and categorized QORS was significant among patients without personality disorder, indicating that a low level of object relations was associated with greater ego impairment, in accordance with expectations, since maturity of object relations is considered an essential component of ego functions. An association with close to threshold significance ($p < 0.05$) between lower QORS values (reflecting more pathological object relationships) and higher *WSum6* values (reflecting greater levels of arbitrary thinking) was also detected. This finding suggests that disorganized thought and language indicated by a higher *WSum6* values may preclude social relationships, e.g., by leading to impairment of judgment and insight (Biagiarelli et al., 2015), as well as misinterpretation of others' behavior. This is consistent with a previous finding based on data from the Helsinki Psychotherapy Study (Valkonen, Lindfors, & Knekt, 2012) of an association between WSum6 and the Level of Personality Organization (LPO) scale.

4.2 Predictions by the EII-2, DSQ and intelligence of alliance development

Study II was the first investigation of the ability of measures of three theoretically and clinically important psychological resources or vulnerabilities

(ego impairment, defense style, and intelligence) to predict patient- and therapist-rated alliance development during long-term psychotherapy. It also evaluated the predictive utility of three psychological assessment methods: the Rorschach, self-report assessment, and cognitive performance measure.

The WAIS-R was found to be the strongest independent predictor, as higher WAIS-R scores predicted more favorable development of both patient- and therapist-rated alliance. The finding that higher intelligence promotes development of therapeutic collaboration is consistent with theorizing by Bram and Peebles (2014), who postulated that therapeutic change always requires problem-solving and learning. Furthermore, cognitive abilities have been suggested as indicators of suitability for psychodynamic psychotherapy (American Psychiatric Association, 1985).

Since the benefit of higher intelligence emerged relatively late in the therapy process, at the 2- and 3-year follow-up points, the patient's basic cognitive capacities may be particularly beneficial in deepening the therapeutic relationship after acute distress and immediate problems have been alleviated in therapy (Kopta, Howard, Lowry, & Beutler, 1994). Higher cognitive capacities may enhance alliance development by helping patients verbalize their inner experiences, such as affect states, and reflect their relationship with their therapist on a "meta level" (see Wells, 2011). The results are thus in line with previous findings that intelligence is predictive of better outcomes in long-term psychodynamic therapy and psychoanalysis than short-term therapies, but these differences only emerged at the 5-year follow-up (Knekt, Saari, & Lindfors, 2014).

Patient-rated defenses were found to have little effect on the therapist-rated alliance. Nevertheless, more mature defenses predicted consistently improved patient-rated alliance over the course of therapy. The effect of defense style appeared early in therapy (at the 7-month follow-up). This finding is in line with previous empirical evidence that maturity of defenses will facilitate therapeutic work from the patient's perspective, from the beginning in long-term psychodynamic therapy (Bond & Perry, 2004). In contrast, exclusive use of immature defenses may hinder development of a stable positive relationship, e.g., in cases where the patient's view of the therapist fluctuates between idealization and devaluation (McWilliams, 2011). A novel finding was that the effect of defense style on alliance development strengthened as the therapy proceeded to the 2- and 3-year follow-up points.

Contradicting our hypothesis, higher EII-2 values, reflecting more impaired ego functioning, predicted greater patient-rated alliance improvement over the course of long-term psychotherapy. Considering this, for patients with more ego vulnerability, a long-term therapy potentially provides repeated experiences of repair of emphatic failures and misunderstandings over a sufficient period of time. More generally, in line with this interpretation, emphatic repair of alliance ruptures between patient and therapist have been found to foster therapeutic change (Safran & Kraus, 2014). Thus, the results suggest that ego-impaired patients may obtain a positively experienced,

meaningful working alliance over the course of long-term psychodynamic therapy. However, it should be noted that the EII-2 did not improve the prediction when DSQ and WAIS-R were included in the model.

In the complementary analyses based on EII-2 quartiles, designed to enhance understanding of the predictive utility of the EII-2 for alliance development, significant results were found relating to the prediction of therapist-related alliance development (WAI-T), but not patient-rated alliance development (WAI-P). More specifically, intermediate EII-2 values (quartiles 2 and 3) predicted more improvement in therapist-rated alliance than the lowest EII-2 scores (quartile 1) at both early and later stages of treatment. This indicates that psychotherapy could potentially provide most opportunities to learn new ways to relate to others (and thus improve the quality of interpersonal relatedness, which is clearly salient to therapists) for patients with intermediate EII-2 scores. It should be noted that the mean EII-2 value (see Table 3) in quartile 2 (-.33) is within the optimal range for the EII-2 and the mean value in quartile 3 (.34) corresponds to the minimum impairment according to the interpretive guidelines provided by Viglione, Perry, & Meyer (2003). In addition, a reference point for interpreting the obtained EII-2 scores is provided by a mean reported value of -.15 in an international sample of non-patients from 17 countries (Viglione, Perry, Giromini, & Meyer, 2011). Reflecting this, patients in quartiles 2 and 3 showed no major ego impairment according to these guidelines.

On the other hand, for patients with the least ego deficits (in quartile 1) the mean EII-2 value (-1.11) reflected distinctly intact ego functioning, based on the guidelines (Viglione, Perry, & Meyer, 2003). Hence, it could be postulated that these patients may have been less prone to activation of problematic interpersonal patterns predisposing to alliance ruptures during psychotherapy (Safran & Kraus, 2014). Therapist-rated alliances in this group were found to improve by the 12-month follow-up point, but thereafter, surprisingly, significantly declined during the 12- to 24-month follow-up period. This unexpected finding may have been due to a negative therapeutic process or alliance ruptures in the therapeutic relationship between 12 and 24 months that were noted by therapists. For example, patients with more intact ego functioning may have been less motivated to engage in long-term psychotherapy, with consequent deterioration in alliance experienced by the therapist. Alternatively, when working with patients with more intact ego functions, the therapists may have experienced less need to focus on the therapeutic relationship, and more 'explorative' therapeutic work, such as focusing on the patient's internal conflicts, may have seemed more essential.

Patients exhibiting the most pathological EII-2 values (quartile 4) showed less improvement in therapist-rated alliance than the patients in the second-lowest pathology group at the 7-month and 24-month follow-up points. In quartile 4 the mean EII-2 score (2.16) reflected a significant level of ego impairment (Viglione, Perry, & Meyer, 2003), thus differing significantly from other quartiles. Accordingly, these patients with most ego impairment showed

the highest proportion of psychiatric problems, e.g., diagnosis of personality disorder (Valkonen, Lindfors, & Knekt, 2012). Furthermore, the finding that alliance development was poorest for patients exhibiting the greatest ego impairment during the first two years of long-term therapy is consistent with previous findings that patients with the poorest interview-based suitability scores failed to benefit from long-term psychotherapy in addition to short-term therapy (Laaksonen, Knekt, & Lindfors, 2013). For these patients vulnerable to lapses in ego functioning that could disrupt alliance, interpersonal problems were likely being activated over the course of long-term therapy, emerging as hindrances to connect with their therapists and being captured in therapists' alliance ratings. These patient factors may pose challenges to a therapist in tracking and repairing ruptures in collaboration with the patient (Safran & Muran, 2000), as well as in tailoring relational style and interventions to the patient's unique needs that may vary in time (Norcross & Wampold, 2018). However, at the 36-month follow-up point, when most therapies had ended, no differences were found in therapist-rated alliance between patients with the highest ego impairment and other EII-2 groups, as WAI-T was found to be developed by the end of therapy for patients with the highest EII-2 values. This finding indicates that patients with the most severe ego impairment may have needed more time than other patients to develop interpersonal capacities, and these improved capacities were reflected in alliance quality ratings by their therapist between 24 and 36 months. Although alliance ruptures are considered inevitable with any patient, it could be postulated that repeated and long-standing repairs of alliance ruptures could be essential treatment elements for patients suffering from major ego vulnerabilities, enabling development of interpersonal capacities, reflected in the alliance development.

In conclusion, all three predictors generated by the tested methods displayed some association with alliance development. The finding that alliance-ratings differed between patients and therapists is consistent with demonstrations by prior meta-analyses that patients and therapists view and evaluate the alliance differently (Tryon, Blackwell, & Hammel, 2007). Furthermore, from a more general and theoretical perspective, psychotherapy as a process has been conceptualized to work at the border between intrapsychic and interpersonal, that is, what is privately construed and jointly shared (Leiman, 2011).

Overall, 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. Mirroring this, long-term psychotherapy may be favorable for ego development (e.g., via improved interpersonal capacities). In contrast, intelligence in particular (Groth-Marnat, 2009) and defensive styles possibly also (Akkerman, Lewin, & Carr, 1999), may be less susceptible to change, so a positively deepening therapeutic collaboration would be best facilitated by their initially favorable level.

4.3 Prediction by the EII-2 of the psychotherapy outcome

Study III expanded the scope of the investigation of the EII-2's utility for predicting psychotherapy outcome, as measured by psychiatric symptoms, social functioning and work ability. This was the first study to examine its ability to predict psychotherapy outcome generally, and specific outcomes of two short-term (psychodynamic and solution-focused) and one long-term (psychodynamic) psychotherapy. This study did not provide evidence that lower ego impairment is predictive of better outcome across the therapy types. However, as hypothesized, lesser ego impairment was found to predict faster benefits from short-term than long-term psychotherapy during the first follow-up year. This is consistent with findings of previous studies (e.g., Knekt, Lindfors, Keinänen, Heinonen, Virtala, & Härkänen, 2017; Laaksonen, Knekt, & Lindfors, 2013; Lindfors, Knekt, Heinonen, & Virtala, 2014) that better psychological capacities are indicative of faster improvement in short-term therapy. A beneficial effect of lower EII-2 values (lower ego impairment) on treatment outcome has also been noted by Perry & Viglione (1991), who found that lower EII-2 predicted greater symptomatic relief in antidepressant treatment. In the psychotherapy context, the beneficial role of lower ego impairment can be understood as suggesting that ego resources, such as capacity to form positively attuned mutual relationships, regulate impulses, and cope with anxiety (Lake, 1985), may be particularly beneficial for gaining benefits from short-term therapies.

More specifically, in SFT, patients with lower ego vulnerabilities may be able to more readily construct alternative solutions to their problems, in line with the aim of therapeutic work in SFT (de Shazer et al, 1986). Accordingly, in SPP, higher tolerance of anxiety and capacity to modulate intensive affect states may be especially beneficial due to the concentration on patients' core conflicts (Malan, 1976). Further, ego functions – such as capacity to adaptively regulate behavior and capacity to more readily synthesize information – may have an important role in short-term therapies as they are designed for achieving therapeutic changes within a limited time frame.

In contrast to the outcomes measured in terms of psychiatric symptoms and social functioning, virtually no significant differences in work ability, either within or between therapies, were observed among patients differing in ego functioning. These results correspond with previous reports of smaller and slower improvements in work ability than psychiatric symptoms in both short- and long-term treatments (Knekt et al., 2008; Coryell et al., 1993; Mintz, Mintz, Arruda, & Hwang, 1992).

Surprisingly, greater ego-related impairment predicted faster improvement in psychiatric symptoms and social functioning in the SFT treatment group at the first (3-month) follow-up point. However, no differences in outcome measures related to magnitude of ego impairment were found in the SFT thereafter. In addition, greater ego vulnerability predicted faster

improvement in psychiatric symptoms and social functioning in SFT than LPP at the three-month follow-up point. However, no differences between SFT and LPP for patients with high EII-2 scores were detected at later time points. SFT is a solution-building approach that focuses on a person's resources and capacities (De Shazer et. el., 1986). Thus, these results suggest that patients with more impaired ego functioning, which may lead to a lower sense of their own capabilities (Lake, 1985), may have found the encouragement and emphasis on personal strengths in SFT highly beneficial in early therapy phases. However, this effect was found to disappear as the therapy proceeded, possibly reflecting a decreased need for therapist-provided support as the patient's internal capacities developed during long-term therapy (Volkan, 1982). With respect to work ability in patients with more ego impairment, LPP showed somewhat slower benefits than the two short-term therapies. These results suggest that the structured therapeutic approach utilized in short-term treatments was more rapidly beneficial for patients with vulnerabilities in their ego functions, possibly enhancing their agency and self-evaluated work ability.

Taken together, Study III was designed to clarify the ability of the Rorschach-based assessment of ego impairment to predict the effectiveness of psychotherapy. According to the results, patients with lower EII-2 scores, and hence lesser ego impairment, may be successfully treated with short-term therapies. Thus, these results offer preliminary empirical evidence for the relevance of ego functioning when considering suitability for psychotherapies of different length. Accordingly, they support the potential ability of the EII-2, along with interview-based measures, such as the Suitability for Psychotherapy Scale (SPS; Laaksonen, Knekt, & Lindfors, 2013), to identify psychological characteristics that enhance or hinder fast recovery in short-term therapies.

4.4 Limitations

The studies included in the present thesis had some limitations that complicate the interpretation and constrain generalization of the results. In Study I, the number of patients in the three SPS categories differed, as few patients were assigned to the 'least suitable' category, which may have led to loss of some information and increased risks of type II statistical errors. However, differences between continuous SPS values were also examined, which reduced the possible biasing effect of categories of different sizes. In addition, as we compared associations between the EII-2 and its subcomponents with IIP total scores, the results reflect their associations with the severity of interpersonal problems in general. Thus, the specific nature of interpersonal problems, based on the IIP subscales, was not utilized to avoid undue complexity in the analyses. In Study II, since the therapy sessions were not recorded and the therapy was not manualized, it is not possible to evaluate how the predictors manifested in the therapy sessions or how the therapists responded to them. However, this procedure was in line with the intention to study treatment in

normal clinical practice. In addition, deviations from the protocol (e.g., discontinuation of psychotherapy) and use of auxiliary treatment (i.e., medication, hospitalization, additional psychotherapy) may cause bias (Knekt, Lindfors, Renlund, Sraes-Jäske, Laaksonen, & Virtala, 2011). However, taking these factors into account in the additional analyses did not notably alter the results. Moreover, as patients with more severe conditions (e.g., severe personality pathology, psychosis, or cognitive impairment) were excluded, the results should not be generalized to these populations. Furthermore, as the number of men in the sample was modest, the generalizability of findings for males is open to question, although no notable gender interaction was found in the analyses. In Study III, the psychodynamic therapies were not manualized, nor monitored for adherence. However, this procedure is in line with normal clinical practice, which was the focus of our investigation. In addition, all the outcome measures were based on patients' self-reports, thus the results convey only one perspective of the outcome.

Some general limitations should also be noted. As patients with psychotic or bipolar type I disorder, severe personality pathology, substance abuse, and cognitive impairment were excluded in these studies, generalizability of the results might be limited to depressed or anxious patients without these comorbidities. However, although the EII has been primarily developed for evaluating patients with severe psychiatric disorders, it has also been posited to be sensitive to impairments in relatively well-functioning individuals (Viglione, Perry, & Meyer, 2003). Finally, it should be noted that even though the findings were controlled for several known confounders, the possibility of residual confounding cannot be fully excluded.

4.5 Future research

The results raise several questions for future research. More nuanced further research could be conducted on the measure level, such as investigating whether subcomponents of the EII-2, specific defenses in the DSQ, or subtests of the WAIS-R have predictive ability for psychotherapy outcome or development of the alliance and/or specific subcomponents. As study II investigated alliance development solely during long-term psychodynamic therapy, future research should examine whether similar effects occur in other types of long-term psychotherapies. Moreover, in Study II, differences were detected between patient- and therapist-rated alliance, demonstrating both the intrapsychic and interpersonal aspects of the alliance, which warrant further research.

Reflecting on the findings, it should be noted that the research covered only one, albeit important, Rorschach-based index, and thus a small part of the information that can be potentially obtained by the Rorschach method. This clearly restricted the lens through which the focal phenomenon (the method's predictive ability) was observed and interpreted (cf. Kuhn, 1962). In addition to the EII-2, there are other Rorschach variables and indices that are conceptually

related to relevant characteristics to suitability for psychotherapy or reportedly correlated with other suitability measures, but have not been empirically assessed in terms of ability to predict treatment outcome. Thus, there is need for further examination of these other Rorschach variables. Future research is also required to investigate the predictive utility of Rorschach variables conceptually combined as constellations or clusters, a methodology recommended by many Rorschach researchers (cf. Dies, 1995), which would also be in line with normal clinical practice, in which information regarding a given Rorschach variable is evaluated in the context of other Rorschach data (and other relevant patient information). More detailed investigation of strengths and weaknesses of the EII-2 and other Rorschach variables as predictors in relation to interview-based evaluations (e.g., in terms of capturing relevant ego functions for choice of length or type of therapy) is also warranted to evaluate the complementary information they provide. In addition, the predictive validity of the EII-2 and other potential Rorschach variables could be investigated in relation to therapist variables to examine possible 'matches' between patient and therapist variables that synergistically enhance or impair outcomes (e.g., whether patients with low levels of ego-functioning would gain more from psychotherapy provided by therapists with specific qualities). In addition, it should be noted that as the present studies were the first to evaluate the predictive validity of the EII-2 for psychotherapy outcome and alliance development, further research is required to confirm the presented findings.

4.6 Clinical implications

The presented research suggests that Rorschach-based evaluation of ego functioning may in some cases yield clinically useful information for identifying patients likely to have fast early gains in short-term psychotherapy. In addition, as a performance-based approach for assessing some central psychological functions of patients that are not usually easily gauged by introspection or observation (e.g., perceptual and cognitive processes), the Rorschach method may be useful for assessing ego functions that are difficult to report verbally and target through interviews. Thus, it may have clinical value, e.g., for patients who show adequate levels of functioning on the surface, but the interviewer suspects may have some underlying psychological weakness or disruption.

More broadly, the findings support the benefits of pre-treatment multi-method psychological assessment to tailor treatment for the individual person. Accordingly, psychological assessment training programs for psychologists (which often cover themes related to treatment planning) may be improved by incorporating modules designed to enhance skills in integrating assessment findings of divergent assessment methods, such as self-report and performance-based measures of personality assessment, as well as methods targeting cognitive capacities. Interpretation of findings using one test measure could be

enriched and balanced by evaluating information obtained by other measures – e.g., integrating WAIS, Rorschach, self-report and interview data – to help clinicians understand more comprehensively and profoundly relevant psychological strengths and vulnerabilities for each patient's unique treatment needs. Since different assessment methods tap different levels and dimensions of psychological functioning, in combination they can yield more comprehensive understanding of patients' maximal and typical performance. These are not only aspects of self that are readily recognized by patients, but also factors associated with possible fluctuation in levels of functioning, related (for example) to structural vulnerabilities or internal conflicts manifested in specific circumstances or situations in their lives.

4.7 Conclusions

In this thesis, Rorschach-based assessment of ego impairment was found to be associated with psychotherapy outcome and alliance development during psychotherapy. According to the results, patients with lower levels of ego impairment may have potential for more rapid gains in short-term therapies. In contrast, higher ego impairment may indicate a need for long-term psychotherapy, but also greater potential for alliance development over its course. In addition, higher cognitive capacities and more mature defense style were found to predict greater alliance development. The findings thus highlight the value of an integrative approach involving multimethod assessment in efforts to understand psychological functions relevant for individualized treatment planning and optimal treatment choice.

The results offer tentative empirical support for theoretical and clinical expectations of the relevance of ego functioning when considering the appropriate duration of therapy for a patient. Further, as the EII-2 was only weakly associated with interview-based measures of psychotherapy outcome, the findings suggest that the EII-2 has potential complementary utility in conjunction with interview-based evaluation for selecting optimal lengths of psychotherapy for recovery.

YHTEENVETO (SUMMARY)

Rorschach Ego Impairment Index (EII-2) psykoterapian tuloksellisuuden ja allianssin kehittymisen ennustajana

Psykoterapia on osoittautunut vaikuttavaksi hoitomuodoksi yleisimpien mielenterveyden häiriöiden, kuten masennuksen ja ahdistuneisuuden hoidossa. Psykoterapiatutkimuksessa on havaittu, että potilastekijöillä eli potilaan yksilöllisillä ominaisuuksilla on merkitystä psykoterapian tuloksellisuuden kannalta. Näin ollen psykoterapian tuloksellisuutta on mahdollista parantaa, jos kullekin potilaalle on mahdollista löytää sellainen terapiamuoto, joka mahdollisimman hyvin vastaa hänen yksilöllisiä tarpeitaan. Tämä on kuitenkin osoittautunut haastavaksi tehtäväksi osaltaan sen vuoksi, että toistaiseksi on saatavilla niukasti tietoa siitä, miten erilaiset potilastekijät ovat yhteydessä erityyppisten ja eripituisten terapioiden tuloksellisuuteen ja siihen yhteydessä oleviin muutosprosesseihin.

Potilastekijöiden arviointi ja tämän pohjalta tapahtuva psykoterapiasoveltuvuuden arviointi on perinteisesti tapahtunut pääosin haastattelupohjaisilla arviointimenetelmillä. Alustavaa tutkimusnäyttöä on kertynyt siitä, että niiden avulla arvioitujen persoonallisuustekijöiden perustella voidaan saada tietoa siitä, ketkä potilaat hyötyvät lyhytterapiasta, ja keiden kohdalla on tarpeen pitkäkestoisempi psykoterapia. Tutkittavan toimintaan perustuvana persoonallisuudenarviointimenetelmänä Rorschach tarjoaa erilaisen – mahdollisesti haastattelua ja muita itsearviointiin perustuvia menetelmiä täydentävän – väylän arvioida sellaisia persoonallisuustekijöitä, jotka ovat yhteydessä hyvään tai mahdollisesti heikentyneeseen terapiasoveltuvuuteen.

Tämän tutkimuksen tavoitteena oli tarkastella Rorschachin menetelmällä arvioidun egon toiminnan tason (Ego Impairment Index; EII-2) ennustevaliditeettia psykoterapiakontekstissa. Väitöskirja koostui kolmesta osatyöstä, joista ensimmäisessä selvitettiin yhteyksiä EII-2:n ja sen alakomponenttien sekä haastattelu- ja itsearviointipohjaisten arviointimenetelmien välillä. Kahdessa muussa osatyössä tarkasteltiin EII-2:n ennustevaliditeettia: sen kykyä ennustaa psykoterapian aikana tapahtuvaa allianssin kehittymistä (osatyö II) sekä psykoterapian tuloksellisuutta (osatyö III). Toisessa osatyössä allianssin kehittymisen ennustajina EII-2:n ohella olivat myös kognitiivinen kykytaso sekä itsearvioitu defenssityyli.

Tutkimuksen aineistona käytettiin Helsingin Psykoterapiatutkimuksen (HPS) aineistoa. HPS on kansainvälisesti tunnettu psykoterapiatutkimus, jossa tutkitaan laajasti psykoterapioiden vaikuttavuutta ja psykoterapian tuloksellisuuden ennustetekijöitä masennuksesta ja ahdistuneisuushäiriöistä kärsivien potilaiden hoidossa. HPS:n tutkimukseen valikoitui mukaan 326 potilasta, jotka satunnaistettiin johonkin kolmesta erilaisesta psykoterapiasta: lyhyt ratkaisukeskeinen terapia (n = 97), lyhyt psykodynaaminen psykoterapia (n = 101) ja pitkä psykodynaamiseen psykoterapia (n = 128). Tämän satunnaistetun asetelman lisäksi tutkimuksessa oli mukana 41 potilasta, jotka olivat itse hakeutuneet psykoanalyysiin.

Väitöskirjan ensimmäinen osatutkimus käsitteli koko satunnaistetussa potilasryhmässä ennen terapioiden alkua arvioituja EII-2:n ja sen alakomponenttien yhteyksiä kolmeen muuhun arviointimenetelmään: Suitability for Psychotherapy Scale (SPS), Inventory of Interpersonal Problems (IIP) ja Quality of Object Relations Scale (QORS). SPS on haastattelupohjainen menetelmä, joka on kehitetty psykoterapiasoveltuvuuden arviointiin. QORS on haastatteluun pohjautuva menetelmä, joka tarjoaa arvion objektisuhteiden laadusta. IIP on itsearviointimenetelmä, jolla arvioidaan koettuja ihmissuhteisiin liittyviä ongelmia. Osatutkimusten tuloksissa nousi esiin niukasti tilastollisesti merkitseviä yhteyksiä ja havaitut korrelaatiot olivat matalia. Selkeimpänä tuloksena oli EII-2:n hyvää sosiaalista sopeutumiskykyä ilmaisevan *GHR*-alakomponentin yhteys SPS -menetelmällä arvioituun hyvään psykoterapiasoveltuvuuteen.

Toinen osatutkimus tarkasteli kolmen erilaisen psykologisen arviointimenetelmän osalta niiden kykyä ennustaa pitkän psykodynaamisen psykoterapian aikana tapahtuvaa allianssin kehittymistä. Menetelmät olivat kognitiivista kykytasoa arvioiva Wechsler Adult Intelligence Scale-Revised (WAIS-R), itsearvoitua defenssityyliä arvioiva Defense Style Questionnaire (DSQ) ja EII-2. Ennen terapioiden alkua tehtyjen arviointien perusteella potilaat jaettiin jokaisen ennustemuuttujan osalta mediaanin pohjalta kahteen luokkaan: ”parempaa” ja ”heikompaa” toimintakykyä ilmaisevien arvojen ryhmiin. Tulosmuuttujana ollutta allianssin kehittymistä arvioitiin sekä potilaiden että terapeuttien suorittamilla Working Alliance Inventory (WAI) -arvioinneilla. WAI:n mittauspisteet olivat terapian alussa sekä 7 kk, 12 kk, 24 kk ja 36 kk kohdalla. Osatutkimuksen tulosten perusteella vahvimmin allianssin kehitystä ennusti kognitiivinen kykytaso: korkeammat arvot WAIS-R:n kokonaisindeksissä ennustivat myönteistä allianssin kehitystä sekä potilaiden että terapeuttien arvioimana. Kognitiivinen kykytaso kuvautui merkityksellisenä erityisesti kahden ja kolmen vuoden mittauspisteissä. Tämä mahdollisesti ilmentää sitä, että kognitiiviset valmiudet, kuten kyky verbalisoida ja reflektoida omia kokemuksia ja vuorovaikutustapahtumia, voivat olla erityisen merkityksellisiä terapiasuhteen syvenemisen kannalta terapian myöhemmissä vaiheissa, jolloin potilaan keskeisiä terapiaan hakeutumiseen liittyviä tekijöitä on jo käsitelty. Vähäisempi kypsymättömien defenssien raportoitu käyttäminen ennusti myönteistä potilaiden arvioimaa allianssin kehitystä. Toisin kuin kognitiivisten kykyjen osalta, defenssien vaikutus allianssin kehittymiseen ilmeni jo pitkän psykoterapian alkuvaiheessa. Kehittyneempien defenssien käyttäminen näyttää siten helpottavan yhteistyön käynnistymistä terapeutin kanssa. Defenssien vaikutus edelleen vahvistui kahden ja kolmen vuoden mittauspisteissä ilmentäen defenssien merkitystä potilaan kokemalle tunnesiteelle ja yhteistyön kehittymiselle myös terapian edetessä. Ongelmallisempana näyttäytyvä egon toiminta EII-2:lla arvioituna ennusti myönteistä potilaiden ilmaisemaa allianssin kehitystä. Tämä saattaa ilmentää sitä, että pitkän psykoterapian aikana tarjoutuu toistuvasti mahdollisuuksia yhteistyössä terapeutin kanssa selvittää terapiasuhteessa mahdollisesti viriäviä vaikeita tunteita tai yhteistyösuhteen katkoksia sekä niiden taustalla olevia tekijöitä. Tämä yhteinen työskentely voi edis-

tää uudenlaisten ihmissuhdevalmiuksien kehittymistä, mikä voi näyttäytyä parantuneina arvioina koetusta allianssin laadusta. EII-2:n osalta tulos ei ollut kuitenkaan merkitsevä analyyseissä, joissa kaikki ennustajat olivat mukana samassa tilastollisessa mallissa.

Kolmas osatutkimus tarkasteli EII-2:n ennustevaliditeettia koko satunnaistetussa tutkimusasetelmassa (ratkaisukeskeinen ja psykodynaaminen lyhytterapia ja pitkä psykodynaaminen psykoterapia). Potilaat jaettiin kahteen ryhmään perustuen ennen terapiaa tehtyihin arviointeihin: ”korkeampien” egon toiminnan ongelmien ja ”vähäisempien” egon toiminnan ongelmien luokkiin. Psykoterapian tuloksellisuuden osalta psyykkisiä oireita arvioitiin Symptom Checklist-90, Global Severity Index (SCL-90-GSI) -itsearviointimenetelmällä, työkykyä Work Ability Index (WAI) -kyselymenetelmällä ja itsearvioitua sosiaalista toimintakykyä Social Adjustment Scale (SAS-SR) -mittarilla. Tulosmittareiden seurantamittaukset toistettiin terapian alun lisäksi 3 kk, 7 kk, 12 kk, 36 kk ja 60 kk terapioiden alkamisen jälkeen. Osatutkimuksen tulokset nostivat esiin, että ne potilaat, joilla ilmeni lähtötasoisesti vähäisempiä egon toiminnan puutteita, hyötyivät nopeammin molemmista lyhytterapioista verrattuna pitkään psykoterapiaan. Tulokset viittaavat siihen, että vähäisempien egon toimintaan liittyvien ongelmien ilmentämät valmiudet, kuten kyky vastavuoroisiin ihmissuhteisiin, tunteiden säätelyyn ja ahdistuksensietoon, ovat mahdollisesti merkitseviä lyhytterapiasta hyötymisen kannalta.

Kokonaisuutena tarkasteltuna tulokset antavat viitteitä Rorschachin menetelmällä arvioidun egon toiminnan kliinisestä käyttökelpoisuudesta arvioitaessa potilaan mahdollisuuksia hyötyä lyhytterapiasta tai pitkästä psykoterapiasta. Koska EII-2:n yhteydet muihin arviointimenetelmiin kuvautuivat suhteellisen heikkoina, tulokset ilmentävät EII-2:n ja haastattelumenetelmien mittaavan suurelta osin erillisiä persoonallisuustekijöitä, joilla voi olla itsenäistä ennustearvoa psykoterapian tuloksellisuuden suhteen. Tulevaisuudessa on tarpeen tarkemmin selvittää eri menetelmien mahdollista toisiaan täydentäviä hyötyjä hoidon suunnittelussa.

SUMMARY

The Rorschach Ego Impairment Index (EII-2) as a predictor of psychotherapy outcome and alliance development

Psychotherapy is a widely applied and effective treatment option for depressive and anxiety disorders. Patient characteristics have been found to predict the outcome of psychotherapy. Hence, taking into account patients' individual qualities needs may be beneficial in efforts to identify the optimal type and length of psychotherapy for them. However, as yet there is limited knowledge regarding effects of specific patient qualities on outcomes of different forms of psychotherapies.

Regarding associations between traditional interview-based evaluation of patient characteristics and psychotherapy outcome, patients with different psychological qualities beyond diagnosis have shown to benefit variably from treatments of different type and length. The performance-based Rorschach inkblot method provides a potentially complementary approach in relation to interview-based methods for evaluating patient qualities associated with suitability for psychotherapy.

The aim of the present thesis was to examine the predictive validity of the Rorschach Ego Impairment Index (EII-2) in the context of treatment planning and, more specifically, patients' suitability for psychotherapy. Study I investigated associations between EII-2 scores and results of assessment methods based on interviews and self-reports. Study II investigated the ability of three assessment methods covering ego impairment, self-reported defense style, and cognitive capacity (i.e., EII-2, DSQ, and WAIS-R, respectively) to predict alliance development over the course of long-term psychodynamic psychotherapy. Study III evaluated the predictive ability of the EII-2 for psychotherapy outcome.

The dissertation is based on data from the Helsinki Psychotherapy Study (HPS), an internationally acknowledged randomized clinical trial in which effectiveness of three psychotherapies, as well as predictors of psychotherapy outcome, for patients suffering from mood and/or depressive disorders was studied. In the HPS, a total of 326 patients were recruited and randomly assigned to short-term psychodynamic therapy, brief solution-focused therapy or long-term psychodynamic psychotherapy. In addition, 41 patients were self-selected for psychoanalysis.

In Study I, involving the whole study group, the strength of associations between the EII-2 and its subcomponents with measures of psychological suitability for psychotherapy, personality functioning, and interpersonal problems were examined. The patients were assessed with the Rorschach Comprehensive System (CS), comprising the EII-2, the Suitability for Psychotherapy Scale (SPS), the Inventory of Interpersonal Problems (IIP), and the Quality of Object Relations Scale (QORS), as part of a baseline evaluation. The QORS is an interview-based assessment measure of the quality of object

relations. The SPS provides an interview-based global assessment of suitability for psychotherapy. The IIP is a self-report measure used to assess intrapsychic and interpersonal functioning. Relatively weak associations were found in the study between the EII-2 and the other measures. Of the EII-2 subcomponents, the Good Human Representation (*GHR*) variable reflecting adaptive representations of people and interactions was found to be associated with good SPS suitability values.

In Study II, 128 patients were allocated to long-term psychodynamic psychotherapy and the utility of three types of measures for predicting alliance development was examined during a 3-year follow-up. These were: EII-2 scores, responses to the Defense Style Questionnaire (DSQ) including self-reported defense style, and Wechsler Adult Intelligence Scale (WAIS-R) performance-based intelligence scores. Working Alliance Inventory (WAI) scores, used to measure outcome, were obtained at four time points: baseline (3rd psychotherapy session) and at 7-, 24-, and 36-month follow-up points. The WAIS-R was found to be the strongest independent predictor, as higher WAIS-R scores predicted favorable development of both patient- and therapist-rated alliance. The benefits of higher intelligence emerged relatively late in the therapy process, at the 2- and 3-year follow-up points. It therefore appears that intelligence (e.g., ability to verbalize and reflect on experiences) may be particularly useful for sustaining and deepening the therapeutic work after immediate problems have been addressed in therapy. In contrast to intelligence, the effect of defense style was seen relatively early in therapy. This finding supports the view that maturity of defenses will facilitate collaborative work, at least from the patient's perspective, from the beginning in long-term psychodynamic therapy. Moreover, this effect was found to be strengthened up to the 2- and 3-year follow-up points**.** Thus, it seems that more mature defenses may enhance development of meaningful and affectively engaged bonding with the therapist as therapy continues. The patients with poorer EII-2 values, exhibiting greater ego impairment, showed significantly greater improvement in the patient-rated alliance during the follow-up than patients in the lower EII-2 group. Reflecting this, a long-term therapy process might provide corrective interpersonal experiences for such patients, as ruptures in collaboration are repeatedly worked through and empathically repaired. The results thus suggest that ego-impaired patients may obtain a positively experienced working alliance in long-term psychodynamic therapy. However, it should be noted that the EII-2 did not improve the prediction when DSQ and WAIS-R were included in the model.

Study III was designed to evaluate the ability of the EII-2 to predict psychotherapy outcome as assessed by psychiatric symptoms, work ability, and social functioning in two short-term (psychodynamic and solution-focused) therapies and a long-term psychodynamic psychotherapy over the course of 5-year follow-up. Psychotherapy outcome assessments covered psychiatric symptoms, work ability, and social functioning. Participants' general psychiatric symptom levels were assessed by the Symptom Checklist-90, Global

Severity Index (SCL-90-GSI). Work ability was evaluated by a modified form of the self-report inventory Work Ability Index (WAI). The Social Adjustment Scale **(**SAS-SR**)** self-report inventory was used to assess social functioning. Results of the outcome measures were reported at baseline and 3-, 7-, 12-, 36-, and 60-month follow-up points. The findings showed that lesser ego impairment was predictive of a faster response in short-term than in long-term psychotherapy during the first follow-up year, as hypothesized. It could be postulated that lesser ego impairment is indicative of beneficial capacities for gaining benefits from short-term therapies, such as capacities for mutual relationships, affect modulation and coping with anxiety.

Collectively, the results of the present thesis provide preliminary empirical support for the hypothesis that Rorschach-based assessment of ego functioning is relevant when considering the appropriate duration of therapy for a given patient. Moreover, as the EII-2 was only weakly associated with the interview-based measures with demonstrated predictive validity for psychotherapy outcome, the findings corroborate the potential complementary value of the EII-2 in determining the optimal length of psychotherapy needed for recovery. Hence, in addition to replicating and extending the findings, future research should examine in more detail the potential incremental utility of different assessment measures in treatment planning.

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ORIGINAL PAPERS

I

ASSOCIATIONS BETWEEN THE RORSCHACH EGO IMPAIRMENT INDEX AND MEASURES ON INTRAPSYCHIC AND INTERPERSONAL FUNCTIONING

by

Jaakko Stenius, Olavi Lindfors, Risto Antikainen, Jarl Wahlstöm, Laura Sares-Jäske, & Paul Knekt. 2018

Open Journal of Psychiatry, *8*, 1–19

DOI: 10.4236/ojpsych.2018.81001

Scientific Research Publishing

Open Journal of Psychiatry, 2018, 8, 1-19
http://www.scirp.org/journal/ojpsych
ISSN Online: 2161-7333
ISSN Print: 2161-7325

Associations between the Rorschach Ego Impairment Index and Measures on Intrapsychic and Interpersonal Functioning

Jaakko Stenius[1], Olavi Lindfors[2], Risto Antikainen[1], Jarl Wahlström[3], Laura Sares-Jäske[2], Paul Knekt[2]

[1]Department of Psychiatry, Kuopio University Hospital, Kuopio, Finland
[2]National Institute for Health and Welfare, Helsinki, Finland
[3]Department of Psychology, University of Jyväskylä, Jyväskylä, Finland
Email: jaakkosten@gmail.com

How to cite this paper: Stenius, J., Lindfors, O., Antikainen, R., Wahlström, J., Sares-Jäske, L. and Knekt, P. (2018) Associations between the Rorschach Ego Impairment Index and Measures on Intrapsychic and Interpersonal Functioning. *Open Journal of Psychiatry*, **8**, 1-19.
https://doi.org/10.4236/ojpsych.2018.81001

Received: October 6, 2017
Accepted: November 14, 2017
Published: November 17, 2017

Abstract

The Rorschach Ego Impairment Index-2 (EII-2) has shown considerable validity as a measure of personality disturbance. However, few studies have been conducted on the associations between the EII-2 and measures related to ego strength and interpersonal capacities in mood and anxiety disorder patients. This study examined the strength of associations between the EII-2 and its subcomponents with measures of psychological suitability for psychotherapy, personality functioning, and interpersonal problems. A total of 315 outpatients with mood or anxiety disorders were assessed with the Rorschach Comprehensive System (RCS), comprising the EII-2, the Suitability for Psychotherapy Scale (SPS), the Inventory of Interpersonal Problems (IIP-64), and the Quality of Object Relations Scale (QORS), as part of a pre-treatment evaluation. The relatively weak associations found in the study between the EII-2 and the other measures were mostly in the hypothesized direction and often modified by personality pathology. Of the EII-2 subcomponents, the Good Human Representation (GHR) variable was associated with the SPS. The subcomponent Critical Contents were associated with the IIP and the subcomponent WSum6 with the IIP and QORS. Further research is needed to clarify whether the EII-2 has incremental validity in predicting the treatment outcome and alliance in comparison to interview-based and self-report measures.

Keywords

Rorschach, Ego Impairment Index, Suitability for Psychotherapy Scale, Inventory of Interpersonal Problems, Quality of Object Relations Scale

1. Introduction

The assessment of relatively stable personality characteristics such as ego strength and interpersonal functioning with clinical interviews and self-reported questionnaires has been found to be important when evaluating indications and suitability for psychotherapy [1] [2] [3]. The accuracy of the assessment of intrapsychic and interpersonal functioning is suggested to be improved when based on a multimethod assessment approach that incorporates information obtained from both explicit assessment methods, such as clinical interviews and self-report measures, and performance-based methods, such as the Rorschach method [4] [5]. For this reason, understanding of the associations between these complementary assessment methods is important. However, although the Rorschach method is widely used in treatment planning, knowledge of the potential utility of the Rorschach Ego Impairment Index in relation to self-reported and interview-based measures is incomplete.

The Ego Impairment Index (EII) [6], (EII-2) [7] is a theoretically based composite Rorschach measure, designed to provide data regarding reality testing, reasoning processes, defensive functions, and the quality of object relationships [7]. It thus measures the underlying ego organization and the capacity to meet internal and external demands and stressors [6]. Previous studies have demonstrated the ability of the EII-2 to reflect the continuum of psychiatric severity [8] and to distinguish between patient groups representing a diverse range of impairment, e.g., inpatients vs. outpatients [9] and patients with psychotic disorder vs. non-patients [10]. However, previous studies on the associations between the EII and self-report-based assessment of ego strength, e.g., the Ego Strength and Schizophrenia scales, as well as the average elevation of the scores of the Minnesota Multiphasic Personality Inventory (MMPI) [11], have inconsistently shown either weak or no associations [9] [12] in the few heterogeneous inpatient and outpatient samples. In a recent study focusing on depressive and anxiety disorder patients and the severity spectrum between neurosis and higher-level borderline personality organization, the EII-2 and its thought disorder component, WSum6, were found to be consistently, although relatively modestly, associated with the Level of Personality Organization (LPO) interview scale and both similarly associated with psychiatric diagnoses, symptoms, and psychiatric history, while also indicating their relative independence as measures of the severity of psychopathology [13]. However, relatively little attention has been focused on the more specific associations of the EII-2 with other personality assessment methods used in psychotherapy assessment for this patient group.

The Quality of Object Relations Scale (QORS) [14] and the Suitability for Psychotherapy Scale (SPS) [1] are interview-based measures, while the Inventory of Interpersonal Problems (IIP-64) [15] is a self-report measure that is used to assess intrapsychic and interpersonal functioning, which is relevant for optimal treatment choice, beyond the assessment of psychiatric severity, which is based on the diagnosis. The QORS provides information on the object relational pa-

thology and the SPS on the personality and interpersonal dispositions of patients, *i.e.* a global assessment of suitability for psychotherapy, ego strength, the self-observing capacity, and the nature of problems. They have been shown to be useful in treatment planning [1] [16] [17] [18] [19]. Likewise, the IIP has been shown to reliably measure overall interpersonal difficulties, which is also relevant for ego impairment and assessment of the need for psychotherapy [15] [20] [21]. As a measure of personality disturbance that assesses a number of areas of intrapsychic and interpersonal functioning, it is reasonable to expect that the EII-2 would be associated with these measures. However, as far as the authors are aware, no studies have been published on the associations between EII-2 and the QORS, SPS, or IIP.

Associations between independent assessment methods, such as self-reports, clinical interviews, and performance-based assessment methods, assessing similar constructs, have generally been shown to be low to moderate [5] [22], thus indicating that any single assessment method only provides a partial representation of the characteristics it intends to measure, being sensitive to different domains of personality [5]. By analogy, the Rorschach, as a performance-based and indirect method, is a distinctively different type of measure from interview and self-report measures, the SPS, QORS, and IIP, thus enabling these to examine different facets of the targeted phenomena. Information on the extent of their convergence as measures of psychological functioning is needed to improve understanding of these constructs and to more adequately apply the methods in clinical assessment.

There are individual differences in the capacity to recognize aspects of personality functioning and psychological difficulties, one major source of variability being the level of personality organization. Accordingly, the presence of personality disorder is known to affect an individual's interpersonal functioning and the manifestation of problems in many ways, as well as reducing the ability to recognize and verbalize psychological problems [4], thus possibly forming a potential source of bias in research focusing on associations between different types of assessment methods. Therefore, in order to eliminate the possible biasing effect of personality disorder, the associations need to be examined separately in participants with or without personality disorder.

The objective of the present study was to examine the strength of associations between the EII-2 and three measures of intrapsychic and interpersonal functioning, the SPS, QORS, and IIP. Based on previous research, we hypothesized that the EII-2 would be consistently, but relatively weakly associated with a poorer suitability for psychotherapy, a lower quality of object relationships and higher values for reported interpersonal problems.

2. Methods

2.1. Patients

This study was based on baseline data from the Helsinki Psychotherapy Study, in

which a total of 326 outpatients with depressive or anxiety disorder (DSM-IV; American Psychiatric Association, 1994) participated in a randomized trial comparing two short-term and one long-term psychotherapy [23] [24]. The patients, aged 20 - 46 years, were also required to have a longstanding (>1 year) disorder causing work disability and they had to be estimated on a psychodynamic scale of suffering from neurosis to high-level borderline disorder. Patients were excluded from the study on the basis of the severity of the disorder and type of co-morbidity, namely the presence of psychotic disorder, bipolar I disorder, severe personality disorder (DSM-IV cluster A personality disorder and/or lower level borderline personality organization), adjustment disorder, substance abuse, organic brain disease or other diagnosed severe organic disease, and mental retardation. Individuals who had undergone psychotherapy within the previous two years and psychiatric health employees were also excluded. The final study population consisted of 315 patients, since 11 patients giving interpretatively invalid Rorschach Comprehensive System (RCS) protocols (<14 responses) were excluded [13]. Thus, the included protocols fulfilled the requirements for the number of responses and their interpretive value [25]. Approval for the study was obtained from the ethics council of Helsinki University Central Hospital. All patients provided written informed consent before entering the study. The patients were relatively young adults and predominantly female, and about one-fourth of them had completed a university degree (**Table 1**). Over half of the patients suffered from mood disorder, about one-sixth from anxiety disorder, and over one-fourth from co-morbid mood and anxiety disorder. Personality disorder was diagnosed in almost one-fifth of the patients.

2.2. Measures

The patients were assessed at baseline via three interviews, self-report questionnaires, and psychological testing. The manualized, semi-structured interviews were conducted by experienced and trained clinical interviewers. The interviews were based on a modification of Kernberg's Structural Interview [26], and comprised exploration of current problems and the quality of object relations [14] [27], psychological suitability for psychotherapy [1], as well as the setting of diagnoses [23].

2.2.1. The Rorschach Ego Impairment Index (EII-2)

The RCS was administered and scored in accordance with standard guidelines [25]. The administration and coding procedures are described in more detail elsewhere [13]. For the purpose of inter-rater agreement, 20 protocols were randomly chosen and rescored independently by one psychologist. Intraclass correlation (ICC) was used to calculate the inter-rater reliability of the EII-2 and its subcomponents. All ICC coefficients were excellent.

The EII-2 was derived from the RCS scores according to an algorithm based on several scores. These were the number of the responses (R) plus the sum of

Table 1. Characteristics of the study population (N = 315).

Variable	M (SD)
Demographic variables	
Men (%)	24.4
Age (years)	32.8 (6.8)
Married (%)	49.2
University degree (%)	25.4
Diagnoses	
Mood disorder only (%)	55.2
Anxiety disorder only (%)	15.9
Co-morbid mood and anxiety disorder (%)	28.9
Personality disorder (%)	18.4
Psychiatric symptoms	
Symptom checklist, global severity index (SCL-90-GSI)	1.28 (0.5)
Beck depression inventory (BDI)	18.2 (7.8)
Symptom checklist, anxiety scale (SCL-90-Anx)	1.24 (0.6)
Psychiatric history	
Previous psychotherapy (%)	18.6
Previous medication (%)	22.0
Personality functions	
Suitability for psychotherapy scale (SPS)	2.36 (1.70)
Inventory of interpersonal problems (IIP)	86.9 (31.0)
Quality of object relations scale (QORS)	5.13 (0.60)
Quality of object relations scale (QORS) > 5 (%)	58.7

six weighted subcomponents relating to ego functions: perceptual inaccuracy and poor reality testing (FQ-), impaired reasoning and disorganized thought (WSum6), the expression of disturbed contents that are typically censored in adaptive thinking (Critical Contents; anatomy, blood, fire, explosions, sex, X-ray, aggressive movement, and morbid content responses), thought disturbance capturing distortions in object representations (M-), and adaptive versus problematic representations of people and interactions (Good (GHR) and Poor (PHR) Human Representation Variables (HRV)) [28]. Summary scores from protocols were calculated with the RIAP-3 program. The EII-2 score and its subcomponents GHR and PHR were derived from the summary scores via the Rorschach Research Utilities (RRU) program [29] and SPSS software.

2.2.2. The Quality of Object Relations Scale (QORS)

The Quality of Object Relations Scale (QORS) [14] is an interview-based assessment scale based on psychoanalytic object relation theory and designed to quan-

tify the overall quality of object relations. The assessment consists of five items with object relational levels ranging from low to high: primitive, searching, controlling, triangular, and mature. A total of 100 points were distributed between these five levels according to their relative representation (percentage) among the patient's patterns of object relations. The original ratings were multiplied by the weight according to the level of the object relational pattern, *i.e.*, from primitive to mature, 1, 3, 5, 7, and 9, and the values were then summed and divided by 100. Thus, the QORS score ranged from 1 to 9. The QORS scores were dichotomized using a cut-off point of 5.0 to form a low (≤5) and high QORS (>5) group. The reliability and concurrent validity of the dichotomized QORS have reportedly been adequate [27].

2.2.3. The Suitability for Psychotherapy Scale (SPS)

The interview-based Suitability for Psychotherapy Scale (SPS) [1] was developed in the Helsinki Psychotherapy Study to measure psychological suitability for psychotherapy. The assessment of ego strength is a central focus in the 7-item SPS, including three items on affect modulation, flexibility of social interaction, and the relationship between the current self-concept and ego ideal. Other dimensions of the SPS score include three items related to self-observing capacity and one related to the nature of problems (specific vs. unspecific). The total SPS score was formed by summing the seven dichotomized suitability items (good = 0, poor = 1) so that the score ranges from 0 to 7. The score was further categorized into three groups: low (0 - 3), intermediate (4 - 6), and high (7), where a low score designates good suitability and intermediate and high values poor suitability for psychotherapy. The SPS has shown fair to good reliability, good criterion and discrimination validity, and a good predictive ability with regard to the outcome of short-term and long-term psychotherapy [1] [16] [17].

2.2.4. The Inventory of Interpersonal Problems (IIP)

The Inventory of Interpersonal Problems (IIP-64) [15] is a 64-item self-report measure providing information on interpersonal problems and distress in two sections: "The following are things that you find hard to do with other people" and "The following are things that you do too much". The response options are scored on a 5-point scale ranging from 0 (not at all) to 4 (extremely). The total IIP score, *i.e.* the overall severity of the person's current interpersonal problems, was obtained by summing all 64 scores of both sections.

2.2.5. Other Methods

Psychiatric diagnoses were assessed by semi-structured interview [23] and based on DSM-IV diagnostic criteria [30]. Both clinical disorders (axis I) and personality disorders (axis II) were diagnosed. General psychiatric symptoms were assessed with the Symptom Check List, Global Severity Index (SCL-90-GSI) [31], anxiety symptoms with the Symptom Check List, Anxiety Scale (SCL-90-Anx) [31], depressive symptoms using the Beck Depression Inventory (BDI) [32], and psychosocial functioning with the Global Assessment of Functioning scale (GAF) [30]. So-

cioeconomic factors (sex, age, marital status, and education) and psychiatric history (previous psychotherapy and previous medication) were assessed with questionnaires and interviews.

2.2.6. Statistical Methods

In this cross-sectional study, the strength of the association between the Rorschach variables and the other variables of interest was estimated using linear regression analysis model [33]. The EII-2 and its subcomponents were included in basic models as dependent variables and the QORS, SPS, and IIP in separate models as independent variables. Variables satisfying the criteria for a confounding factor [34], SCL-90-GSI, SCL-90-Anx, GAF, BDI (all included as continuous variables), and the onset of the primary psychiatric disorder (included as a categorical variable) were further included in a complete model. The three continuous independent variables of interest (QORS, SPS, and IIP) were included as continuous variables in their original form and also categorized (QORS as dichotomous, SPS in three categories, and IIP categorized by quartiles) in parallel models to avoid potential biases resulting from the linearity assumption inherent in the use of continuous variables [35].

Model-adjusted mean levels of the dependent variables were estimated from the regression coefficients in the categories of the independent variables of interest using predictive means [36]. For the continuous variables, partial correlation coefficients estimated based on the model were presented.

The significance of the associations between the independent and dependent variables was computed using the F-test. A test for trend was performed in the case of continuous independent variables, and a test for heterogeneity in the case of categorical variables. The statistical analyses were carried out using the package SAS, version 9 [37].

3. Results

The overall EII-2 index was not associated with the SPS. There was one statistically significant association between the EII-2 subcomponents and the SPS in the total study group (N = 315) (**Table 2**). Patients with the lowest, and thus the best, values for the SPS demonstrated the highest values for good human representational responses (GHR), indicating social interpersonal behaviors more adaptive to the situation with the continuous SPS value (r = 0.17, p-value for trend = 0.003). A similar association between the SPS and the GHR was observed in patients without personality disorder (r = 0.20, p-value for trend = 0.002). Adjustments for psychiatric symptoms and psychiatric history did not alter these findings. In addition, a statistically significant difference was detected in the number of given Rorschach responses between the three SPS categories in the personality disorder group (r = 0.35, p-value for heterogeneity = 0.03) (data not shown). However, this association did not remain significant in the model adjusted for confounding factors.

The EII-2 total score was associated with the IIP (r = 0.15, p-value for trend

Table 2. Association of the Rorschach ego impairment index (EII-2) and its subcomponents and the suitability for psychotherapy (SPS): mean (SD) values of the EII-2 variables by category of SPS and correlation of the EII-2 variables with the continuous SPS index.

Unadjusted mean values and standard deviations of EII-2 by SPS category					p-value for trend[2]	Model-adjusted[1] mean values of EII-2 by SPS category				p-value for trend[2]
EII-2 variables[4]	1st category 0 - 1	2nd category 2 - 5	3rd category 6 - 7	Correlation coefficient		1st category 0 - 1	2nd category 2 - 5	3rd category 6 - 7	Correlation coefficient	
All patients (N = 315)										
N	247	61	7			247	61	7		
EII-2	0.02 (1.08)	0.44 (1.74)	0.06 (1.14)	0.09	0.12	0.03	0.43	0.16	0.09	0.14
R	26.2 (10.1)	25.5 (9.2)	24.3 (9.56)	0.04	0.43	26.2	25.5	24.5	0.05	0.41
Critical C	6.66 (4.38)	6.80 (4.63)	5.53 (3.69)	0.05	0.37	6.68	6.76	5.82	0.05	0.36
GHR	5.31 (2.51)	4.97 (2.46)	4.11 (2.03)	0.17	0.003	5.34	4.97	4.00	0.18	0.001
PHR	3.75 (2.64)	4.54 (3.76)	3.56 (3.40)	0.05	0.43	3.76	4.53	3.64	0.04	0.52
M-	1.09 (1.20)	1.41 (1.61)	0.89 (1.29)	0.02	0.70	1.09	1.40	1.01	0.03	0.58
FQ-	4.37 (2.89)	4.54 (3.52)	4.10 (3.70)	0.02	0.77	4.36	4.53	4.23	0.007	0.91
WSum6	11.9 (11.1)	14.7 (15.1)	10.5 (9.88)	0.03	0.54	12.0	14.6	11.0	0.02	0.66
Patients with personality disorder[3] (N = 58)										
N	34	21	3			34	21	3		
EII-2	0.09 (1.24)	0.94 (2.29)	0.57 (1.42)	0.009	0.95	0.32	0.88	0.62	0.06	0.68
R	27.8 (11.9)	22.4 (6.90)	38.3 (11.6)	0.04	0.77	28.1	22.2	35.6	0.10	0.52
Critical C	9.24 (6.37)	6.85 (3.33)	9.00 (2.65)	0.14	0.29	9.46	6.68	7.74	0.22	0.14
GHR	5.09 (2.33)	4.50 (1.82)	5.67 (2.89)	0.05	0.73	5.09	4.54	5.51	0.07	0.65
PHR	5.19 (4.34)	3.65 (3.00)	8.00 (6.08)	0.04	0.80	5.40	3.61	6.01	0.05	0.72
M-	1.42 (1.80)	1.10 (1.65)	2.00 (2.65)	0.02	0.86	1.41	1.21	1.45	0.01	0.94
FQ-	4.76 (3.90)	3.80 (2.63)	8.67 (6.66)	0.03	0.84	5.01	3.76	6.13	0.12	0.43
WSum6	20.3 (22.8)	19.0 (16.6)	14.3 (9.07)	0.03	0.83	20.2	19.9	8.93	0.04	0.77
Patients without personality disorder (N = 257)										
N	213	40	4			213	40	4		
EII-2	0.01 (1.07)	0.30 (1.54)	−0.24 (0.86)	0.08	0.23	0.0008	0.30	−0.10	0.09	0.17
R	25.5 (9.06)	26.0 (10.5)	19.8 (4.43)	0.06	0.33	25.4	26.3	19.5	0.06	0.39
Critical C	6.42 (4.06)	5.87 (4.96)	4.25 (2.50)	0.09	0.15	6.40	5.97	4.35	0.08	0.20
GHR	5.20 (2.54)	4.58 (2.36)	3.00 (2.16)	0.20	0.002	5.19	4.64	2.86	0.20	0.001
PHR	4.05 (2.89)	4.47 (4.80)	2.00 (2.45)	0.02	0.73	4.04	4.53	1.95	0.03	0.67
M-	1.26 (1.34)	1.33 (1.69)	0.50 (1.00)	0.01	0.82	1.24	1.41	0.48	0.03	0.59
FQ-	4.35 (2.88)	4.97 (4.72)	2.50 (2.38)	0.006	0.93	4.34	5.06	2.40	0.02	0.76
WSum6	12.4 (11.4)	11.3 (10.9)	3.25 (2.87)	0.02	0.75	12.5	11.0	2.86	0.02	0.76

Note. BDI = Beck Depression Inventory; Critical C = Critical Contents; EII-2 = Ego Impairment Index; FQ- = Distorted perceptions; GAF = Global Assessment of Functioning scale; GHR = Good Human Representations; M- = Distorted object representations; PHR = Poor Human Representations; R = Number of Responses; SCL-90-Anx = Symptom Checklist, Anxiety Scale; SCL-90-GSI = Symptom Checklist, Global Severity Index; WSum6 = Disorganized thought. [1]Model: The mean Rorschach values in the three SPS categories were adjusted for SCL-90-GSI, SCL-90-Anx, GAF, BDI (all included as continuous variables), and onset of primary psychiatric disorder (included as a categorical variable). [2]Test for trend between the Rorschach variables and the continuous SPS index. [3]Patients with diagnoses on Axis II (personality disorder). [4]Missing values in variables in the analyses ranging from 0 - 11.

= 0.007), indicating the highest level of psychological impairment among patients with the highest values for self-reported interpersonal problems (Table 3). The association was found to be even stronger in the personality disorder group (r = 0.27, p-value for trend = 0.04), whereas no significant association was found in patients belonging to the non-personality disorder group. Patients with more self-reported interpersonal problems scored significantly higher on the EII-2 subcomponent, demonstrating failure to defend against primitive impulses (Critical Contents), with respect to the continuous IIP score (r = 0.12, p-value for trend = 0.03). WSum6 was found to be significantly associated with the continuous IIP, indicating a higher level of thought disturbances among patients with more self-reported interpersonal problems (r = 0.14, p-value for trend = 0.02). In addition, the results showed a statistically significant correlation between the PHR and the continuous IIP among patients with personality disorder (r = 0.32, p-value for trend = 0.02). However, all of the significant associations between the EII-2 scores (total EII-2, Critical Contents, WSum6 and PHR) and the continuous IIP score disappeared after adjustment for confounding factors (Table 3). A statistically significant difference appeared, however, in the mean scores between PHR and the IIP quartiles in the personality disorder group, indicating more flawed representations of interactions among patients with greater self-reported interpersonal distress (r = 0.42, p-value for heterogeneity = 0.04) (data not shown).

Lower values of the QORS were significantly associated with more ego impairment in the EII-2 (r = 0.13, p-value for trend = 0.02, Table 4) in the total study group, as well as in the non-personality disorder group (r = 0.13, p-value for trend = 0.04). After adjustment for psychiatric symptoms and history, the association between the continuous QORS and the EII-2 did not reach significance. However, the analysis of the categorized QORS indicated that patients with a low QORS displayed more ego impairment in the EII-2 than patients with a high QORS among those without personality disorder (r = 0.14, p-value for heterogeneity = 0.03) (results not shown). The significant association between the WSum6 and the QORS scores (r = 0.15, p-value for trend = 0.007) indicated that patients with lower QORS values showed the greatest levels of arbitrary thinking in the total study group. The findings were mainly similar among patients in the non-personality disorder group, and the associations were slightly attenuated after adjustment. In the personality disorder group, the association between M- and the continuous QORS became significant after adjustment (r = 0.33, p-value for trend = 0.02), indicating more distortions in interpersonal perceptions among patients with a higher QORS.

4. Discussion

4.1. General Findings

To the best of our knowledge, this is the first study investigating associations between the Rorschach EII-2 and the SPS, IIP, and QORS. Most of the detected

Table 3. Association of the Rorschach ego impairment index (EII-2) and its subcomponents and the inventory of interpersonal problems (IIP): mean (SD) values of the EII-2 variables in four categories of IIP and correlation of the EII-2 variables with the continuous IIP index.

	Unadjusted mean values and standard deviations of EII-2 by IIP quartile					p-value for trend[2]	Model-adjusted[1] mean values of EII-2 by IIP quartile					p-value for trend[2]
EII variables[4]	1st quartile 12 - 66	2nd quartile 67 - 88	3rd quartile 89 - 106	4th quartile 108 - 162	Correlation coefficient		1st quartile 12 - 66	2nd quartile 67 - 88	3rd quartile 89 - 106	4th quartile 108 - 162	Correlation coefficient	
All patients (N = 315)												
N	78	77	76	79			78	77	76	79		
EII-2	−0.02 (1.63)	0.15 (1.14)	0.33 (1.67)	0.59 (1.56)	0.15	0.007	0.09	0.18	0.31	0.48	0.07	0.20
R	25.9 (10.0)	24.5 (9.04)	25.8 (8.21)	26.0 (10.5)	0.004	0.95	25.8	24.5	25.9	26.1	0.001	0.98
Critical C	6.17 (4.51)	6.17 (3.99)	7.13 (4.66)	7.20 (4.78)	0.12	0.03	6.16	6.16	7.17	7.19	0.10	0.08
GHR	5.41 (2.66)	4.73 (2.27)	5.31 (2.35)	4.66 (2.53)	0.09	0.11	5.38	4.77	5.27	4.70	0.07	0.21
PHR	3.81 (3.76)	3.74 (2.82)	4.30 (3.00)	4.79 (3.74)	0.10	0.09	3.99	3.77	4.28	4.62	0.04	0.54
M-	1.14 (1.48)	1.16 (1.14)	1.43 (1.63)	1.29 (1.54)	0.05	0.38	1.24	1.19	1.41	1.19	0.02	0.75
FQ-	4.08 (3.38)	4.22 (3.04)	4.50 (3.06)	4.86 (3.62)	0.07	0.21	4.36	4.27	4.45	4.58	0.009	0.88
WSum6	11.0 (10.7)	12.2 (11.3)	14.3 (16.4)	16.1 (14.8)	0.14	0.02	11.3	12.4	14.2	15.7	0.09	0.12
Patients with personality disorder [3](N = 56)												
N	10	13	18	15			10	10	18	15		
EII-2	0.12 (1.69)	−0.27 (0.54)	1.04 (2.56)	1.69 (2.04)	0.27	0.04	0.45	−0.38	0.97	1.64	0.20	0.17
R	27.8 (13.8)	22.9 (11.2)	27.3 (11.0)	27.4 (8.81)	0.009	0.95	30.9	21.5	27.4	26.4	0.07	0.63
Critical C	8.60 (5.68)	6.38 (3.45)	8.22 (6.15)	10.1 (5.49)	0.12	0.40	8.99	6.06	7.71	10.8	0.15	0.31
GHR	5.60 (2.59)	4.85 (2.23)	4.94 (1.98)	4.43 (2.14)	0.15	0.26	6.25	4.78	4.82	4.19	0.23	0.13
PHR	3.30 (2.67)	2.62 (1.76)	5.22 (4.35)	7.29 (4.76)	0.32	0.02	4.57	2.18	5.19	6.88	0.22	0.14
M-	1.10 (1.37)	0.38 (0.65)	1.67 (2.17)	1.93 (1.91)	0.17	0.20	1.53	0.32	1.56	1.82	0.07	0.66
FQ-	4.30 (4.62)	3.23 (1.96)	4.83 (4.22)	5.80 (3.59)	0.08	0.53	6.14	2.74	4.64	5.23	0.06	0.68
WSum6	15.8 (14.2)	10.5 (8.52)	24.2 (26.6)	24.3 (19.7)	0.17	0.21	17.4	9.14	24.6	23.8	0.12	0.41
Patients without personality disorder (N = 254)												
N	68	64	58	64			68	64	58	64		
EII-2	−0.04 (1.64)	0.24 (1.21)	0.11 (1.22)	0.33 (1.32)	0.11	0.08	−0.04	0.26	0.12	0.23	0.04	0.56
R	25.6 (9.45)	24.8 (8.62)	25.4 (7.21)	25.7 (10.9)	0.004	0.95	25.1	24.8	25.5	26.1	0.03	0.65
Critical C	5.81 (4.25)	6.13 (4.12)	6.79 (4.10)	6.52 (4.37)	0.11	0.07	5.87	6.09	6.86	6.42	0.09	0.18
GHR	5.38 (2.68)	4.70 (2.30)	5.43 (2.46)	4.71 (2.62)	0.08	0.21	5.26	4.78	5.36	4.84	0.04	0.51
PHR	3.89 (3.91)	3.98 (2.96)	4.02 (2.42)	4.24 (3.27)	0.04	0.57	3.91	4.01	4.03	4.18	0.01	0.90
M-	1.15 (1.50)	1.32 (1.16)	1.36 (1.44)	1.14 (1.41)	0.01	0.82	1.22	1.36	1.35	1.04	0.04	0.51
FQ-	4.04 (3.20)	4.43 (3.20)	4.40 (2.64)	4.64 (3.62)	0.07	0.29	4.16	4.46	4.42	4.48	0.02	0.77
WSum6	10.3 (10.0)	12.5 (11.8)	11.3 (10.1)	14.2 (12.9)	0.12	0.06	10.2	12.7	11.3	14.0	0.08	0.19

Note. BDI = Beck Depression Inventory; Critical C = Critical Contents; EII-2 = Ego Impairment Index; FQ- = Distorted perceptions; GAF = Global Assessment of Functioning scale; GHR = Good Human Representations; M- = Distorted object representations; PHR = Poor Human Representations; R = Number of Responses; SCL-90-Anx = Symptom Checklist, Anxiety Scale; SCL-90-GSI = Symptom Checklist, Global Severity Index; WSum6 = Disorganized thought. [1]Model: The mean Rorschach values in the four IIP quartiles were adjusted for SCL-90-GSI, SCL-90-Anx, GAF, BDI (all included as continuous variables), and onset of primary psychiatric disorder (included as a categorical variable). [2]Test for trend between the Rorschach variables and the continuous IIP index. [3]Patients with diagnoses on Axis II (personality disorder). [4]Missing values in variables in the analyses ranging from 0 - 13.

Table 4. Association of the Rorschach ego impairment index (EII-2) and its subcomponents and the quality of object relations scale (QORS): mean (SD) values of the EII-2 variables in two categories of QORS and correlation of EII-2 variables with the continuous QORS index.

Unadjusted mean values and standard deviations of EII-2 by QORS category				p-value for trend[2]	Model-adjusted mean values of EII-2 by QORS category			p-value for trend[2]
EII variables[4]	0 - 5	>5	Correlation coefficient		0 - 5	>5	Correlation coefficient	
All patients (N = 315)								
N	130	185			130	185		
EII-2	0.54 (1.78)	0.08 (1.29)	0.13	0.02	0.48	0.13	0.07	0.22
R	24.9 (10.2)	26.2 (9.05)	0.01	0.87	24.7	26.3	0.02	0.72
Critical C	7.02 (4.92)	6.43 (4.17)	0.03	0.62	6.84	6.56	0.01	0.81
GHR	4.83 (2.52)	5.18 (2.42)	0.01	0.81	4.84	5.18	0.03	0.58
PHR	4.39 (3.91)	4.09 (3.02)	0.08	0.15	4.26	4.17	0.05	0.44
M-	1.29 (1.62)	1.26 (1.35)	0.04	0.51	1.23	1.30	0.004	0.95
FQ-	4.47 (3.48)	4.44 (3.22)	0.04	0.49	4.23	4.55	0.01	0.86
WSum6	16.0 (15.1)	11.7 (12.1)	0.15	0.007	15.6	12.0	0.11	0.05
Patients with personality disorder[3] (N = 58)								
N	40	18			40	18		
EII-2	0.74 (2.16)	0.76 (1.84)	0.05	0.70	0.58	1.12	0.17	0.24
R	25.8 (10.9)	27.9 (11.1)	0.10	0.48	24.9	29.8	0.18	0.22
Critical C	8.46 (5.67)	8.18 (4.85)	0.08	0.54	8.23	8.71	0.17	0.26
GHR	5.18 (2.18)	4.29 (2.08)	0.18	0.19	5.19	4.27	0.13	0.37
PHR	4.79 (4.36)	4.76 (3.44)	0.07	0.59	4.29	5.88	0.26	0.08
M-	1.18 (1.76)	1.71 (1.79)	0.13	0.33	0.91	2.33	0.33	0.02
FQ-	4.51 (3.72)	4.88 (3.89)	0.01	0.93	4.06	5.92	0.17	0.24
WSum6	19.5 (21.2)	19.7 (17.8)	0.06	0.65	18.7	21.5	0.13	0.37
Patients without personality disorder (N = 257)								
N	90	167			90	167		
EII-2	0.47 (1.59)	0.01 (1.20)	0.13	0.04	0.43	0.03	0.10	0.13
R	24.6 (9.95)	26.0 (8.84)	0.007	0.91	24.5	26.0	0.002	0.98
Critical C	6.39 (4.43)	6.25 (4.07)	0.03	0.61	6.27	6.31	0.05	0.41
GHR	4.67 (2.65)	5.28 (2.44)	0.004	0.95	4.71	5.26	0.02	0.74
PHR	4.21 (3.71)	4.02 (2.98)	0.09	0.14	4.18	4.04	0.09	0.17
M-	1.34 (1.57)	1.21 (1.30)	0.08	0.21	1.32	1.22	0.07	0.28
FQ-	4.45 (3.39)	4.40 (3.15)	0.04	0.49	4.44	4.41	0.03	0.61
WSum6	14.5 (11.2)	10.9 (11.2)	0.14	0.02	14.2	11.0	0.11	0.07

Note. BDI = Beck Depression Inventory; Critical C = Critical Contents; EII-2 = Ego Impairment Index; FQ- = Distorted perceptions; GAF = Global Assessment of Functioning scale; GHR = Good Human Representations; M- = Distorted object representations; PHR = Poor Human Representations; R = Number of Responses; SCL-90-Anx = Symptom Checklist, Anxiety Scale; SCL-90-GSI = Symptom Checklist, Global Severity Index; WSum6 = Disorganized thought. [1]Model: The mean Rorschach values in the four IIP quartiles were adjusted for SCL-90-GSI, SCL-90-Anx, GAF, BDI (all included as continuous variables), and onset of primary psychiatric disorder (included as a categorical variable). [2]Test for trend between the Rorschach variables and the continuous QORS index. [3]Patients with diagnoses on Axis II (personality disorder). [4]Missing values in variables in the analyses ranging from 2 - 11.

associations between the EII-2 and the other assessment measures were weak to modest, but mostly in the hypothesized direction.

In models adjusted for psychiatric symptoms and the onset of the primary psychiatric disorder, no associations in the total sample were detected between the EII-2 total score and SPS, IIP, or QORS. Nevertheless, the EII-2 subcomponent GHR was weakly associated with the SPS, even when adjusted for psychiatric symptoms and history. This result indicates that there is a consistent association between interview-based assessment of the psychological suitability for psychotherapy and the measurement of situationally adaptive interpersonal behaviors, based on the GHR. The SPS has been shown to be rather independent of psychiatric symptoms [1]. Thus, the finding that the association between the SPS and the GHR remained unaltered in adjusted models was understandable and emphasizes the potential utility of both the SPS and the GHR in measuring the underlying psychological capacity beyond the symptom level.

Both the SPS and Rorschach are based on clinical evaluation of an individual's behavior, and possibly enable tapping of the underlying developmental disruption beyond the assessment of symptoms. Good values in the SPS indicate the ability to process problems within a psychotherapeutic relationship, thus reflecting a specific intrapsychic and interpersonal functional capacity. The GHR score, like the PHR, was developed to summarize the interpersonal perception information available from the Rorschach [28]. The GHR is interpreted to indicate accurately perceived, intact mental representations of people and interactions. Theoretically, individuals with good values in the GHR are more likely to be interpersonally effective and capable of positive involvement and relatedness; their behavior in social situations is more likely to be influenced by adequate understanding of others and their intentions, and less likely to be influenced by their own wishes, fears, and fantasies. This detected association between the SPS and the GHR may reflect that although the GHR is an indicator of the nonobservable underlying structure, indicating adaptive understanding of others, it seems to measure some aspect of this interaction, which is salient to the interviewers in the SPS. It is possible that the GHR taps a partly different set of interpersonal capacities compared to the SPS. Our finding that the GHR was associated with the SPS suggests that the GHR, like the SPS, might have potential utility in predicting the outcome of psychotherapy [6]. Thus, the prediction of the GHR, in comparison to the SPS, should be addressed in future studies.

Our findings concerning the models without adjustment for psychiatric symptoms and the onset of the primary psychiatric disorder further showed that in the total sample, both the EII-2 and its subcomponent, WSum6, were statistically significantly associated with both interpersonal problems measured by the IIP and the quality of object relations measured by the QORS, as hypothesized. Thus, both current interpersonal problems and immature lifelong relational patterns, irrespective whether assessed by self-report of interview, were associated with thought disturbances and the level of psychological impairment measured by these

Rorschach measures. Regarding the EII-2, high scores reflecting psychological impairment may result in problematic interpersonal behavior, leading to negative interactions with other people. Likewise, disorganized thought and language, indicated by a high value for WSum6, may preclude social relationships, e.g., by leading to a lack of judgment and insight impairment [38], as well as leading to misinterpretation of the behavior of others. This is in accordance with a previous finding based on data from the Helsinki Psychotherapy Study [13] demonstrating an association between WSum6 and the Level of Personality Organization (LPO) scale. In that study, however, the associations of the EII-2 and WSum6 with the LPO appeared to be somewhat stronger than the associations of the EII-2 and WSum6 with the IIP and QORS in our study. Furthermore, in the previous study, the findings remained mainly similar in the adjusted models. On the other hand, Nygren [39] found no correlation between WSum6 and clinical ratings of Dynamic Capacity or Ego Strength. In addition, failure to defend against primitive impulses (Critical Contents) was associated with more self-reported interpersonal distress in the IIP. This could be interpreted as indicting that failure to repress images usually inhibited in social discourse may be related to, and perhaps predispose to, interpersonal problems represented by the IIP. In line with our observations, Schneider, Huprich, and Fuller [40] found two of the Critical Content components to correlate with the IIP scales: MOR, the interpretive meaning being morbid thoughts or feelings, and AG, indicating experienced aggression. In our study, however, the association of Critical Contents and the IIP was not found statistically significant in models adjusted for potential confounding factors, and thus the association was related to the biasing effect of psychiatric symptoms.

The large impact of psychiatric symptoms and the onset of the psychiatric disorder on the detected associations was a somewhat unexpected observation. Nevertheless, our observation is in line with the large number of previous investigations showing a significant association between psychiatric severity and the Rorschach EII-2 [8] [10], as well as between psychopathology and disordered thinking in the Rorschach [41]. Descriptively, the values of the EII-2 were found to differ in clinically meaningful ways. Accordingly, when the scores of the IIP, SPS, and QORS were the least problematic, the EII-2 most often indicated either no ego impairment or minimum impairment, applying interpretive ranges suggested by Viglione, Perry, and Meyer [7]. Respectively, when the scores of the IIP, SPS, and QORS were the most problematic, the EII-2 typically showed ego impairment, ranging from mild to severe impairment.

4.2. Secondary Findings in Relation to the Personality Disorder Group

As we expected, personality pathology appeared to modify some of the associations between the EII-2 and other measures. The EII-2 showed ego impairment most notably in patients with personality disorder.

Personality disorder was found to modify the results regarding associations between the PHR and the IIP, as well as the associations between the EII-2 and its subcomponent M- and the QORS. Higher values in the PHR were found to correlate with more reported interpersonal problems in the IIP within the personality disorder group. Thus, according to the IIP and PHR scores, high values for interpersonal problems and the PHR specifically accumulated among patients with personality disorder. This observation is in accordance with normative data and elaboration by Exner [25] that numerous PHR responses, reflecting unrealistic, damaged, or incomplete human representations, typically appear in protocols for individuals with personality disorder and maladaptive interpersonal behavior.

In models adjusted for potential confounders, the association between the EII-2 and the categorized QORS was significant among patients without personality disorder, indicating that a low level of object relations to be associated with greater ego impairment. However, the observed association between M- and QORS in the personality disorder group was in an unexpected direction, indicating more distortions in interpersonal perception among patients with the highest quality of object relations. M- responses have been demonstrated to be related to distorted perceptions of others [41], but have also been interpreted as indicating impairment of the thought process [7]. Our findings may reflect the fact that in the present study, within this context of relatively healthy persons seeking psychotherapy, even distorted M- responses may indicate the potential for mature interpersonal behaviors, *i.e.* the ability to be open-minded about one's relational concerns. Furthermore, this association might be a coincidental finding. Thus, future investigations are warranted to more specifically examine our unexpected finding of a discrepancy between the interview-based assessment and the Rorschach-based assessment of interpersonal difficulties.

4.3. Methodological Issues

We found the EII-2 to be more strongly associated with the interview-based assessment measures, the SPS and QORS, than with self-report measure, the IIP. Similarly, Diener *et al.* [8] observed a stronger association between the EII score and psychiatric severity assessed by researcher ratings (e.g., diagnosis-based rating of ego impairment), with weighted effect size of $r = 0.45$, $p < 0.001$, but a weaker association between the EII and psychiatric severity assessed by self-report ratings, with weighted effect size of $r = 0.10$, $p = 0.07$. More broadly, RCS scores in general have been observed to correlate more closely with externally assessed criteria (e.g., observer ratings and diagnoses) ($r = 0.27$) than with self-reported ratings ($r = 0.08$) [41]. This observation may be partly explained by a common finding that self-reported ratings, such as the IIP, may be more easily influenced by defensive efforts: either consciously reluctant reporting of interpersonal problems or unconsciously skewed or inaccurate ways of viewing oneself and interpersonal difficulties. Furthermore, interview-based assessments allow the inter-

viewer to observe the patient's behavior in a situation encompassing ambiguity caused by open-ended questions, thus resembling the acquisition of the Rorschach protocol. More generally, previous data suggest that performance-based measures, *i.e.*, the Rorschach, tap different domains of personality compared to introspective self-report and interview-based assessment measures, leading to mainly low correlations between the measures. Our findings partially support these suggestions.

The relatively large sample size and well-defined study group are the major strengths of this study. Therefore, we consider the observations of the present study to be generalizable to outpatient populations without severe personality pathology or psychosis. The QORS [14] and the IIP-64 [15] are well-known and widely used measures with demonstrated utility in the assessment of intrapsychic and interpersonal functioning. The SPS, as a new method, has been found to be a reliable and valid measure of psychological suitability for psychotherapy [1]. In our data, patients were medication-free, based on a one month washout period, when assessed, and medication thus had no impact on the results. In the present study sample, the reliability of the scoring of the EII-2 and its subcomponents was high [13].

There were also some limitations to this study. While the QORS and IIP categories comprised an equal number of participants, the SPS categories did not. Most of the patients were assessed as "suitable" in the SPS, and this may have led to the loss of some information and increased the risk of type II statistical errors. Nevertheless, we also examined the differences between continuous SPS values, which reduced the possible biasing effect due to categories of different sizes. As we compared the EII-2 and its subcomponents with the IIP total score, the results reflect the associations between the EII-2 and its subcomponents and the severity of interpersonal problems in general, whereas the specific nature of problems, based on the IIP subscales, was not utilized to avoid undue complexity in the analyses. Furthermore, the structure of the IIP subscales was mostly concentrated on the submissive hemisphere of the circumplex measure, and thus might not have given additional information [42]. Respectively, the analyses concerning the EII-2 and the SPS were limited to investigating the associations with the SPS total score.

Regarding the Rorschach method, both the limited validity and limited knowledge of the validity of some of the EII-2 subcomponents reduces the certainty of our study conclusions. Also, for the total EII-2 score, some problems in psychometric properties, e.g., excessive variability and positive skewness, have been reported by Viglione, Perry, Giromini, and Meyer [43]. Moreover, the somewhat ambiguous Rorschach variables and complicated and unpredictable effects of contextual factors on the interpretation of the variables adds to the uncertainty of the evidence. Likewise, specific psychological mechanisms, such as the denial of unwanted characteristics, may have had a more robust influence on some measures than others. More specifically, for example, the denial of interpersonal problems in the IIP may have contributed to good values for this method, while

the problems in this respect may have been revealed in the Rorschach method via the PHR score or M- responses.

Men comprised a minority (24.4%) of study population. Nevertheless, no significant Rorschach differences between women and men have been shown [44].

The number of responses (R) was associated with the EII-2. However, the detected association was rather modest, that is, weaker than the associations between the R and the EII-2 subscales. Moreover, the R is one subcomponent of the EII-2, and controlling for it was not therefore reasonable, as response productivity cannot conceptually be completely separated from personality characteristics and from the subject's orientation towards the assessment situation.

5. Conclusion

In conclusion, the purpose of this study was to acquire knowledge on a general level of the extent of convergence between the performance-based EII-2 measure and three measures of intrapsychic and interpersonal functioning. In our study, as expected, associations between dissimilar assessment methods, the Rorschach-derived EII-2 and its subcomponents and the SPS, IIP, and QORS, were relatively weak and often modified by psychiatric symptoms. As the specificity of the EII-2 as a measure of psychopathology remains rather vague, future research should be directed to its practical utility, e.g. whether it has incremental value as a predictor of the effectiveness of psychotherapy in comparison to other measures as predictors.

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II

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

by

Jaakko Stenius, Paul Knekt, Erkki Heinonen, Juha Holma, Risto Antikainen, & Olavi Lindfors. 2021

Psychoanalytic Psychology 38, 58-67

DOI: 10.1037/pap0000318

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

Jaakko Stenius

Kuopio University Hospital and Niuvanniemi Hospital, Kuopio, Finland and Finnish Institute for Health and Welfare, Helsinki, Finland

Paul Knekt

Finnish Institute for Health and Welfare, Helsinki, Finland

Erkki Heinonen

Department of Psychology, University of Oslo, Oslo, Norway

Finnish Institute for Health and Welfare, Helsinki, Finland

University of Helsinki, Helsinki, Finland

Juha Holma

Department of Psychology, University of Jyväskylä, Jyväskylä, Finland

Risto Antikainen

Kuopio University Hospital, Kuopio, Finland

Olavi Lindfors

Finnish Institute for Health and Welfare, Helsinki, Finland

Thanks to Julius Rissanen who assisted in statistical analyses for this article.

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, & Hoglend, 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 at 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.

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Table 1

Characteristics of the 128 Patients

Variable	
Sociodemographic variables	
Age (years)[1]	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 (%)[2]	36.7
Personality disorder (%)	12.5
Rorschach Ego Impairment Index[1]	0.27 (1.45)
Defense Style Questionnaire[1]	3.39 (0.69)
Wechsler Adult Intelligence Scale-Revised[1]	109 (9.66)

[1] (*SD*).
[2] 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)[3]	p^1	N. of patients[4]		Mean in the model including all the predictor variables		Mean difference as percentages of the good predictor values (95% CI)[3]	p^1
Predictor	Follow-up (months)	Good	Poor	Good	Poor			Good	Poor	Good	Poor		
EII-2[2]	0	48	46	176.4	172.6		.04	30	22	177.5	169.5		.71
	7	48	44	172.8	183.9	**8.0% [-14.3%, -1.8%]**		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[2]	0	50	46	176.8	170.1		.04	32	20	176.1	171.5		.02
	7	49	45	183.2	170.7	**7.2% [1.3%, 13.0%]**		31	20	186.8	170.2	**12.8% [5.4%, 20.3%]**	
	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	**14.1% [2.1%, 26.2%]**	
	36	47	36	196.5	183.6	6.4% [-0.7%, 13.5%]		30	17	200.5	177.4	**14.2% [2.9%, 25.5%]**	
WAIS-R[2]	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	**11.5% [0.2%, 22.8%]**	
	36	24	24	199.6	184.6	**13.2% [1.8%, 24.5%]**		24	24	199.6	182.3	**15.2% [4.2%, 26.3%]**	

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.

[1]Global test for the difference between the good and poor group throughout the follow-up.
[2]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).
[3] Model adjusted for the baseline level of the outcome measure considered.
[4]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*

		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)[3]	p^1	N. of patients[4]		Mean in the model including all the predictor variables		Mean difference as percentages of the good predictor values (95% CI)[3]	p^1
Predictor	Follow-up (months)			Good	Poor			Good	Poor	Good	Poor		
EII-2[2]	0	48	48	181.0	178.7		.31	31	23	182.8	167.2		.74
	7	48	46	180.9	181.7	1.7% [-5.9%, 2.4%]		30	21	182.8	176.4	0.3% [-6.1%, 5.5%]	
	12	47	46	182.1	181.7	0.4% [-4.0%, 4.7%]		29	22	183.3	177.2	1.2% [-4.2%, 6.6%]	
	24	37	40	180.7	183.6	2.1% [-6.7%, 2.5%]		25	19	179.0	176.7	1.2% [-7.3%, 4.9%]	
	36	44	42	182.1	189.3	4.3% [-9.6%, 0.9%]		29	20	184.2	184.4	2.8% [-9.6%, 4.1%]	
DSQ[2]	0	50	47	180.1	180.6		.59	32	22	178.4	173.0		.18
	7	50	45	180.3	182.9	1.3% [-5.4%, 2.9%]		31	20	181.5	178.7	0.2% [-5.8%, 5.5%]	
	12	50	44	183.3	179.1	3.2% [-1.2%, 7.6%]		31	20	183.8	176.5	4.0% [-1.0%, 9.1%]	
	24	43	34	184.1	180.9	2.3% [-2.2%, 6.8%]		28	16	182.8	169.7	**6.6% [0.8%, 12.4%]**	
	36	48	38	184.6	185.8	0.1% [-5.3%, 5.1%]		31	18	186.3	181.7	1.8% [-5.2%, 8.7%]	
WAIS-R[2]	0	28	27	173.0	180.0		.06	28	27	173.2	179.6		.04
	7	26	26	182.1	180.1	3.1% [-2.6%, 8.9%]		26	26	182.0	179.2	3.3% [-2.6%, 9.1%]	
	12	27	25	184.8	177.7	4.2% [-1.1%, 9.5%]		27	25	184.8	176.7	4.2% [-0.8%, 9.3%]	
	24	24	21	184.1	174.3	**6.6% [0.2%, 12.9%]**		24	21	184.2	172.9	**6.7% [0.5%, 12.8%]**	
	36	25	25	189.9	181.4	5.2% [-1.5%, 12.0%]		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.

[1] Global test for the difference between the good and poor group throughout the follow-up.
[2] 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).
[3] Model adjusted for the baseline level of the outcome measure considered.
[4]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.

III

EGO IMPAIRMENT INDEX (EII-2) AS A PREDICTOR OF PSYCHOTHERAPY OUTCOME DURING A FIVE-YEAR FOLLOW-UP

by

Jaakko Stenius, Erkki Heinonen, Olavi Lindfors, Juha Holma, & Paul Knekt.
2021

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