

Ragnhild Johansen

Working Alliance and Service Engagement in Early Schizophrenia Spectrum Disorders

Thesis for the degree of Philosophiae Doctor

Trondheim, October 2013

Norwegian University of Science and Technology
Faculty of Social Sciences and Technology Management
Department of Psychology

Forensic Department Brøset
Division of Mental Health
St. Olav's Hospital, Trondheim University Hospital



NTNU

Norwegian University of Science and Technology

Thesis for the degree of Philosophiae Doctor

Faculty of Social Sciences and Technology Management
Department of Psychology

© Ragnhild Johansen

ISBN 978-82-471-4285-1 (printed ver.)
ISBN 978-82-471-4286-8 (electronic ver.)
ISSN 1503-8181

Doctoral theses at NTNU, 2013:92

Printed by NTNU-trykk

Contents

Abbreviations	4
Summary	5
Acknowledgements	7
List of papers included in the thesis	10
1.0 Introduction	11
1.1 Schizophrenia spectrum disorders	11
1.2 Early phase of psychotic illness	12
1.3 Treatment	13
1.4 Engagement with services	14
1.5 The therapeutic alliance	14
1.6 Neurocognition	16
1.7 Personality	17
2.0 Aims	19
3.0 Methods	20
3.1 Design of the studies	20
3.2 Samples	22
3.3 Measures	22
3.4 Procedure	26
3.5 Statistical analyses	26
3.6 Ethical considerations	27
4.0 Main results	28
4.1 Cognition and Service Engagement (paper I)	28
4.2 Therapeutic alliance in early schizophrenia (paper II)	29
4.3 Personality traits, interpersonal problems and therapeutic alliance (paper III)	30
5.0 General discussion	31
5.1 Influence of neurocognitive deficits and clinical symptoms on service engagement	31
5.2 Influence of demographic, clinical and cognitive characteristics on the working alliance	32
5.3 Association between patients' and therapists' ratings of the working alliance	33
5.4 Influence of personality and dimensions of interpersonal problems on the working alliance	33
6.0 Methodological issues	35

6.1 Limitations of the studies	35
6.2 Strengths of the studies	35
7.0 Conclusions	35
8.0 Implications for clinical practice.....	36
9.0 References	37

Abbreviations

CBT	Cognitive-behavioral therapy
CPT-II	Conners Continuous Performance Test II
CRT	Cognitive remediation therapy
CVLT-II	California Verbal Learning Test
D-KEFS	Delis-Kaplan Executive Function System
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition
DUP	Duration of untreated psychosis
IIP-64C	Inventory of Interpersonal Problems 64 Item Circumplex version
NEO-FFI	NEO- Five Factor Inventory
NEO PI-R	NEO Personality Inventory – Revised
PANSS	Positive and Negative Syndrome Scale
PORT	The Schizophrenia Patient Outcomes Research Team
SES	Service Engagement Scale
SCID	Structured Clinical Interview for Diagnostic and Structural Manual of Mental Disorders
SCI-PANSS	Structural Clinical Interview for the Positive and Negative Symptom Scale
SPSS	Statistical Package for the Social Sciences
TOP	Thematically Organized Psychosis research study
WAI-S	Working Alliance Inventory - Short Version
WAIS-III	Wechsler Adult Intelligence Scale
WASI	Wechsler Abbreviated Scale of Intelligence
WCST: CV2	Wisconsin Card Sorting Test Computer Version 2-Research Edition
WMS-III	Wechsler Memory Scale

Summary

The first two to five years of illness are considered a critical period in the development of psychotic disorders. It is during this period that adequate treatment may substantially impact the course and outcome of illness. Early intervention has thus become a primary goal. Guidelines recommend combined treatments that include both psychopharmacological and psychosocial treatments. A wide range of psychosocial treatments are offered and established as evidence based.

In schizophrenia spectrum disorders poor patient engagement can be an obstacle to treatment success, and drop-out represents a major challenge. The construct of engagement in relation to mental health services is complex and is often studied through various components, such as alliance, compliance, and measures of attendance. The therapeutic alliance is identified as important in schizophrenia both for engagement and outcome, relating to important aspects of treatment such as better compliance with medication, lower drop-out rates, fewer rehospitalizations and improved symptom levels. This warrants identification of factors that may influence service engagement and the quality of the therapeutic alliance.

Characteristics of the working alliance, and factors associated with quality of the working alliance and engagement with services, in the early phase of schizophrenia spectrum disorders were studied.

All three papers included in this thesis originate from the ongoing Thematically Organized Psychosis (TOP) research study. The main inclusion criterion for all three studies was an early phase schizophrenia spectrum psychosis (including schizophrenia, schizophreniform disorder, schizoaffective disorder, and delusional disorder. Study I, also included psychosis not otherwise specified, and brief psychosis) according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV). In study I, 148 patients were included with first-episode schizophrenia spectrum psychosis (in- and outpatients), recruited from all major psychiatric treatment units in Oslo, Norway. The data from studies II and III included 42 patients with early schizophrenia spectrum psychosis, included from out- and inpatient services at the Division of Psychiatry, St. Olav's Hospital, Trondheim University Hospital, Norway. Data were analyzed on clinical and neurocognitive variables as well as engagement with services in study I. Clinical and neurocognitive variables as well as working alliance were analyzed in study II. Clinical variables, traits of personality, interpersonal problems and working alliance were analyzed in study III.

Taken together, the results of the studies showed, that patients' conceptualizing ability, together with positive and excitative symptoms explained 18% (adjusted R^2) of the variance in availability to treatment. Patients' age, level of excitative symptoms and

Submissive/Hostile interpersonal problems accounted for 37% (R^2) of the observed variance patient total working alliance scores. Patients' insight and personality trait of Agreeableness accounted for 23% (R^2) of the observed variance in therapist total working alliance scores.

In conclusion, this thesis provide new knowledge about the importance of recognizing patients' individual profiles of symptoms, characteristic basic traits of personality and interpersonal problems, with regards to their possible impact on the quality of the working alliance in early schizophrenia spectrum disorders, as well as the relation between active psychotic symptoms, cognition and patients availability to treatment in the early phase of illness. These findings may improve therapist interventions when providing psychosocial treatment to patients with early schizophrenia spectrum disorders.

Acknowledgements

My preparations for this thesis began in 2004, when working at an outpatient unit for patients with early schizophrenia spectrum disorders and an acute ward at the Division of Mental Healthcare, St. Olav's Hospital, Trondheim University Hospital. I began working on ideas for a PhD project, and it was then fortunate that my good colleague, and head of department at the time psychiatrist Arne E. Vaaler, encouraged me to write a protocol, apply for funding and PhD-studies at the Norwegian University of Science and Technology (NTNU). He gave me the best possible support in terms of enthusiasm, practical necessities and time to read, write and learn. He assisted in planning the project and paved way for me among other projects at the hospital.

Arne introduced me to Professor Knut Hestad who expressed interest in cooperating on psychological research in a clinical setting. Despite my initially vague and unsophisticated ideas and suggestions for a project, Knut agreed to be my main supervisor and helped me refine my first project outlines. He has since been supervising all my scientific work, from writing the study protocol to interpreting neurocognitive test results, outlining and writing posters, papers and finally my thesis. This I suspect has been a diverse experience, as I have had a vast range of interests and assignments throughout these years. I appreciate your continuing interest in my work and your engagement in merging different fields of research to increase knowledge on serious mental disorders.

After drafting a more clear-cut idea for a project I established contact with Professor Ingrid Melle at the University of Oslo, who invited me to design my work as part of the Norwegian Thematic Organized Psychosis (TOP) multicenter study. This was the best opportunity I could ever have received, where I became part of a research network on psychosis and was allowed to benefit on multiple levels from being part of a larger organization, to sharing study design, training, and having supportive colleagues. I was also allowed to write my first paper on data from the TOP database, with valuable contributions from project leaders Ingrid Agartz, Ketil Sundet, Ole Andreassen and Ingrid Melle. Ingrid Melle has helped and supported me through all aspects of my work, from designing the early drafts of the research protocol, through training for reliable clinical assessments, conducting the study in clinic, analyzing data, writing posters, papers and the final thesis. She has also been invaluable in supporting my development as a researcher and my general understanding of the schizophrenia spectrum disorders. I cannot thank you enough.

During my everyday work on the project, Valentina C. Iversen assistant professor at the NTNU Department of Neuroscience and at the time head of research at Østmarka came to be of great help and support to me as an inexperienced researcher in the busy life of the clinic. I soon realized that I needed someone like her to help me cope with the daily

hassles of running a research project while at the same time pushing me to progress in my written work as well. Valentina agreed to be appointed my co-supervisor, and her contribution has since been considerable, both personally and scientifically. For this I am very grateful.

At Østmarka psychiatric department, my work would not have been possible without the help and support from colleagues at the outpatient clinic “Psykoseteamet”, the inpatient ward “Spesialpost 3”, the laboratory and the economy administration. I especially want to thank those who helped me coordinate the project with the everyday work in clinic, organize appointments with participating patients, gather data and keep track of the project economy; Magny Sjøset, Eli Welde Johansen, Christine K. Østensen, Hege Tingleff, Aniela Woldseth, Øyvind Husøy, Knut Mære, Hege Myrvang Stokkaune, Mari-Mette Gunnes and Erlend Brovold. Without your enthusiasm and numerous work hours spent on this project, I would not have been able to complete a database adequate for research on this level. I would also like to thank my many other colleagues at Østmarka, Tiller DPS and NTNU who gave their contributions in the planning of the project and its protocol, as well as all those who at some point contributed to the collection of data. Elisabeth Gusdal generously proofread the manuscript for the thesis the final few days upon submission, an honorable effort which was of great help to me.

I am indebted to Gjertine Bjørgen, Erlend Brovold, Truls Ryum and Tor Erik Nysæter for helping me interpret and understand the results on aspects of the study where their expertise far exceeds mine. I am thankful for the efficient and helpful cooperation with staff at the St. Olav’s Hospital, Department of Clinical Pharmacology and with administrative and research colleagues at the TOP “headquarters”, Oslo University Hospital, Ullevål. I would also like to thank staff at the Department of Neuroscience, Unit for Psychiatry and Behavioral Medicine NTNU and at AFFU, St. Olav’s Hospital Department of Research and Development, for providing me with a scientific work environment and sufficient amounts of coffee during my first years of research as well as many a good advice throughout my PhD studies.

In the final phase of my work on the thesis, I was welcomed at St. Olav’s Hospital Department Brøset as a researcher at the Centre for Research and Education and as a clinical psychologist at the forensic department. Without this opportunity, it would not have been possible for me to complete my thesis. I would like to thank all colleagues for their patience with me while I have been exiled in my office writing, and my employers Roger Almvik and Andreas Hamnes for providing me the necessary time and support to get the job done. Your good will has been second to none. Karl Henrik Melle deserves my greatest appreciation, for his unparalleled contribution to my understanding of the phenomenon of schizophrenia and its treatment, as well as being a friend in the most various situations.

I am honored to have been trusted by participating patients to include them in my study, and owe them my sincere thanks for their efforts.

My family and friends have been important to me in every aspect of this project, each in their special way. Of particular significance, the assistance from my mother and her husband has been essential to sustain normality at home on busy days. Dagfinn has been both my closest family and an expert colleague, contributing in so many ways, which must certainly have been a heavy load at times. My father introduced me to science through engaging me in work as an assistant on his doctoral research in cardiology and ever since by his never ending ambitions and interest in academic work. My late uncle Johan, suffering from schizophrenia, showed me a whole other side to the illness, simply through being himself and part of our family, for as long as I can remember. This knowledge would not have been available to me from professional work only, and he frequently comes to my mind in clinical work, research and teaching.

The project was funded by the Liaison Committee between the Central Norway Regional Health Authority (RHA) and the Norwegian University of Science and Technology (NTNU), Josef and Haldis Andresens trust fund, Norway, Torstein Erbos trust fund, Norway, and “Småforsk” grant provided by Research Council of Norway and the Norwegian University of Science and Technology (NTNU).

List of papers included in the thesis

Paper I:

Cognitive and clinical factors are associated with service engagement in early phase schizophrenia spectrum disorders

Ragnhild Johansen, Knut Hestad, Valentina C. Iversen, Ingrid Agartz, Kjetil Sundet, Ole A. Andreassen and Ingrid Melle

Paper II:

Therapeutic alliance in early schizophrenia spectrum disorders: a cross-sectional study

Ragnhild Johansen, Valentina C. Iversen, Ingrid Melle, MD, and Knut Hestad

Paper III:

Personality traits, interpersonal problems and therapeutic alliance in early schizophrenia spectrum disorders.

Ragnhild Johansen, Ingrid Melle, Valentina C. Iversen, and Knut Hestad

1.0 Introduction

1.1 Schizophrenia spectrum disorders

Schizophrenia is generally considered the most serious of mental disorders, described since antiquity, and found in all cultures [1, 2]. It is characterized by a broad range of unusual experiences and behaviors that cause profound disruption in the lives of people suffering from the condition, as well as in the lives of the people around them. Descriptions and emphasis in diagnostic definitions have been changing since Kraepelin's definition of Dementia Praecox in the late 1800s, and Bleuler's introduction of the term schizophrenia in 1908 [2, 3]. Core features nevertheless consist of pervasive patterns of distorted perceptions of reality, through various manifestations such as disorganization of thoughts, affective life, behavior and basic sense of self, as well as delusions and hallucinations. Central to the understanding of the core disturbance in schizophrenia is the disturbance of the basic sense of self, which is more profound than in other disorders with psychotic features. On multiple levels of awareness, the individual's natural and self-evident experience and knowledge of being a stable and organized self is disrupted. Likewise, the natural experience of effortless perception and understanding of the world and occurring events may become strained or lose its everyday and common-sense like quality. This affects not only the subjective experiences of the individual, but also his or her ability to relate to and interact with others [3-5].

Symptoms of schizophrenia have been theoretically organized in different ways by different authors, from Bleuler's "four A's": Associative disturbances, affective disturbances, ambivalence and autism, to Schneider's first and second rank symptoms, with and without bizarre qualities, Huber and colleagues' emphasis on the presence of subjectively experienced basic symptoms that progress from non-psychotic anomalies to the schizophrenic break down of reality, and the contemporary classification of positive, negative and disorganized symptoms which can be found in current diagnostic manuals. As defined by the Positive and Negative Syndrome Scale (PANSS) positive symptoms include delusions, hallucinations, agitation, grandiosity, paranoia and hostility. Negative symptoms include withdrawal, apathy, blunted affect, poverty of speech, disturbance of volition, overly concrete and stereotyped thinking, while disorganized symptoms include various disturbances of thought, behavior, perceptions and disorientation [1, 3, 5, 6]. Taken together, definitions vary with regards to their emphasis on the observable versus the subjectively experienced, the presence of bizarre qualities, importance of affective elements, disorganization of the self and/or behavioral disturbances. These are all differences that may arise from differential emphasis on either achieving optimal reliability of diagnostics or describing validly the phenomenological qualities of the

disorder(s). Rather than competing accounts of reality, these varying descriptions could more adequately be viewed as attempts to give as useful as possible taxonomies for the core syndromes of the schizophrenia spectrum. As such, they should always be applied within a framework of broad knowledge of psychotic illnesses and their complexity [7]. As originally proposed by Bleuler in 1911 [2, 8], there is however growing consensus that schizophrenia is more adequately referred to as not one, but several related illnesses constituting a syndrome spectrum, and thus termed the schizophrenia spectrum disorders [9].

Contrary to earlier beliefs, there is considerable variation in incidence both between and within countries and various populations, with most estimates ranging from eight to 43/100.000 and median rates around 15/100.000. Schizophrenia affects without regard to gender, race, social class or culture, but epidemiological research indicates that incidence rates are higher in rural areas, among migrants and that the disorder occurs more often in men. The illness most often has its debut in late adolescence or early adult years, with a mean debut age around 24 for men and 25 for women. Late onset schizophrenia (after the age of 50) although rare in itself, is more common in women. Median lifetime risk of schizophrenia is estimated between 0.7 and close to 1%, and about half of the patients suffer from a chronic course of illness [5, 10, 11]. Typically, the so-called positive and disorganized symptoms tend to appear in an episodic manner, while the negative symptoms more often remain in otherwise stable periods in the course of illness [12]. Schizophrenia spectrum disorders present with disabling psychiatric symptoms. Most patients also have a broad range of difficulties in social and occupational functioning and extensive, long term need for health care services [13]. Little is still known about its etiology [14] and much emphasis is thus placed on prevention and early detection of the disorder [15].

1.2 Early phase of psychotic illness

Abandoning earlier beliefs, that the syndromes in the Schizophrenia spectrum were inevitably progressive poor outcome disorders, a vast body of research and clinical services has emerged targeting the early phases of psychotic illness [16]. Early prevention of Schizophrenia has been the ultimate goal of these efforts, as well as improving outcome of treatment and quality of life for already affected patients [17]. The first two to five years of illness are considered a critical period in the development of psychotic disorders. It is during this period that adequate treatment may substantially impact the course and outcome of illness. Early psychosis research has established that the duration of untreated psychosis (DUP: i.e. the period from the first appearance of positive psychotic symptoms to start of adequate treatment) is associated with delayed and incomplete remission of symptoms, need for longer durations of treatment and

heightened risk of relapse, greater risk of depression and suicide, more drug and behavior related problems, more school and work related problems as well as increased costs of treatment [12, 18, 19]. Early intervention has thus become a primary goal in treatment of psychosis [12, 16, 20]. Despite these efforts, patients with schizophrenia still have an increased risk of drop-out before adequate recovery [21, 22]. In addition to the objective of reducing DUP, the main target of “post-detection” intervention is thus to engage patients in adequate psychopharmacological and psychosocial treatments, preventing drop-out and non-compliance, as effectively as possible [16].

1.3 Treatment

Treatment in schizophrenia spectrum disorders was since the 1950s increasingly based on antipsychotic medication; with less hope for the benefits of other treatment interventions. Belief in psychotherapeutic or other non-pharmacological treatments weakened, as results from scientific studies were more clear-cut and positive with regards to medication. This trend continued until the emergence of research on cognitive-behavioral theories of treatment in psychosis almost forty years later [23]. Today, a wide range of psychosocial treatments are offered and established as evidence based. Guidelines recommend combined treatments that include both psychopharmacological and psychosocial elements [24]. A recent review, from The Schizophrenia Patient Outcomes Research Team (PORT) gives a summary of current evidence-based treatment interventions for persons with schizophrenia [25]: For psychopharmacological treatment, they include antipsychotic medication other than Clozapine and Olanzapine for first episode of acute positive symptoms in schizophrenia. For later episodes and relapse prevention, it is recommended that antipsychotic medication is chosen on the basis of previous treatment response, previous experiences of side effects, history of medication adherence, other relevant medication history and risk factors, as well as individual preferences and long term planning. For patients with persisting residual symptoms in treatment resistant schizophrenia, lasting symptoms of hostility or violent behavior, and for patients with persistent suicidality, Clozapine is recommended. For psychosocial treatments, the recommendations are Assertive Community Treatment, Supported Employment, Skills Training for community functioning, Cognitive Behavioral Therapy, Programs of social learning (Token Economy Interventions), Family Based Services, Interventions for comorbid Alcohol and Substance Use Disorders, and Interventions for Weight management. The PORT statement also summarizes new psychosocial treatments of interest, which have not yet achieved sufficient evidence. These are Cognitive Remediation Therapy, Peer Support and Peer Delivered Services, Interventions to

Increase Adherence to Medication and special Psychosocial Treatment Programs for Recent Onset Schizophrenia.

1.4 Engagement with services

The construct of engagement in relation to mental health services is complex and is often studied through various components, such as alliance, compliance, and measures of attendance. The patients' relation to mental health services as a whole, however, may be quite different from his or her way of relating to its various sub-components. As no one definition of service engagement exists, choice of measures is usually determined by the main topic of interest [26]. In schizophrenia spectrum disorders poor patient engagement can be an obstacle to treatment success, and drop-out represents a major challenge to psychosocial treatments [27]. Estimates of drop-out rates are reported from about 17% in patients with serious mental illness, 25% in cases of schizophrenia and bipolar disorder, to 30% in schizophrenia or psychotic illness cases [21]. In contrast to studies of compliance with pharmacological treatments, patient engagement with non-pharmacological treatments and services has been far less studied. A recent meta-analysis [27] however indicates a drop-out rate of 13% for psychosocial treatment in schizophrenia spectrum disorders. Low engagement with treatment, as assessed by the Service Engagement Scale (SES) [28], is associated with several patient related factors, ranging from childhood physical abuse, lack of knowledge of consumer rights and the specific personality traits of agreeableness and neuroticism [29] to clinical symptoms (PANSS positive and excitative symptoms) and neurocognitive measures (conceptualization) [30]. Service engagement is also closely associated with the therapeutic alliance [29].

1.5 The therapeutic alliance

Across patient groups and treatments, the therapeutic alliance is regarded a common therapeutic factor, with importance for successful treatment outcomes [31]. Authors use different terms to describe this alliance, however the terms most often used are the therapeutic-, helping- or working alliance. The latter refers to Bordin's [32] formulation of a therapeutic relationship defined by the level of agreement on the tasks and goals of therapy, as well as the development of a personal bond between patient and therapist.

1.5.1 The therapeutic alliance in schizophrenia

The therapeutic alliance is also identified as important in schizophrenia both for engagement and outcome, relating to important aspects of treatment such as better compliance with medication, lower drop-out rates, fewer rehospitalizations and improved symptom levels [33-37]. This warrants identification of factors that may influence the quality of the therapeutic alliance [33, 38-41].

Most studies on the therapeutic alliance in schizophrenia spectrum samples have focused on the predictive value of psychotic symptoms [35, 42, 43], insight [35, 39, 41, 44] and social abilities [33, 37, 41]. Results have been varied, with the most consistent results for insight being positively associated with patient ratings and social abilities with therapist ratings of the alliance. While neurocognitive factors have been shown to influence the level of service engagement, there are limited reports of their relation to working alliance. A small study of twenty-four patients with chronic schizophrenia spectrum disorders, found that poorer verbal memory was associated with better patient ratings of working alliance, while better therapist ratings were associated with better visuo-spatial reasoning [40].

Alliance research in these patient groups have mostly been conducted as part of studies on standardized treatment programs (e.g. cognitive-behavioral therapy (CBT) and cognitive remediation therapy (CRT)) [33, 35, 37, 39, 44, 45] possibly limiting generalizability to other treatment settings.

There are a very limited number of studies investigating the therapeutic alliance in early schizophrenia or other early psychosis samples, i.e. without the possible confounding influences of previous therapeutic experiences.

Primarily studies have explored the therapeutic alliance in patient samples with long duration of illness and multiple previous hospitalizations, both factors that potentially may affect the alliance over time. One early psychosis study [46] found quality of life, insight, medication side effects (negatively associated) as well as friendship and leisure activities (positively associated) to account for 22% of the variance in patient rated working alliance. Another study, investigating group therapy for early psychosis [45] reported only a social support subscale termed attachment as predictive of patient rated alliance, explaining 18% of the observed variance. One study, using the Psychotherapy Status Report [34] has reported that therapists found it more difficult to engage young patients in cognitive-behavioral therapy (CBT) or supportive therapy than older patients. No other data associated with therapeutic alliance were reported from this study [47].

Interest has over time turned towards more in-depth examination of factors that can influence the quality of the therapeutic alliance, including the degree of shared opinion between patient and therapist regarding the quality of the alliance [33, 35, 38, 39, 48].

1.5.2 Patient and therapist agreement on the therapeutic alliance

Results from studies investigating patients' and therapists' agreement about the quality of the therapeutic alliance have been mixed; where some report a significant association between their ratings [40, 41, 43, 45] and others do not [33, 39, 49]. Some studies however indicate that patients give higher ratings than the professional regarding the level of alliance [39, 41, 43, 49, 50] while others report no significant difference between patient and therapist scores [44].

1.6 Neurocognition

Impaired cognition is a significant predictor of dysfunction before, during, and after treatment of schizophrenia. Two extensive reviews by Green and colleagues [51, 52] indicate that key areas of cognition impaired in schizophrenia are secondary and immediate memory, vigilance, executive functioning, verbal fluency, early visual processing, and psychomotor skills.

1.6.1 Neurocognition and outcome

Most prominently, secondary memory seems to be related to a broad range of outcome domains including activities of daily living, social problem solving/instrumental skills, and psychosocial skill acquisition. Immediate memory is related to the ability to acquire psychosocial skills, while executive functioning and verbal fluency are associated with activities of daily living. Vigilance measures in particular appear linked to social problem solving and to instrumental skills [51, 52].

Recent research has explored how neurocognition may affect outcome through indirect pathways, such as functional capacity and social cognition [53-56]. This link suggests that better functional outcomes in patients with schizophrenia spectrum disorders may depend on treatment approaches that target several interrelated aspects of functioning, from basic cognitive functions to the complex task of mastering daily life.

The various aspects of social and daily-life functioning that seem affected by neurocognition, also bear similarity to necessary elements of active participation in psychosocial treatment.

1.6.2 Neurocognition and treatment engagement

Actively engaging in treatment requires the practical ability to make and keep appointments, skills of social cognition to benefit from therapeutic intervention, psychosocial skills to cooperate with a therapist, and social problem-solving skills to negotiate therapeutic dilemmas or interruptions. Nevertheless, few studies have explored the effect of impaired cognition on service engagement or related concepts. One study on middle-aged and older outpatients with a diagnosis of schizophrenia, reported that conceptualization (defined as abstraction abilities) and memory (defined as a combined measure of secondary and immediate memory plus orientation) were the strongest predictors of the ability to manage medication [57]. This study supported the notion that cognition is important for adequate treatment adherence. Another study [40] found an association between neurocognitive measures and therapeutic alliance in a small sample of patients with schizophrenia. Specifically, impaired verbal memory was associated with patient reports of a more positive alliance, while better visuo-spatial reasoning was associated with therapist reports of a more positive alliance. Despite limitations due to sample size and the narrow perspective on therapeutic alliance, these observations also suggest the need for further exploration of the associations between patient cognitive functioning and the ability to engage in treatment.

1.7 Personality

Across cultures and languages, human personality is generally described as characteristic and lasting individual patterns of thought, feelings and behavior [58]. Traits of personality differs from more temporary moods or states that may characterize an individual, by being typically more stable and enduring [59]. After almost 90 years of research and debate on the language and structure of personality, researchers seem mostly to agree on a five-factor model as a unifying theory that serves to describe the most basic factors of personality; Extraversion/Introversion, Friendliness/Hostility, Conscientiousness, Neuroticism/Emotional stability and Intellect/Openness [60]. Generally the Extraversion/Introversion factor describes how much and to what degree a person prefers to interact with others, as well as his or her level of activity and exuberance. The Friendliness/Hostility (Agreeableness) factor is mainly interpersonal,

and describes preferred type of interpersonal interaction on a dimension ranging from warm/empathic to hostile/ruthless. Conscientiousness refers to ability to be organized, well controlled, persistent, and goal-directed. Neuroticism/Emotional stability reflect to what extent a person tends to experience psychological distress or negative emotionality, as well as degree of emotional adjustment. The Intellect/Openness factor describes a person's tendency to be active and seeking in search of new experiences, as well as his or her level of curiosity, imagination and unconventionality [59].

1.7.1 Personality in schizophrenia

It has been fairly well documented that basic traits of personality as defined by the five factor model of Costa and McCrae [58, 61], are applicable and stable also in schizophrenia [62-66]. In general, there are consistent reports of schizophrenia samples scoring higher on neuroticism and lower on conscientiousness relative to both other patient groups and normal control samples, and some reports of low scores on extraversion, agreeableness and openness as well [66, 67]. It has been reported that higher levels of neuroticism are associated with higher levels of positive psychotic symptoms, while reports of associations between extraversion, agreeableness and psychotic symptoms have been mixed [62, 68]. One study found that frequency of social interaction was predicted by agreeableness, negative symptoms, verbal memory and (at trend level) neuroticism. Capacity for intimacy was predicted by negative symptoms, agreeableness, openness, conscientiousness and (at trend level) positive symptoms [69]. Another study, on early psychosis, reported that higher levels of neuroticism and lower levels of agreeableness, together with childhood physical abuse, lack of knowledge concerning consumer rights and quality of therapeutic alliance, could account for 31% of the variability in engagement with treatment services [29].

1.7.2 Personality and the therapeutic alliance

Across theoretical models, methods and groups of patients, the interpersonal aspect remains a common element to the different forms of psychotherapy and psychosocial treatments [70]. Relational measures can be direct measures of relational behavior or indirect measures of individual characteristics that influence how a person feels about and relates to others. Core traits of personality and patterns of interpersonal problems are examples of individual characteristics with considerable relational impact.

In non-psychotic axis I psychiatric disorders [71, 72] and axis II borderline personality disorder [73], aspects of general personality traits have been associated with formation of the therapeutic alliance, although some have reported the alliance unrelated to traits of personality [74]. It has been documented in non-psychotic samples that interpersonal problems predict the quality of the therapeutic alliance [75-78].

2.0 Aims

The main aim of the thesis was to describe characteristics of the working alliance, and to identify predictors of the quality of the working alliance and engagement with services, in the early phase of schizophrenia spectrum disorders.

The aim of paper I, was to examine the influence of neurocognitive deficits on engagement with services as measured by the SES. Relationships between clinical symptoms and service engagement were also explored.

The aim of paper II, was to analyze to what extent demographic, clinical and cognitive characteristics influence patients' and therapists' reports of working alliance, as well as to what degree there is an association between their ratings of the therapeutic alliance.

The aim of paper III, was to explore if traits of personality and dimensions of interpersonal problems in patients in the early treated phase of schizophrenia spectrum disorders are associated with patients' and therapist' experience of the working alliance.

3.0 Methods

3.1 Design of the studies

The studies included in this thesis, had a cross-sectional design and originate from the ongoing Thematically Organized Psychosis (TOP) research study [79, 80].

3.1.1 Study I

Study I included 148 patients with first-episode schizophrenia spectrum psychosis (in- and outpatients), recruited from all major psychiatric treatment units in Oslo, Norway. Being defined as first-episode patient required not previously on any occasion having been treated with antipsychotic medication in adequate dosage for more than 12 weeks (or until remission). Present psychosis was defined as having a rating of 4 or more on PANSS items P1, P2, P3, P5, P6, or G9 for more than one week. Patients were recruited up to 52 weeks following the start of adequate medication or hospitalization for psychosis.

3.1.2 Study II and III

In studies II and III 49 subjects were included consecutively in the period from December 2006 to November 2011, from out- and inpatient services at the Division of Psychiatry, St. Olav's Hospital, Trondheim University Hospital, Norway. Additional exclusion criterion for study II and III was comorbid cluster A or B personality disorder according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV), determined by clinical consensus based on evaluation of the criteria. Subjects were recruited up to two years following the start of their first schizophrenia spectrum psychosis episode and up to one year after establishing contact with their current treating psychologist or psychiatrist. Seven of those who consented were subsequently found ineligible and excluded from the analyses for the following reasons; longer duration of illness than allowed by inclusion criteria (two), inadequate language abilities for completing the neurocognitive test battery (two), primary diagnosis of bipolar disorder (one), withdrawal of consent (one), drop out without actively withdrawing consent (one). Data from 42 subjects were thus entered in the statistical analyses.

Table 1. Descriptive statistics for demographic data and psychotic symptoms

	Study I	Study II/III
Age (Mean \pm SD)	35.0 (\pm 9.8)	27.5 (\pm 5.6)
Education (Mean \pm SD)	12.6 (\pm 2.5)	11.8 (\pm 1.9)
Gender N (%)		
Male	84 (56.8)	28(66.7)
Female	64 (43.2)	14(33.3)
Diagnosis N (%)	148 (100)	42 (100)
Schizophrenia	94 (63.5)	36 (85.7)
Schizoaffective disorder	27 (18.2)	3 (7.1)
Delusional disorder	4 (2.7)	3 (7.1)
Schizophreniform disorder	6 (4.1)	0 (0)
Brief psychotic disorder	1(0.7)	0 (0)
Psychotic disorder not otherwise specified	16 (10.8)	0 (0)
Medication N (%)		
Antipsychotic	127 (85.8)	33 (78.6)
Mood stabilizers	3 (2.2)	4 (9.5)
Antidepressive only	3 (2.2)	1 (2.4)
No medication	15 (10.1)	8 (19.0)
PANSS (Mean \pm SD)		
Total score	58.2 \pm 16.7	66.9 \pm 15.6
POSITIVE (P1, P3, P5, P6, G9, G12)	14.1 \pm 5.9	17.0 \pm 5.6
DISORGANIZED (P2, N5, N7, G5, G10, G11, G15)	11.0 \pm 3.8	13.1 \pm 4.3
NEGATIVE (N1, N2, N3, N4, N6, G7, G16)	14.4 \pm 6.6	15.4 \pm 6.1
DEPRESSIVE/ANXIOUS (G1, G2, G3, G4, G6)	11.8 \pm 4.4	13.4 \pm 4.5
EXCITATIVE (P4, P7, G8, G14)	5.3 \pm 1.8	5.9 \pm 2.2

PANSS = Positive and Negative Syndrome Scale; SD = Standard Deviation.

3.2 Samples

Inclusion criteria for all three studies were: 1) a schizophrenia spectrum psychosis (including schizophrenia, schizophreniform disorder, schizoaffective disorder, and delusional disorder; study I also included psychosis not otherwise specified, and brief psychosis) according to the DSM-IV; 2) age 18 - 65 years; 3) capacity to supply written informed consent; 4) adequate language abilities to complete the neurocognitive test battery. Exclusion criteria were a history of moderate/severe head injury, neurological disorders, or mental retardation (IQ less than 70). Descriptive data are shown in table 1.

3.3 Measures

All three studies: Diagnoses were set by use of the Structured Clinical Interview for Diagnostic and Structural Manual of Mental Disorders (SCID), fourth version [28]. The Positive and Negative Symptom Scale (PANSS) [29] was applied for symptom assessment, after interview with the Structural Clinical Interview for the Positive and Negative Symptom Scale (SCI-PANSS) [30]. Scale components were scored based on a five factor solution derived from a first episode sample [31]; The PANSS Positive factor, PANSS Disorganized factor, PANSS Negative factor, PANSS Depressive/anxious factor, and PANSS Excitative factor.

Neurocognitive measurements (Study I and II)

Tests were selected based on their relevance to schizophrenia spectrum disorders, covering areas of memory, attention, and executive functions, as well as estimates of current general intellectual ability.

3.3.1 Study I

Service engagement

Service engagement was measured with the SES, a clinician-rated scale of 14 items concerning the patients' cooperation and engagement with treatment. The items consist of the sums of the clinician's ratings of various statements, each rated on a scale from 0 ("not at all or rarely") to 3 ("most of the time"). The total score is computed by summing the four sub-scale scores (0-42); this total score can be sub-divided into four

scales assessing “availability,” “collaboration,” “help-seeking,” and “treatment adherence.” High total scores reflect low engagement as perceived by the clinician, while low total scores reflect high engagement. Due to missing data on a few single items, the sub-scale scores were computed with missing scores replaced by the group mean of the sub-scale. We also computed an alternative total score by adding the sub-scales without the missing data (sum of adjusted sub-scales). All references to the SES total score are to the sum of adjusted sub-scales. For the purpose of this study, the SES was adapted to the Norwegian language using back translation; the instrument was first translated into Norwegian, then translated back into English and compared to the original by two independent researchers with very good knowledge of both languages.

Neurocognitive measurements

Current general intellectual ability was estimated with the Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler, 2007), and ability to conceptualize with the Similarities sub-test from the WASI. Verbal learning and memory were measured by the California Verbal Learning Test (CVLT-II) (Delis et al., 2004) (verbal learning and verbal recall) and the Logical Memory test from the Wechsler Memory Scale (WMS-III) (Wechsler et al., 2007). Executive functions were measured by sub-tests from the Delis-Kaplan Executive Function System (D-KEFS); the interference (executive control) and the interference-switching (executive flexibility) sub-tests from the Color-Word Interference Test, and the letter fluency, semantic fluency, and semantic set shift sub-tests from the Verbal Fluency Test.

3.3.2 Study II and III

Clinical assessment

In addition to the above mentioned clinical assessments, insight was assessed with the PANSS item G12 (“*Failure to recognize past or present psychiatric illness or symptoms, denial of need for psychiatric hospitalization or treatment, decisions characterized by poor anticipation of consequences, and unrealistic short-term and long-range planning.*”).

Working Alliance

Working Alliance was assessed with the Working Alliance Inventory - Short Version (WAI-S) [36], a 12-item short version of the Working Alliance Inventory (WAI) [37] based on Bordins’ [38] formulation. The WAI-S is a self-report measure with

corresponding therapist and patient versions, comprised of twelve statements rated by indicating to what degree the statement is considered true on a seven point scale (1= never, 2= rarely, 3= now and then, 4= sometimes, 5= often, 6= very often, 7= always). Statements number 4 and 10 are formulated as negations and scores therefore reversed. Chronbach's Alpha estimating internal consistency in the range from .69 to .89, confirmed good reliability for WAI-S therapist and patient total and sub scores for Tasks, Goals and Bond.

3.3.3 Study II

Neurocognitive measures

Current general intellectual ability was estimated by use of four subtests from the Wechsler Adult Intelligence Scale (WAIS-III): Similarities, Vocabulary, Block design and Matrixes [81]. Verbal memory was measured by the California Verbal Learning Test II (CVLT-II) [82]. Executive functions were measured by the Wisconsin Card Sorting Test Computer Version 2-Research Edition (WCST: CV2) [83]. Attention was measured by Conners Continuous Performance Test II (CPT-II) [84].

3.3.4 Study III

Traits of personality

To assess core traits of personality, the NEO Five Factor Inventory (NEO-FFI) [85] was used. It assesses the five basic traits of personality; Neuroticism, Extraversion, Openness, Agreeableness and Conscientiousness.

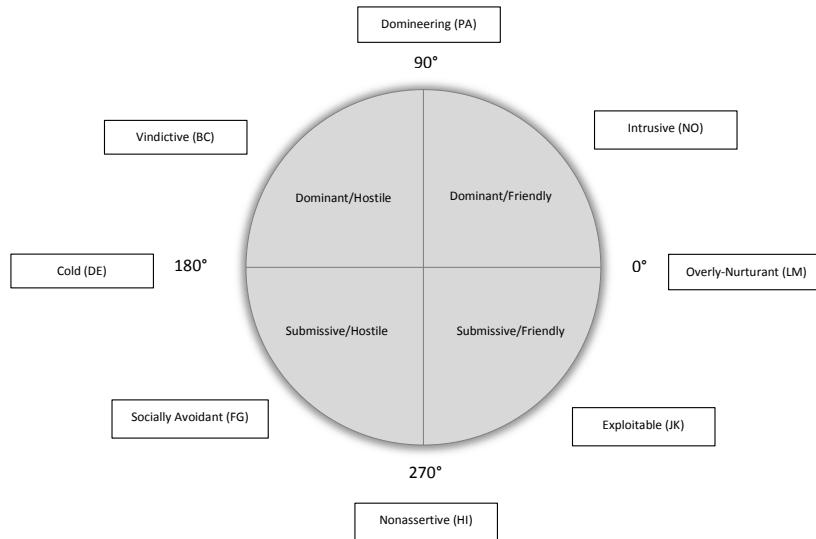
NEO-FFI is a 60 item self-report short version of the NEO Personality Inventory – Revised (NEO PI-R) [85]. The respondent is asked to indicate on a five point scale the degree of his or her agreement with each statement ('strongly disagree', 'disagree', 'neutral', 'agree', 'strongly agree').

Interpersonal problems

To measure interpersonal problems the Inventory of Interpersonal Problems 64 item Circumplex version (IIP-64C) [86] was used. The IIP-64C is a self-report measure listing a set of 64 different behaviors which the respondent rates on a five point scale as difficult or done too much ('not at all', 'a little', 'moderately', 'quite a lot', 'a lot'). Eight dimensions of interpersonal problems are computed; Domineering (PA), Vindictive (BC), Cold (DE), Socially inhibited (FG), Nonassertive (HI), Exploitable

(JK), Overly nurturant (LM) and Intrusive (NO). The eight dimensions constitutes a circumplex that forms four quadrants of interpersonal problems; Submissive/Hostile, Submissive/Friendly, Dominant/Hostile and Dominant/Friendly [70, 87, 88] (see figure 1).

Figure 1. Theoretical illustration of a two-dimensional circumplex representation of interpersonal problems, adapted from Alden, Wiggins and Pincus (1990) and Gurtman (1996; 2004).



3.4 Procedure

3.4.1 Study I

Patients were assessed by clinical psychologists and psychiatrists trained specifically in the use of the measures included in the study protocol. The TOP study's program show good diagnostic reliability both towards gold standard training videos and for blinded expert scorings of randomly selected case vignettes from the actual sample. The inter-rater reliability of PANSS subscales for the training program were in the range of 0.73 – 0.82 (Intra Class Coefficient) (see [89] and [79] for details).

Neurocognitive functioning was assessed by clinical psychologists trained in the use of the neuropsychological standardized test battery [90]. The tests were administered in a fixed order allowing two breaks at given times, and took three hours to complete.

3.4.2 Study II and III

All diagnoses and assessments were completed by clinical psychologists and psychiatrists trained specifically in administration and scoring of the applied measures. Scorings were then reevaluated and discussed with the first author, who had completed the comprehensive training program used by the TOP study (based on the program used at the Semel Institute for Neuroscience and Human Behavior at the University of California, Los Angeles, UCLA). Consensus scorings were then applied.

Assessments of diagnoses and symptoms were blind to working alliance scores, as patients and therapists separately filled in Working Alliance self-report forms and placed them in closed envelopes the same week or as soon as possible after symptom assessments. Therapists were the patients' primary treating psychiatrist or psychologist at the hospital.

3.5 Statistical analyses

All statistical analyses were conducted by using Statistical Package for the Social Sciences (SPSS), version 16.0 and 19.0

In paper I, all tests were two-sided with a pre-set level of significance of 0.05. We used independent sample *t*-tests to compare group means and Pearson's correlations to analyze the correlations among SES total score, relevant cognitive measures, and relevant clinical and demographic measures (age, education, number of years on

antipsychotic medication, psychotic and affective symptoms). To estimate whether variables with significant SES associations were also able to differentiate between high and low SES scorers, *t*-tests were used with a cut-off point of 10 [29]. We performed a stepwise multiple linear regression analysis that included relevant predictors with statistically significant associations with SES (including only variables with $p < 0.1$) identified in the preparatory analyses (Block 1 symptom measures (positive, excitative, disorganized, negative, and depressive/anxious), Block 2 neurocognitive measures (conceptualization, letter fluency, and semantic set shift)). Finally, we performed four supplementary multiple linear regression analyses with an identical set of predictors as in the primary analysis, but with one of the four sub-scales of the SES (availability, collaboration, help-seeking, and treatment adherence) as the dependent variable.

Papers II and III, bivariate analyses including WAI-S scores were performed by use of nonparametric tests (Spearman's correlations and Mann-Whitney U test for two independent samples) because alliance scores were not normally distributed. Other bivariate analyses were performed by use of parametric tests (Pearson's correlations and T-tests). Tests were two-tailed and had a pre-set level of significance of 0.05. Hierarchical linear regression analyses with patients' and therapists' total WAI-S scores were performed to assess the individual contribution from variables with a significant bivariate association to the WAI S total and sub scores. Model fit was evaluated through examination of residual plots.

IIP-64C scores were ipsated by subtracting individual IIP-64C total mean score from individual sub scale scores. IIP-64C quadrant scores were computed by summing the relevant two of the original eight-scale scores in separate procedures for raw and ipsated scores.

Due to administrative error one PANSS item G12 (measuring insight), one patient and two therapists working alliance assessment forms as well as five IIP-64 and NEO-FFI forms were missing. For SES subscales one availability score, four collaboration scores, 10 help-seeking scores and 11 treatment adherence scores were missing. Also, due to individual difficulties in completing all tests, CVLT-II and WCST was not administered for one patient and CPT-II for two patients. All missing scores were replaced by mean scores for the total sample in our analyses.

3.6 Ethical considerations

The Regional Committee for Medical Research Ethics and the Norwegian Data Inspectorate approved the study. All the participants gave written, informed consent to

participate in the study. The study was conducted according to the Declaration of Helsinki.

The study protocol was designed to be applicable in a sample of patients with schizophrenia spectrum disorders. Even so, it was comprehensive, and some patients may have found it hard to complete all interviews, tests and forms. Within methodological limits, adjustments were made in such cases accordingly to make participation acceptable to each individual. Thus, from some cases there are missing data due to difficulties in participating in all aspects of the study. When conducting studies that investigate therapeutic alliance and service engagement in patients with severe mental disorders, one could question if participation may have put undue pressure on patients or may cause some to feel obliged to participate in order to receive optimal treatment. The studies presented in this thesis sought to reduce risk of such negative effects, by clearly stating that participation is voluntary, that consent can be withdrawn at any time, and that the patient is free to choose not to give certain information. This was stated both in the written consent information and verbally before inclusion and during assessments.

4.0 Main results

4.1 Cognition and Service Engagement (paper I)

Of the neurocognitive measures, conceptualization, verbal fluency, and semantic set shift were all significantly correlated with SES total score. Clinical symptoms (PANSS positive and negative, depressive/ anxious, disorganized and excitative components) were similarly correlated with SES score, with correlation coefficients in the same range. In addition, conceptualization, semantic set shift (but not letter fluency), and all PANSS components reliably differentiated between high (> 10) and low (≤ 10) scorers on the SES total.

All neurocognitive and clinical variables with a significant bivariate correlation with the SES total score were entered in a stepwise multiple linear regression model, with SES total score as the dependent variable. In the final model the PANSS positive component made a significant contribution, while PANSS excitative and negative components had a trend-level contribution. Conceptualizing ability retained a significant contribution even when entered at the last step. The model was able to account for 15% of the variance in the SES total score (adjusted R^2).

Supplementary regression analyses with SES sub-scores as the dependent variable indicated that the impact of WASI conceptualizing ability on the SES total score could be accounted for by its impact on the SES sub-scale availability. Together with the positive and excitative symptoms measured by the PANSS, WASI conceptualizing ability accounted for 18% of the variance in SES availability sub-scale score (adjusted R^2), but did not have a statistically significant influence on any other sub-scales. None of the other cognitive predictors displayed explanatory capacity in predicting any of the SES sub-scales. Ten percent of the variance in the SES cooperation sub-scale was explained by PANSS positive and excitative symptoms. In the SES Help-seeking sub-scale, 5% of the variance was explained by PANSS negative symptoms, and in the SES Adherence sub-scale, 7% of the variance was explained by PANSS positive symptoms.

4.2 Therapeutic alliance in early schizophrenia (paper II)

There were no gender differences, or differences between inpatients and outpatients in neither patients' nor therapists' WAI-S total or sub scores. Patients with longer education reported higher levels of WAI-S total and treatment tasks- and goals score. Older patients reported higher levels of the treatment tasks score. There were no associations between patient demographic characteristics and therapists scores.

Higher scores (i.e. higher symptom loads) for the PANSS Positive factor, and Excitative factor was associated with lower patients' WAI-S total scores, in addition to lower levels of several sub scores. High scores for the PANSS Negative factor and Excitative factor was also associated with lower levels of therapists' WAI-S total scores, in addition to several sub scores. The level of PANSS insight (G12) was not associated with patients' scores but negatively associated with WAI-S therapist total scores in addition to several sub scores. There were no association between any of the neurocognitive scores and patients' or therapists' WAI-S ratings.

Multivariate linear regression analyses indicated that the best model explaining the level of patients' WAI-S total score was the patient's age and level of excitative symptoms, which explained 23% of the observed variance (R^2). For therapist WAI-S total scores, the regression analysis indicated that only insight (PANSS item G12) had a statistical significant influence and could explain 17% of the observed variance (R^2).

There were no differences (numerical or statistical) in the mean level of patient and therapist WAI-S total scores (ES 0.09), but with marginally larger variation in patient ratings. Patients and therapist's WAI-S total scores were statistically significantly associated and also had moderate degrees of association on the sub score level. An exploratory regression analysis with patients' WAI-S total score as dependent including

therapist' WAI-S total score as an independent variable at the last step of the analysis, indicated that neither age, PANSS Excitative factor nor PANSS Insight (G12) mediated or moderated their level of association.

4.3 Personality traits, interpersonal problems and therapeutic alliance (paper III)

Patients' scores for this sample differed significantly from the normative sample mean for all NEO-FFI personality traits, with the exception of Agreeableness. Patients scored significantly higher on NEO-FFI Neuroticism, and lower on Extraversion, Openness and Conscientiousness.

IIP-64C scores were significantly higher (>1 standard deviation) for all dimensions except Domineering (PA; > 0.9 standard deviation) compared to a Norwegian normal reference sample [91], but at the same level as a Norwegian non-psychotic outpatient sample [92]. Scores were highest for the IIP-64C Submissive/Friendly quadrant followed by the Submissive/Hostile quadrant and the Dominant/Friendly quadrant, with the lowest scores for the Dominant/Hostile quadrant (table 1). Scores in the Dominant/Hostile quadrant were significantly lower than the three other quadrants (versus Dominant/Friendly $t = 2.76$, $p < 0.010$; versus Submissive/Hostile $t = 4.33$, $p < 0.001$; and versus Submissive/Friendly $t = 5.48$, $p < 0.001$) and in the Submissive/Friendly quadrant significantly higher than the three other quadrants (versus Submissive/Hostile $t = -2.05$, $p < 0.05$; versus Dominant/Friendly $t = -3.84$, $p < 0.001$; and versus Dominant/Hostile $t = -7.24$, $p < 0.001$). There were no differences in NEO-FFI or IIP-64C scores between men and women or between outpatients and inpatients.

Higher patient WAI-S total scores were statistically significantly associated with lower levels of NEO-FFI Neuroticism and higher levels of Agreeableness, as well as lower levels of interpersonal problems in the IIP-64C Submissive/Hostile quadrant in bivariate analyses. There was a trend level association ($p = .054$) between NEO-FFI Agreeableness scores and therapist WAI-S total scores but no associations between any IIP-64C interpersonal problem scores and WAI-S therapist scores.

Several NEO-FFI and IIP-64C scores were highly statistically significantly correlated and could thus not be fitted in the multiple linear regression analyses at the same time.

The hierarchical linear regression analyses indicated that a model including patients' age, level of PANSS excitative symptoms and IIP-64C Submissive/Hostile had the best explanation of WAI-S patient total scores. The model accounted for 37% of the observed variance (R^2). Hierarchical linear regression analysis with therapist WAI-S total scores as the dependent variable indicated that PANSS insight (item G12) and NEO-FFI Agreeableness accounted for 23% of the observed variance (R^2).

5.0 General discussion

5.1 Influence of neurocognitive deficits and clinical symptoms on service engagement

In paper I, conceptualization (as measured by the WASI Similarities) had a statistically significant association with service engagement (as measured by the total score of the SES) even after correction for differences in clinical symptoms. In addition, the level of active psychotic symptoms as measured by the PANSS positive and excitative components contributed significantly. The variance in these three variables taken together explained 15% of the variance in service engagement scores.

Supplementary analyses in paper I indicated that this effect was based on the impact of conceptualization on the SES sub score availability, and not related to the other SES domains (i.e. cooperation, help seeking or adherence). The SES availability score is based on scorings of three statements describing difficulties in arranging appointments with the patient. It may well be that the most significant expression of difficulties with service engagement would be not showing up for appointments, or actively avoiding them. Thus, patients with high (i.e. compromised or poor) SES availability scores could be the ones with the lowest overall level of service engagement. Their treating professional would then also have less information to score the rest of the sub domains, resulting in these being less valid descriptions of service engagement. The question why conceptualization is the primary associated neurocognitive variable remains. We here reason that in this context the ability to conceptualize can be understood as closely related to the adaptive aspect of general intelligence; i.e. it is a measure of the ability to generate higher order concepts, abstracting from experience and learning and building new understanding on it. If so, it would be associated with general adaptive skills such as understanding which actions are necessary for achieving adequate (professional) help, being flexible in negotiating the handling of one's needs, being present and perceptive in one's life, and generally able to make choices that supports survival. The finding of a relationship between conceptualization and service engagement in early phase patients is in line with previous findings that the ability to conceptualize was related to the ability to cooperate with treatment in older patients with schizophrenia [57].

Results demonstrated that PANSS positive, excitative, disorganized, negative and depression/anxiety factors had a significant association with the SES total score in bivariate analyses, while only the positive and excitative factors retained their influence in the multivariate analyses. This underlines the importance clinical symptoms have in creating problems with service engagement. The stronger influence of positive and

excitatory symptoms indicates that active avoidance of treatment may be more important than passive withdrawal, at least in this first episode sample.

5.2 Influence of demographic, clinical and cognitive characteristics on the working alliance

In paper II, results confirmed that patient's age and level of excitatory symptoms were the primary predictors of the patients' ratings of working alliance, while level of insight was the strongest predictor of therapists' ratings. There was no indication of any associations between neurocognitive factors and working alliance. This has been suggested, but not consistently found in previous studies from more chronic groups [33, 35, 39-41, 44].

The association between excitatory symptoms and patients' experience of global working alliance with therapists seems reasonable from a clinical perspective, as excitement, hostility, uncooperativeness and poor impulse control are behaviors contingent with negative relational experiences. Such an association has also been described in older groups of patients with schizophrenia spectrum disorders [44], although not consistently [33]. The multivariate regression analyses indicated that the bivariate association between total years of education and patient total alliance scores was mediated through age differences. This is in line with findings from older and more chronic patients, where there is no relationships between education and alliance [35]. The association between lower age and poorer patient ratings of working alliance is in line with the general observation that early onset schizophrenia is associated with poorer prognosis of course of illness and outcome [93, 94].

Insight (i.e. the quality of the patients' awareness and understanding of their psychiatric condition) was the only factor influencing the therapist scores. Thus, therapists should be aware of how this may blur their perception of the quality of the therapeutic relation as the patient sees it, and also of the effect that the lack of insight has on his/her personal experience of the cooperation and bond with the patient in early phases of treatment. Both aspects could possibly exert a secondary effect on therapist behaviors. Although often referred to as a clinical symptom, insight is a multifaceted phenomenon that have been found related to both symptom severity, DUP, premorbid adjustment, cognitive impairment and brain volumes [95].

5.3 Association between patients' and therapists' ratings of the working alliance

In paper II, WAI-S total score levels for patients and therapists were fairly high and comparable to those reported in other studies of schizophrenia spectrum samples using the same scale [35, 41, 44]. We found a moderate degree of shared opinion between patient and therapist ratings of the quality of the working alliance, with a higher concordance in alliance total scores between patients and therapists than in previous studies [33, 35, 39, 43, 44]. Multivariate linear regression analyses indicated that the association between patient and therapist working alliance total scores were not moderated by other predictors of the total scores. The higher degree of shared opinion on the working alliance found in this study compared to previous studies, possibly reflect a better quality of the therapeutic alliance with patients in early phases of schizophrenia spectrum disorders compared to patients with longer duration or more chronic courses of illness. If so, this adds weight to the importance of the early psychosocial treatment for patients with these disorders.

On the sub scale level, the differential characteristics of patient and therapist perceptions of the alliance were reflected in that both goal scores and bond scores were unrelated, while tasks scores were moderately associated. The strongest subscale associations were between therapist bond scores and patient tasks and goals scores, possibly indicating that patient experience of agreement on treatment tasks and goals and therapist experience of a stronger relational bond are aspects that are mutually dependent on each other.

5.4 Influence of personality and dimensions of interpersonal problems on the working alliance.

In paper III, both core traits of personality and dimensions of interpersonal problems were clearly associated with patients' experience of their working alliance with their therapist in bivariate analyses. In multivariate analyses, the Submissive/Hostile quadrant of interpersonal problems, together with patient age and level of excitative symptoms, accounted for more than one third of the observed variance in patient rated working alliance.

High scores on the IIP-64C Submissive/Hostile quadrant reflects patients experiencing problems in feeling and expressing emotional and relational closeness, love and affection towards others, difficulties in establishing social relations and making long term commitments and in being sociable with others [86, 87]. To our knowledge, the

importance of patients' experience of interpersonal problems for the quality of the working alliance has not been previously shown in schizophrenia spectrum disorders.

These results are consistent with findings from studies indicating that aspects of personality are associated with capacity for intimacy and engagement with treatment services in schizophrenia [29, 69], and suggest that personality factors may mediate these relationships. They are also in agreement with results from non-psychotic patient groups, indicating that submissive/hostile interpersonal problems are associated with patient reports of getting less out of their psychotherapy sessions compared to other patients [88]. In non-psychotic samples, poorer therapeutic alliance has also been found to be associated with interpersonal problems in the dominant/hostile domain [78, 96]. This suggests that it could be primarily the hostile elements of interpersonal problems that are associated with a poorer therapeutic alliance.

Scores in the Submissive/Friendly quadrant were significantly higher than for other interpersonal problems in this sample. These patients thus mainly experience interpersonal problems in being assertive towards others, clearly stating needs, feelings and communicating anger because of fear of how others might respond [86]. The analyses however indicated that these interpersonal difficulties did not interfere with individual therapeutic relationships. From studies of non-psychotic samples it has been suggested that friendly/submissive qualities can in fact be favorable to the process of therapy, such as greater openness to self-exploration and change, as well as more positive patient ratings of the working alliance [78, 96, 97].

Higher levels of NEO-FFI Agreeableness were associated with therapists' experience of the working alliance in study III. The results thus indicate that patients describing themselves as being more empathic, helpful and trusting of others [59], in combination with higher levels of insight was important for the therapists experience. Therapist working alliance scores showed no association with patient experience of interpersonal problems. As NEO-FFI Agreeableness was clearly negatively associated with patient reports of interpersonal problems in both hostile quadrants of the IIP-64C, there is reason to advice therapists to pay special attention to patients with core traits of personality characterized by low agreeableness. This is also in line with results from non-psychotic samples [72, 98].

6.0 Methodological issues

6.1 Limitations of the studies

There are some limitations to consider when interpreting our findings. Generalizability of these results may be limited as the study sample size was moderate. Also, subjects were assessed in a naturalistic treatment setting and not as part of a standardized treatment program. This lessened the possibility to standardize timing of assessments in detail, and theoretically increased the number of possible confounding variables. The cross-sectional explorative design prevents conclusions about causality. Due to instances of missing data, some analyses were done with missing scores being replaced by the group mean. The inclusion of subjects in these studies was based on informed consent. The possibility of implicit selection of patients is relevant to engagement and alliance research, as we do not know if non-consenting patients exhibit substantially different characteristics on the variables of interest.

6.2 Strengths of the studies

The naturalistic and cross-sectional design may also be viewed as strength of the studies, as it provides the thesis with a real-life basis of data, which can be thought to reflect the everyday clinical reality for these patients and their therapists. The data in paper I is also based on multi-site inclusion of patients, which strengthens the representativeness of the results from this sample. All applied measures are well-known and validated instruments with good psychometric properties. Also, both samples in this thesis are well characterized and missing data were few.

7.0 Conclusions

The results presented in this thesis indicate that patients' engagement with services may be influenced by variations in patients conceptualizing abilities as well as positive and excitative symptoms. This appears to be partly mediated through an effect on availability to treatment, i.e. by influencing to what extent the patient is cooperating by making and showing up for appointments. These results support the idea that parts of the observed relationships between cognitive deficits and outcome might be mediated by aspects of engagement in treatment services.

The thesis also describes how patients and therapists qualitative experience of the working alliance is associated with specific, but different patient characteristics. Compared to other studies, the results indicate that there may be phase specific characteristics associated with the quality of the alliance in early phase schizophrenia spectrum disorders. Interpersonal problems of Submissive/Hostile character, lower patient age and more excitative symptoms predict lower patient ratings of the working alliance. Therapists on the other hand, perceive better working alliances with patients characterized by higher levels of Agreeableness and insight. Patients in the early phase also share opinion with their therapists on the quality of the working alliance to a higher degree than patients in later phases of illness.

8.0 Implications for clinical practice

The results from this thesis provide new knowledge about the importance of recognizing patients' individual profiles of symptoms, characteristic basic traits of personality and interpersonal problems, with regards to their possible impact on the quality of the working alliance in early schizophrenia spectrum disorders. Interestingly, these patients exhibit symptom characteristics that are relevant to the working alliance, but specific to severe psychotic disorders. However, they are also characterized by interpersonal problems and traits of personality with relevance to the alliance that are quite similar to those found in non-psychotic patient groups. Thus, work on therapeutic alliances in early schizophrenia spectrum disorders requires both specific knowledge on the range of symptoms found in these syndromes and knowledge on the general relation between interpersonal aspects of personality and the alliance. This is of considerable importance, in order to inform clinicians' alliance enhancing efforts in the early course of treatment, as it may serve to prevent drop-out and optimize compliance and outcome. Overall this thesis has given empirical support to the relevance that good quality working alliances can in fact be achieved in the early phase of schizophrenia spectrum disorders, and that a fair degree of agreement on this alliance can be achieved between patient and therapist. The thesis has further pointed to the relation between active psychotic symptoms (positive and excitative), cognition and patients availability to treatment (making- and showing up for appointments) in the early phase of illness

Taken together, these findings state the importance of utilizing the opportunity for early treatment gains, and may improve therapist interventions when providing psychosocial treatment to patients with early schizophrenia spectrum disorders.

9.0 References

- [1] APA APA. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)1995.
- [2] Kaplan RM. Being Bleuler: the second century of schizophrenia. *Australasian psychiatry : bulletin of Royal Australian and New Zealand College of Psychiatrists*. 2008;16:305-11.
- [3] Parnas J. A disappearing heritage: the clinical core of schizophrenia. *Schizophr Bull*. 2011;37:1121-30.
- [4] Haug E, Oie M, Melle I, Andreassen OA, Raballo A, Bratlien U, et al. The association between self-disorders and neurocognitive dysfunction in schizophrenia. *Schizophr Res*. 2012;135:79-83.
- [5] Cullberg J. *Psychoses - an integrative perspective*. 1st ed. London and New York: Routledge; 2006.
- [6] Kay SR, Fiszbein A, Opler LA. The positive and negative syndrome scale (PANSS) for schizophrenia. *Schizophrenia Bulletin*. 1987;13:261-76.
- [7] Melle I. The Breivik case and what psychiatrists can learn from it. *World Psychiatry*. 2013;12:16-21.
- [8] Silveira C, Marques-Teixeira J, de Bastos-Leite AJ. More than one century of schizophrenia: an evolving perspective. *J Nerv Ment Dis*. 2012;200:1054-7.
- [9] Harvey PD, Bowie CR. Schizophrenia spectrum conditions. In: Stricker G, Widiger TA, Weiner IB, editors. *Handbook of psychology, Vol 8: Clinical psychology*. 2nd ed. Hoboken, NJ, US:: John Wiley & Sons Inc; 2013. p. 240-61.
- [10] McGrath J, Saha S, Chant D, Welham J. Schizophrenia: a concise overview of incidence, prevalence, and mortality. *Epidemiologic reviews*. 2008;30:67-76.
- [11] Perala J, Suvisaari J, Saarni SI, Kuoppasalmi K, Isometsa E, Pirkola S, et al. Lifetime prevalence of psychotic and bipolar I disorders in a general population. *Archives of general psychiatry*. 2007;64:19-28.
- [12] Klosterkötter J. Indicated prevention of schizophrenia. *Deutsches Arzteblatt international*. 2008;105:532-9.
- [13] Melau M, Jeppesen P, Thorup A, Bertelsen M, Petersen L, Gluud C, et al. The effect of five years versus two years of specialised assertive intervention for first episode psychosis - OPUS II: study protocol for a randomized controlled trial. *Trials*. 2011;12:72.
- [14] Tandon R, Keshavan MS, Nasrallah HA. Schizophrenia, "just the facts" what we know in 2008. 2. Epidemiology and etiology. *Schizophr Res*. 2008;102:1-18.
- [15] Ruhrmann S, Schultze-Lutter F, Salokangas RK, Heinimaa M, Linszen D, Dingemans P, et al. Prediction of psychosis in adolescents and young adults at high risk: results from the prospective European prediction of psychosis study. *Archives of general psychiatry*. 2010;67:241-51.

- [16] McGorry PD, Killackey E, Yung A. Early intervention in psychosis: concepts, evidence and future directions. *World Psychiatry*. 2008;7:148-56.
- [17] Larsen TK, Melle I, Auestad B, Haahr U, Joa I, Johannessen JO, et al. Early detection of psychosis: positive effects on 5-year outcome. *Psychological medicine*. 2011;41:1461-9.
- [18] Melle I, Larsen TK, Haahr U, Friis S, Johannessen JO, Opjordsmoen S, et al. Prevention of negative symptom psychopathologies in first-episode schizophrenia: two-year effects of reducing the duration of untreated psychosis. *Archives of general psychiatry*. 2008;65:634-40.
- [19] Simonsen E, Friis S, Opjordsmoen S, Mortensen EL, Haahr U, Melle I, et al. Early identification of non-remission in first-episode psychosis in a two-year outcome study. *Acta psychiatrica Scandinavica*. 2010;122:375-83.
- [20] Singh SP. Early intervention in psychosis. *The British journal of psychiatry : the journal of mental science*. 2010;196:343-5.
- [21] Kreyenbuhl J, Nossel IR, Dixon LB. Disengagement from mental health treatment among individuals with schizophrenia and strategies for facilitating connections to care: a review of the literature. *Schizophr Bull*. 2009;35:696-703.
- [22] Conus P, Lambert M, Cotton S, Bonsack C, McGorry PD, Schimmelmann BG. Rate and predictors of service disengagement in an epidemiological first-episode psychosis cohort. *Schizophr Res*. 2010;118:256-63.
- [23] Dickerson FB, Lehman AF. Evidence-based psychotherapy for schizophrenia: 2011 update. *J Nerv Ment Dis*. 2011;199:520-6.
- [24] Kreyenbuhl J, Buchanan RW, Dickerson FB, Dixon LB. The Schizophrenia Patient Outcomes Research Team (PORT): updated treatment recommendations 2009. *Schizophr Bull*. 2010;36:94-103.
- [25] Dixon LB, Dickerson F, Bellack AS, Bennett M, Dickinson D, Goldberg RW, et al. The 2009 schizophrenia PORT psychosocial treatment recommendations and summary statements. *Schizophr Bull*. 2010;36:48-70.
- [26] O'Brien A, White S, Fahmy R, Singh S. The development and validation of the SOLES, a new scale measuring engagement with mental health services in people with psychosis. *Journal of Mental Health*. 2009;18:510-22.
- [27] Villeneuve K, Potvin S, Lesage A, Nicole L. Meta-analysis of rates of drop-out from psychosocial treatment among persons with schizophrenia spectrum disorder. *Schizophr Res*. 2010;121:266-70.
- [28] Tait L, Birchwood M, Trower P. A new scale (SES) to measure engagement with community mental health services. *Journal of Mental Health*. 2002;11:191-8.
- [29] Lecomte T, Spidel A, Leclerc C, MacEwan GW, Greaves C, Bentall RP. Predictors and profiles of treatment non-adherence and engagement in services problems in early psychosis. *Schizophr Res*. 2008;102:295-302.

- [30] Johansen R, Hestad K, Iversen VC, Agartz I, Sundet K, Andreassen OA, et al. Cognitive and clinical factors are associated with service engagement in early-phase schizophrenia spectrum disorders. *J Nerv Ment Dis.* 2011;199:176-82.
- [31] Martin DJ, Garske JP, Davis MK. Relation of the therapeutic alliance with outcome and other variables: a meta-analytic review. *Journal of consulting and clinical psychology.* 2000;68:438-50.
- [32] Bordin ES. The generalizability of the psychoanalytic concept of the working alliance. *Psychotherapy: Theory, Research and Practice.* 1979;16:252-60.
- [33] Couture SM, Roberts DL, Penn DL, Cather C, Otto MW, Goff D. Do baseline client characteristics predict the therapeutic alliance in the treatment of schizophrenia? *J Nerv Ment Dis.* 2006;194:10-4.
- [34] Frank AF, Gunderson JG. The role of the therapeutic alliance in the treatment of schizophrenia. Relationship to course and outcome. *Archives of general psychiatry.* 1990;47:228-36.
- [35] Lysaker PH, Davis LW, Buck KD, Outcalt S, Ringer JM. Negative symptoms and poor insight as predictors of the similarity between client and therapist ratings of therapeutic alliance in cognitive behavior therapy for patients with schizophrenia. *J Nerv Ment Dis.* 2011;199:191-5.
- [36] Priebe S, Richardson M, Cooney M, Adedeji O, McCabe R. Does the therapeutic relationship predict outcomes of psychiatric treatment in patients with psychosis? A systematic review. *Psychotherapy and psychosomatics.* 2011;80:70-7.
- [37] Svensson B, Hansson L. Therapeutic alliance in cognitive therapy for schizophrenic and other long-term mentally ill patients: development and relationship to outcome in an in-patient treatment programme. *Acta psychiatrica Scandinavica.* 1999;99:281-7.
- [38] McCabe R, Priebe S. Are therapeutic relationships in psychiatry explained by patients' symptoms? Factors influencing patient ratings. *European psychiatry : the journal of the Association of European Psychiatrists.* 2003;18:220-5.
- [39] Wittorf A, Jakobi U, Bechdolf A, Muller B, Sartory G, Wagner M, et al. The influence of baseline symptoms and insight on the therapeutic alliance early in the treatment of schizophrenia. *European psychiatry : the journal of the Association of European Psychiatrists.* 2009;24:259-67.
- [40] Davis LW, Lysaker PH. Neurocognitive correlates of therapeutic alliance in schizophrenia. *J Nerv Ment Dis.* 2004;192:508-10.
- [41] Barrowclough C, Meier P, Beardmore R, Emsley R. Predicting therapeutic alliance in clients with psychosis and substance misuse. *J Nerv Ment Dis.* 2010;198:373-7.
- [42] Barrowclough C, Haddock G, Lobban F, Jones S, Siddle R, Roberts C, et al. Group cognitive-behavioural therapy for schizophrenia. Randomised controlled trial. *The British journal of psychiatry : the journal of mental science.* 2006;189:527-32.

- [43] Catty J, White S, Koletsi M, Becker T, Fioritti A, Kalkan R, et al. Therapeutic relationships in vocational rehabilitation: predicting good relationships for people with psychosis. *Psychiatry research*. 2011;187:68-73.
- [44] Huddy V, Reeder C, Kontis D, Wykes T, Stahl D. The effect of working alliance on adherence and outcome in cognitive remediation therapy. *J Nerv Ment Dis*. 2012;200:614-9.
- [45] Lecomte T, Laferriere-Simard M-C, Leclerc C. What does the alliance predict in group interventions for early psychosis? *Journal of Contemporary Psychotherapy*. 2012;42:pp.
- [46] Bourdeau G, Theroux L, Lecomte T. Predictors of therapeutic alliance in early psychosis. *Early intervention in psychiatry*. 2009;3:300-3.
- [47] Haddock G, Lewis S, Bentall R, Dunn G, Drake R, Tarrier N. Influence of age on outcome of psychological treatments in first-episode psychosis. *The British journal of psychiatry : the journal of mental science*. 2006;188:250-4.
- [48] Svensson B, Hansson L. Relationships among patient and therapist ratings of therapeutic alliance and patient assessments of therapeutic process: a study of cognitive therapy with long-term mentally ill patients. *J Nerv Ment Dis*. 1999;187:579-85.
- [49] Evans-Jones C, Peters E, Barker C. The therapeutic relationship in CBT for psychosis: client, therapist and therapy factors. *Behavioural and cognitive psychotherapy*. 2009;37:527-40.
- [50] Lysaker PH, Dimaggio G, Buck KD, Callaway SS, Salvatore G, Carcione A, et al. Poor insight in schizophrenia: links between different forms of metacognition with awareness of symptoms, treatment need, and consequences of illness. *Comprehensive psychiatry*. 2011;52:253-60.
- [51] Green MF. What are the functional consequences of neurocognitive deficits in schizophrenia? *Am J Psychiatry*. 1996;153:321-30.
- [52] Green MF, Kern RS, Braff DL, Mintz J. Neurocognitive deficits and functional outcome in schizophrenia: are we measuring the "right stuff"? *Schizophr Bull*. 2000;26:119-36.
- [53] Green MF, Kern RS, Heaton RK. Longitudinal studies of cognition and functional outcome in schizophrenia: implications for MATRICS. *Schizophr Res*. 2004;72:41-51.
- [54] Leifker FR, Bowie CR, Harvey PD. Determinants of everyday outcomes in schizophrenia: the influences of cognitive impairment, functional capacity, and symptoms. *Schizophr Res*. 2009;115:82-7.
- [55] Bowie CR, Reichenberg A, Patterson TL, Heaton RK, Harvey PD. Determinants of real-world functional performance in schizophrenia subjects: correlations with cognition, functional capacity, and symptoms. *Am J Psychiatry*. 2006;163:418-25.
- [56] Palmer BW, Dawes SE, Heaton RK. What do we know about neuropsychological aspects of schizophrenia? *Neuropsychology review*. 2009;19:365-84.

- [57] Jeste SD, Patterson TL, Palmer BW, Dolder CR, Goldman S, Jeste DV. Cognitive predictors of medication adherence among middle-aged and older outpatients with schizophrenia. *Schizophr Res.* 2003;63:49-58.
- [58] McCrae RR, Costa PT, Jr. Personality trait structure as a human universal. *Am Psychol.* 1997;52:509-16.
- [59] Costa PTW, T.A. Introduction: Personality disorders and the five-factor model of personality. . In: Costa PTW, T.A., editor. *Personality disorders and the five-factor model of personality* 2nd ed. Washington, DC, US: American Psychological Association; 2002. p. 3-14.
- [60] Digman JM. Personality Structure - Emergence of the 5-Factor Model. *Annual review of psychology.* 1990;41:417-40.
- [61] Costa PT, Jr., McCrae RR. Stability and change in personality assessment: the revised NEO Personality Inventory in the year 2000. *Journal of personality assessment.* 1997;68:86-94.
- [62] Lysaker PH, Wilt MA, Plascak-Hallberg CD, Brenner CA, Clements CA. Personality dimensions in schizophrenia: associations with symptoms and coping. *J Nerv Ment Dis.* 2003;191:80-6.
- [63] Kentros M, Smith TE, Hull J, McKee M, Terkelsen K, Capalbo C. Stability of personality traits in schizophrenia and schizoaffective disorder: a pilot project. *J Nerv Ment Dis.* 1997;185:549-55.
- [64] Bagby RM, Bindseil KD, Schuller DR, Rector NA, Young LT, Cooke RG, et al. Relationship between the five-factor model of personality and unipolar, bipolar and schizophrenic patients. *Psychiatry research.* 1997;70:83-94.
- [65] Gurrera RJ, Nestor PG, O'Donnell BF. Personality traits in schizophrenia: comparison with a community sample. *J Nerv Ment Dis.* 2000;188:31-5.
- [66] Reno RM. Personality characterizations of outpatients with schizophrenia, schizophrenia with substance abuse, and primary substance abuse. *J Nerv Ment Dis.* 2004;192:672-81.
- [67] Camisa K, Bockbrader M, Lysaker P, Rae L, Brenner C, O'Donnell B. Personality traits in schizophrenia and related personality disorders. *Psychiatry research.* 2005;133:23-33.
- [68] Lysaker PH, Bell MD, Kaplan E, Greig TC, Bryson GJ. Personality and psychopathology in schizophrenia: the association between personality traits and symptoms. *Psychiatry.* 1999;62:36-48.
- [69] Lysaker PH, Davis LW. Social function in schizophrenia and schizoaffective disorder: associations with personality, symptoms and neurocognition. *Health and quality of life outcomes.* 2004;2:15.
- [70] Gurtman MB. Relational measures in psychotherapy research on process and outcome: A commentary on the studies. *Journal of personality assessment.* 2004;83:248-55.

- [71] Zinbarg RE, Uliaszek AA, Adler JM. The role of personality in psychotherapy for anxiety and depression. *Journal of personality*. 2008;76:1649-88.
- [72] Coleman D. Client Personality, Working Alliance and Outcome: A Pilot Study. *Social Work in Mental Health*. 2006;4:pp.
- [73] Hirsh JB, Quilty LC, Bagby RM, McMains SF. The Relationship Between Agreeableness and the Development of the Working Alliance in Patients with Borderline Personality Disorder. *Journal of personality disorders*. 2012.
- [74] Bachelor A, Meunier G, Laverdiere O, Gamache D. Client Attachment to Therapist: Relation to Client Personality and Symptomatology, and Their Contributions to the Therapeutic Alliance. *Psychother*. 2010;47:454-68.
- [75] Howard I, Turner R, Olkin R, Mohr DC. Therapeutic alliance mediates the relationship between interpersonal problems and depression outcome in a cohort of multiple sclerosis patients. *Journal of clinical psychology*. 2006;62:1197-204.
- [76] Saunders SM. Pretreatment correlates of the therapeutic bond. *Journal of clinical psychology*. 2001;57:1339-52.
- [77] Paivio SC, Bahr LM. Interpersonal problems, working alliance, and outcome in short-term experiential therapy. *Psychotherapy Research*. 1998;8:392-407.
- [78] Muran JC, Segal ZV, Samstag LW, Crawford CE. Patient pretreatment interpersonal problems and therapeutic alliance in short-term cognitive therapy. *Journal of consulting and clinical psychology*. 1994;62:185-90.
- [79] Faerden A, Finset A, Friis S, Agartz I, Barrett EA, Nesvag R, et al. Apathy in first episode psychosis patients: one year follow up. *Schizophr Res*. 2010;116:20-6.
- [80] Barrett EA, Sundet K, Faerden A, Nesvag R, Agartz I, Fosse R, et al. Suicidality before and in the early phases of first episode psychosis. *Schizophr Res*. 2010;119:11-7.
- [81] Wechsler D. Wechsler Adult Intelligence Scale – third edition (WAIS-III). Norwegian manual. . Stockholm: Pearson Assessment; 2003.
- [82] Delis D, Kramer JK, Kaplan E. CVLT-II. California Verbal Learning Test. Manual. Second Edition. Adult Version. San Antonio: TX: The Psychological Corporation, a Harcourt Assessment Company.; 2000.
- [83] Heaton RK. Wisconsin Card Sorting Test Computer Version 2-Research Edition. . USA: PAR Inc. ; 2003.
- [84] Conners CK. Conners Continuous Performance Test II. Technical guide and software manual. . North Tonawanda, NY.: Multi Health systems Inc. ; (2002)
- [85] Costa PTM, R. R. . Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI). Professional Manual.: Psychological Assessment Resources, Inc.; 1992.
- [86] Alden LE, Wiggins JS, Pincus AL. Construction of circumplex scales for the Inventory of Interpersonal Problems. *Journal of personality assessment*. 1990;55:521-36.

- [87] Nysaeter TE, Langvik E, Berthelsen M, Nordvik H. Interpersonal problems and personality traits: The relation between IIP-64C and NEO-FFI. *Nord Psychol.* 2009;61:82-93.
- [88] Gurtman MB. Interpersonal problems and the psychotherapy context: The construct validity of the inventory of interpersonal problems. *Psychol Assessment.* 1996;8:241-55.
- [89] Ringen PA, Melle I, Birkenaes AB, Engh JA, Faerden A, Jonsdottir H, et al. Illicit drug use in patients with psychotic disorders compared with that in the general population: a cross-sectional study. *Acta psychiatrica Scandinavica.* 2008;117:133-8.
- [90] Simonsen C, Sundet K, Vaskinn A, Birkenaes AB, Engh JA, Faerden A, et al. Neurocognitive dysfunction in bipolar and schizophrenia spectrum disorders depends on history of psychosis rather than diagnostic group. *Schizophr Bull.* 2011;37:73-83.
- [91] Pedersen G. Assessment of self-reported symptoms and interpersonal problems: Psychometric considerations and validity of clinical use. : Warnborough University, London.; 2001.
- [92] Monsen JTH, K. A.; Eilertsen, D. E.; Havik, O. E. Circumplex Structure and Personality Disorder Correlates of the Interpersonal Problems Model (IIP-C): Construct Validity and Clinical Implications. *Psychol Assessment.* 2006;18:165-73.
- [93] Remschmidt H, Theisen F. Early-onset schizophrenia. *Neuropsychobiology.* 2012;66:63-9.
- [94] Clemmensen L, Vernal DL, Steinhausen HC. A systematic review of the long-term outcome of early onset schizophrenia. *BMC psychiatry.* 2012;12:150.
- [95] Parellada M, Boada L, Fraguas D, Reig S, Castro-Fornieles J, Moreno D, et al. Trait and state attributes of insight in first episodes of early-onset schizophrenia and other psychoses: a 2-year longitudinal study. *Schizophr Bull.* 2011;37:38-51.
- [96] Renner F, Jarrett RB, Vittengl JR, Barrett MS, Clark LA, Thase ME. Interpersonal problems as predictors of therapeutic alliance and symptom improvement in cognitive therapy for depression. *Journal of affective disorders.* 2012;138:458-67.
- [97] Orlinsky DEG, K.; Parks, B.K. Process and outcome in psychotherapy: Noch einmal. In: Bergin AEG, S.L., editor. *Handbook of psychotherapy and behavior change.* 4th ed. Oxford, England: John Wiley & Sons; 1994. p. 270-376.
- [98] Hirsh JB, Quilty LC, Bagby RM, McMain SF. The relationship between agreeableness and the development of the working alliance in patients with borderline personality disorder. *Journal of personality disorders.* 2012;26:616-27.

Paper I

Is not included due to copyright

Fakultet for samfunnsvitenskap og teknologi
Psykologisk institutt

Forskningsprisen 2011

Klassen PHD stipendiat

Ragnhild Johansen

Psykologisk institutt

Prisen tildeles for artikkelen:

"Cognitive and Clinical Factors Are Associated With Service Engagement in Early-Phase Schizophrenia Disorders"

Juryens kriterier:

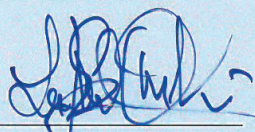
Det premieres en publikasjon på høyt faglig nivå.

Publikasjon må telle minst på nivå 1 og må gi instituttet publikasjonspoeng.

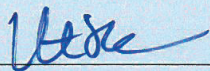
Må være førsteforfatter på publikasjonen.

Må ha veileder på Psykologisk institutt

Trondheim, 27. februar 2012



Leif Edward Ottesen Kennair
Instituttleder



Christian Klöckner
Leder, forskningsutvalget

NTNU

Det skapande universitetet

Paper II

Paper II was published 9 may 2013 in Annals of General Psychiatry

Annals of General Psychiatry.2013, 12:14.

DOI: 10.1186/1744-859X-12-14

URL: <http://www.annals-general-psychiatry.com/content/12/1/14>

**Therapeutic alliance in early schizophrenia spectrum disorders:
a cross-sectional study**

**Ragnhild Johansen, MSc,^{1,2} Valentina C. Iversen, PhD,^{4,5} Ingrid Melle, MD,
PhD,^{6,7} and Knut Hestad, PhD,^{2,3}**

Footnotes:

¹ St. Olav's Hospital, Trondheim University Hospital, Forensic department Brøset
Centre for Research and Education in Forensic Psychiatry, 7440 Trondheim, Norway.

² Dept of Psychology, The Norwegian University of Science and Technology, 7491
Trondheim, Norway.

³ Division of Mental Health Care, Innlandet Hospital Trust, 2380 Brumunddal, Norway.

⁴ St. Olav's Hospital, Trondheim University Hospital, 7006 Trondheim, Norway.

⁵ Department of Neuroscience, Faculty of Medicine, The Norwegian University of
Science and Technology, 7491 Trondheim, Norway.

⁶ Dept of Psychiatry, Institute of Clinical Medicine, University of Oslo, 0318 Oslo,
Norway.

⁷ K.G.Jebsen Centre for Psychosis Research, Oslo University Hospital, 0407 Oslo,
Norway.

Corresponding author/requests for reprints:

Ragnhild Johansen, St. Olav's Hospital, Trondheim University Hospital, Department
Brøset, P. Box 3008 Lade, N-7441 Trondheim, Norway. E-mail address:
ragnhild.johansen@stolav.no Telephone number: +47 72 82 36 46 (office phone). Fax
number: +47 72 82 37 03.

Abstract

Background: The therapeutic alliance is related to better course and outcome of treatment in schizophrenia. This study explores characteristics of the therapeutic alliance in early schizophrenia spectrum disorders including the agreement between patient and therapist alliance ratings. *Methods:* Forty-two patients were assessed with demographic, neurocognitive and clinical measures including the Positive and Negative Syndrome Scale (PANSS). Therapeutic alliance was measured with the Working Alliance Inventory – short form (WAI-S). *Results:* Patient WAI-S total scores were predicted by age and PANSS excitative symptoms. Therapist WAI-S total scores were predicted by PANSS insight. Patient and therapist WAI-S total scores were moderately associated. Neurocognition was not associated with working alliance. *Conclusion:* Working alliance is associated with specific demographic- and symptom characteristics in patients in the early treated phase of schizophrenia spectrum disorders. Patients agree more with their therapists on the total quality of the working alliance in the early phase of illness. Findings highlight aspects that may increase therapists' specificity in use of alliance enhancing strategies.

Keywords:

Schizophrenia; alliance; symptom; psychosocial treatment; agreement.

Background

Schizophrenia spectrum disorders present with disabling psychiatric symptoms. Most patients also have a broad range of difficulties in social and occupational functioning and extensive, long term need for health care services. Inadequately treated patients risk a poorer prognosis and a poorer quality of life [1]. A recent meta-analysis [2] however indicates a drop-out rate of 13% for psychosocial treatment in schizophrenia spectrum disorders. It is thus important to uncover factors that have impact on the quality- and outcome of treatments. Low engagement with treatment, as assessed by the Service Engagement Scale (SES) [3], is associated with several patient related factors, ranging from childhood physical abuse, lack of knowledge of consumer rights and the specific personality traits of agreeableness and neuroticism [4] to clinical symptoms (PANSS positive and excitative symptoms) and neurocognitive measures (conceptualization) [5]. Service engagement is also closely associated with the therapeutic alliance [4].

The therapeutic alliance is widely recognized as a common therapeutic factor, which is critical for treatment success across different treatments and patient groups [6]. Authors use different terms to describe this alliance, however the terms most often used are the therapeutic-, helping- or working alliance; the latter referring to Bordin's [7] formulation of a therapeutic relationship defined by the level of agreement on the tasks and goals of therapy, as well as the development of a personal bond between patient and therapist.

Several studies show that the therapeutic alliance also is important in schizophrenia, and related to important aspects of treatment such as better compliance with medication, lower drop-out rates, fewer rehospitalizations, improved symptom levels, and better outcomes [8-11]. Interest has over time turned towards more in-depth examination of factors that can influence the quality of the therapeutic alliance, including the degree of shared opinion between patient and therapist regarding the quality of the alliance [12-16].

Initially, the idea of a functional working alliance could appear at odds with the perception of patients with schizophrenia suffering from reality distortion, or having lack of insight into their disorder. Results from schizophrenia spectrum studies have here been somewhat conflicting, in that some have found that the level of psychotic symptoms is associated with lower patient ratings of the alliance, whereas others have not [13, 17, 18]. Higher levels of insight seems with one exception only [19] to be consistently associated with higher patient ratings of the therapeutic alliance [13, 15, 17], and in one study also with therapist rated alliance [17]. In addition, therapists seem to report higher ratings of their alliance with patients who are presenting better social abilities [11, 12, 17] than those who do not. While neurocognitive factors have been

shown to influence the level of service engagement, there are limited reports of their relation to working alliance. A small study of twenty-four patients with chronic schizophrenia spectrum disorders, found that poorer verbal memory was associated with better patient ratings of working alliance, while better therapist ratings were associated with better visuo-spatial reasoning [20].

Results from studies investigating patients' and therapists' agreement about the quality of the therapeutic alliance have been mixed; where some report a significant association between their ratings [17, 18, 20, 21] and others do not [12, 15, 22]. Some studies however indicate that patients give higher ratings than the professional regarding the level of alliance [15, 17, 18, 22, 23] while others report no significant difference between patient and therapist scores [19].

The main body of studies have investigated the therapeutic relationship in the context of specific treatments, including cognitive-behavioural therapy (CBT) and cognitive remediation therapy (CRT) [11-13, 15, 19, 21]. Most studies have so far investigated samples of patients with a relative long duration of illness, where the quality of the working alliance may be influenced by negative outcomes or previous treatment failures. There are a very limited number of studies investigating the therapeutic alliance in early psychosis, i.e. without the possible confounding influences of previous therapeutic experiences. One study reported that the therapeutic alliance mediated the apparent age effect on outcome in a study of CBT in first episode patients, but without reporting descriptive data on the actual alliance itself [24]. One study of working alliance in early psychosis examined first episode patients engaged in group therapy only [21] thus limiting generalizability of their results to other treatment settings. A previous study from the latter group is to our knowledge the only one that reports on correlates to the level of therapeutic alliance in first episode patients engaging in individual treatment relations, and finding that friendship, leisure activities, quality of life, levels of insight, and medication side effects predicted 22% of the variance in the levels of patients' working alliance [25] where the latter three were negatively associated with better alliances. The study did however, not report on therapist ratings of the alliance and the association between patients' and therapists' reports. Omitting therapist scores leaves out valuable information concerning to what extent patients and therapists share opinion the nature of their therapeutic relation.

The aim of the present study is thus to explore characteristics of the working alliance in patients in the early treated phase of schizophrenia spectrum disorders, with the aim of answering the following questions:

To what extent do demographic, clinical and cognitive characteristics influence patients' and therapists' reports of working alliance?

To what extent is there an association between patients' and therapists ratings of the therapeutic alliance?

Methods

Design

Subjects were recruited from out- and inpatient services at the Division of Psychiatry, St. Olav's Hospital, Trondheim University Hospital, Norway (catchment area of approximately 230 000 inhabitants over the age of 18) as a part of the Thematically Organized Psychosis (TOP) research study [5]. The study was cross-sectional and patients were included consecutively in the period from December 2006 to November 2011. The study was approved by the Regional Committee for Medical Research Ethics and the Norwegian Data Inspectorate. Participants' written informed consent was obtained according to the Declaration of Helsinki.

Procedure

Clinical psychologists and psychiatrists were trained specifically in the use of the applied measures and completed the assessments. All diagnoses, symptom assessments and scorings were then reevaluated and discussed with the first author and consensus scorings applied. The first author had completed the comprehensive training program used by the TOP study (based on the program used at the Semel Institute for Neuroscience and Human Behavior at the University of California, Los Angeles, UCLA). The TOP study's program show good diagnostic reliability both towards gold standard training videos and for blinded expert scorings of randomly selected case vignettes from the actual sample. The inter-rater reliability of PANSS subscales for the training program were in the range of 0.73 – 0.82 (Intra Class Coefficient) (see [26] and [27] for details).

Working Alliance self-report forms were filled in by patients and therapists separately the same week or as soon as possible after symptom assessments, and placed in closed envelopes. Therapists were the patients' primary treating psychiatrist or psychologist at the hospital. All diagnoses and symptom assessments were thus blind to working alliance scores.

Subjects

The inclusion criteria were: 1) age 18 - 65 years and 2) meeting the DSM-IV criteria for a schizophrenia spectrum psychosis; including schizophrenia, schizophreniform disorder, schizoaffective disorder, and delusional disorder 3) having the capability for supplying written informed consent and 4) language abilities to complete the neurocognitive test battery. Exclusion criteria for patients were: a history of moderate/severe head injury, neurological disorders or mental retardation (IQ less than 70), in addition to comorbid cluster A or B personality disorder according to DSM-IV

(determined by clinical consensus based on evaluation of the DSM-IV criteria). Patients were eligible for inclusion up to two years following the start of their first episode (i.e. meeting the criteria for a schizophrenia spectrum psychosis as defined above) and up to one year after their first meeting with their current therapist. Of those who consented, two were found ineligible due to longer duration of illness than accepted by inclusion criteria, two because of inadequate language abilities for completing the neurocognitive test battery, one was diagnosed with bipolar disorder, one withdrew the consent, and one dropped out without actively withdrawing consent.

The study thus includes 42 subjects; 36 (85.7%) with schizophrenia, 3 (7.1%) with schizoaffective disorder, and 3 (7.1%) with delusional disorder; 28 (66.7%) men and 14 (33.3%) women; 28 (66.7%) were inpatients and 14 (33.3%) were outpatients at inclusion. Thirty three (78.6%) were prescribed antipsychotic medication; four (9.5%) were prescribed mood stabilizers, one (2.4%) had antidepressive medication only, and eight (19%) did not use any psychotropic drugs. Mean duration of current antipsychotic treatment was 4.8 (\pm 6.7) months (min 0.25, max 36). Eight (19%) met DSM-IV criteria for substance abuse, six (14.3%) for substance dependence, one met criteria for alcohol abuse (2.4%) and five (11.9%) for alcohol dependence. On average, subjects had 2.8 (\pm 3.6) psychiatric hospitalizations (min 0, max 18) a mean age of 27.5 (\pm 5.6) years (min 20, max 51) and 11.8 (\pm 1.9) years of education (min 9, max 17).

Measurements

Clinical assessment

Diagnoses were established by use of the Structured Clinical Interview for Diagnostic and Structural Manual of Mental Disorders (SCID), fourth version [28]. Symptoms were assessed with the Positive and Negative Symptom Scale (PANSS) [29] after interview with the Structural Clinical Interview for the Positive and Negative Symptom Scale (SCI-PANSS) [30]. For the present study, we used a five factor solution for scoring scale components derived from a first episode sample [31]; The *PANSS Positive factor* consists of the PANSS items P1 Delusions, P3 Hallucinatory behavior, P5 Grandiosity, P6 Suspiciousness/persecution, G9 Unusual thought content, and G12 Lack of judgment and insight; The *PANSS Disorganized factor* consists of the PANSS items P2 Conceptual disorganization, N5 Difficulty in abstract thinking, N7 Stereotyped thinking, G5 Mannerisms and posturing, G10 Disorientation, G11 Poor attention, and G15 Preoccupation; The *PANSS Negative factor* consists of the PANSS items N1 Blunted affect, N2 Emotional withdrawal, N3 Poor rapport, N4 Passive/apathetic social withdrawal, N6 Lack of spontaneity and flow of conversation, G7 Motor retardation, and G16 Active social avoidance; The *PANSS Depressive/anxious factor* consists of the PANSS items G1 Somatic concern, G2 Anxiety, G3 Guilt feelings, G4 Tension, and G6 Depression; The *PANSS Excitative factor* consists of the PANSS items P4 Excitement,

P7 Hostility, G8 Uncooperativeness and G14 Poor impulse control. To simplify comparisons with previous research, we chose to focus on psychotic and general psychiatric symptoms, including insight (item G12) as measured by the PANSS, and a set of relevant demographic variables (psychotic and affective symptoms, age, education and number of months on antipsychotic medication). Insight was measured with the PANSS item G12 (“*Failure to recognize past or present psychiatric illness or symptoms, denial of need for psychiatric hospitalization or treatment, decisions characterized by poor anticipation of consequences, and unrealistic short-term and long-range planning.*”).

Neurocognitive measures

Neurocognitive functioning was assessed by use of a standardized neuropsychological test battery comprised of tests chosen for their relevance to schizophrenia spectrum disorders. The tests were administered in a fixed order by trained clinical psychologists. The tests consisted of: *Current general intellectual ability* was estimated by use of four subtests from the Wechsler Adult Intelligence Scale (WAIS-III): Similarities, Vocabulary, Block design and Matrixes [32]. *Verbal memory* was measured by the California Verbal Learning Test II (CVLT-II) [33]. The test requires the patient to verbally recall (in five consecutive immediate recall trials) from a list of 16 words read by the test administrator, as many words as possible. Verbal recall of the same 16 words was assessed with the 30 min delayed recall. *Executive functions* were measured by the Wisconsin Card Sorting Test Computer Version 4-Research Edition (WCST: CV4) [34]. *Attention* was measured by Conners Continuous Performance Test II (CPT-II) [35].

Working Alliance - Short Version – Client and Therapist Forms

Therapeutic alliance was assessed with the Working Alliance Inventory - Short Version (WAI-S) [36], a 12-item short version of the Working Alliance Inventory (WAI) [37]. The inventory is based on Bordins’ [38] formulation of the working alliance consisting of the therapeutic bond between client and therapist as well as their agreement on therapeutic goals and the tasks attended to in treatment. The WAI is a statement based self-report measure with corresponding therapist and patient versions. Each statement is answered on a seven point scale by indicating to what degree the statement is true (1= never, 2= rarely, 3= now and then, 4= sometimes, 5= often, 6= very often, 7= always). The WAI-S consists of twelve items of which two statements (item 4 and 10) are formulated as negations and scores reversed before computing total scores. Initial reliability analyses confirmed high internal consistency for WAI-S therapist and patient total scores, and therapist and patient sub scores for Tasks, Goals and Bond, with Chronbach’s Alpha ranging from .69 to .89.

Statistical analyses

Statistical analyses were performed by use of the Statistical Package for the Social Sciences, version 19 [39]. Because not all relevant variables were normally distributed we used nonparametric tests in the bivariate analyses (Spearman's correlations and Mann-Whitney U test for two independent samples). Tests were two-tailed and had a pre-set level of significance of 0.05. Multiple linear regression analyses with patients' and therapists' total WAI-S scores were performed to assess the individual contribution from variables with a significant bivariate association to the WAI S total and sub scores. Model fit was evaluated through examination of residual plots. Due to administrative error one PANSS item G12 (measuring insight) as well as one patient and two therapists working alliance assessment forms were missing. Also, due to individual difficulties in completing all tests, CVLT-II and WCST was not administered for one patient and CPT-II for two patients. All missing scores were replaced by mean scores for the total sample in our analyses.

Results

There were no gender differences, or differences between inpatients and outpatients in neither patients' nor therapists' WAI-S total or sub scores. Patients with longer education reported higher levels of WAI-S total and treatment tasks- and goals score. Older patients reported higher levels of the treatment tasks score (Table 2). There were no associations between demographic patient characteristics and therapists scores (Table 2).

Higher scores (i.e. higher symptom loads) for the PANSS Positive factor, and Excitative factor was associated with lower patients' WAI-S total scores, in addition to lower levels of several sub scores (Table 2). High scores for the PANSS Negative factor and Excitative factor was also associated with lower levels of therapists' WAI-S total scores, in addition to several sub scores (Table 2). The level of PANSS insight (G12) was not associated with patients' scores but negatively associated with WAI-S therapist total scores in addition to several sub scores (Table 2). There were no association between any of the neurocognitive scores and patients' or therapists' WAI-S ratings.

Table 1.
Descriptive statistics for psychotic symptoms, neurocognition and working alliance.

	Mean ± SD	Min	Max	Median
PANSS				
Total score	66.9 ± 15.6	49	115	63.0
POSITIVE (P1, P3, P5, P6, G9, G12)	17.0 ± 5.6	6	33	16.0
DISORGANIZED (P2, N5, N7, G5, G10, G11, G15)	13.1 ± 4.3	7	24	12.0
NEGATIVE (N1, N2, N3, N4, N6, G7, G16)	15.4 ± 6.1	7	28	15.0
DEPRESSIVE/ANXIOUS (G1, G2, G3, G4, G6)	13.4 ± 4.5	5	23	13.5
EXCITATIVE (P4, P7, G8, G14)	5.9 ± 2.2	4	13	6.0
Item G12 insight	2.3 ± 1.3	1	6	2.2
WAI-S Patient				
total score	61.6 ± 11.1	31	79	64.0
tasks score	20.4 ± 4.1	8	28	20.2
goals score	20.9 ± 3.8	12	27	21.5
bond score	20.3 ± 4.9	7	28	20.7
WAI-S Therapist				
total score	62.4 ± 7.7	38	80	62.2
tasks score	20.4 ± 3.4	12	28	20.2
goals score	20.6 ± 3.0	10	26	20.8
bond score	21.5 ± 2.6	15	26	21.5
WAIS-III (scaled scores)				
Vocabulary	9.71 ± 2.6	6	18	9.5
Similarities	9.74 ± 3.3	5	18	9.0
Block design	11.43 ± 3.6	5	19	11.0
Matrixes	11.48 ± 3.3	4	18	12.0
CVLT II (z-score)				
Long delay free recall	-0.42 ± 1.5	-4	1.5	-0.2
WCST (T-scores)				
Perseverative responses	45.49 ± 7.9	21	59	45.2
Perseverative errors	44.73 ± 8.2	20	63	45.0
CPT-II (T-scores)				
Omissions	54.54 ± 12.8	40.9	101.1	49.9
Comissions	59.44 ± 11.1	38.1	79.9	61.6

WAI-S = Working Alliance Inventory, short form; PANSS = Positive and Negative Syndrome Scale; SD = Standard Deviation;
WAIS-III = Wechsler Adult Intelligence Scale III; CVLT II = California Verbal Learning Test II; WCST = Wisconsin Card Sorting
Test; CPT-II = Conners Continuous Performance Test II

Table 2.
Spearman's correlations (rho) between WAI-S patient/therapist total- and sub scores and clinical symptoms, insight and patients total years of education. Significant correlations in bold numbers.

	WAI-S patient Spearman's rho				WAI-S therapist Spearman's rho			
	Total	Tasks	Goals	Bond	Total	Tasks	Goals	Bond
PANSS								
Positive	-.279	-.262	-.358*	-.128	-.137	-.064	-.129	-.162
Disorganized	-.263	-.290	-.193	-.177	-.143	-.107	-.186	-.053
Negative	-.141	-.290	-.193	-.177	-.338*	-.350*	-.188	-.203
Depressive/anxious	-.059	-.124	-.126	-.013	.041	.096	.126	-.119
Excitative	-.337*	-.496**	-.147	-.306*	-.225	-.127	.016	-.398**
Insight								
PANSS Item G12	-.089	-.040	.016	-.159	-.394**	-.349*	-.417**	-.259
Age	.244	.323*	.104	.242	-.020	-.091	-.130	.175
Education								
Total years	.414**	.394*	.323*	.303	.021	-.025	-.101	.174

WAI-S = Working Alliance Inventory, short form; PANSS = Positive and Negative Syndrome Scale (Positive=P1, P3, P5, P6, G9, G12; Disorganized=P2, N5, N7, G5, G10, G11, G15; Negative=N1, N2, N3, N4, N6, G7, G16; Depressive/anxious=G1, G2, G3, G4, G6; Excitative=P4, P7, G8, G14). *= $p < .05$ **= $p < .01$

Multivariate linear regression analyses indicated that the best model explaining the level of patients' WAI-S total score was the patient's age and level of excitative symptoms, which explained 23% of the observed variance. For therapist WAI-S total scores, the regression analysis indicated that only insight (PANSS item G12) had a statistical significant influence and could explain 17% of the observed variance (table 3).

Table 3.

Multivariate linear regression analyses of patients and therapists' WAI-S total scores.

	Model summary			Partial effects				
	Adj. R ²	R ²	F	β	<i>t</i>	<i>p</i>	95% CI	
							Lower	Upper
Patient WAI-S total	0.19	0.23	5.7					
<i>Age</i>				0.36	2.55	0.015	0.15	1.29
+ <i>PANSS excitative</i>				-0.28	-2.00	0.052	-2.85	0.01
Therapist WAI-S total	0.14	0.17	7.9					
<i>Insight</i> (<i>PANSS G12</i>)				-0.41	-2.81	0.008	-4.05	-0.66

WAI-S = Working Alliance Inventory, short form; PANSS = Positive and Negative Syndrome Scale

There were no differences (numerical or statistical) in the mean level of patient and therapist WAI-S total scores (ES 0.09), but with marginally larger variation in patient ratings (Table 1). Patients and therapist's WAI-S total scores were statistically significantly associated (Table 4) and also had moderate degrees of association on the sub score level (table 4). An exploratory regression analysis with patients' WAI-S total score as dependent including therapist' WAI-S total score as an independent variable at the last step of the analysis, indicated that neither age, PANSS Excitative factor nor PANSS Insight (G12) mediated or moderated their level of association.

Table 4.

Spearman's correlations (rho) between WAI-S patient and WAI-S therapist total- and sub scores.
Significant correlations in bold numbers.

		WAI-S patient Spearman's rho			
		Total	Tasks	Goals	Bond
WAI-S therapist Spearman's rho	Total	.394**	.354*	.342*	.321*
	Tasks	.372*	.305*	.262	.357*
	Goals	.237	.171	.239	.162
	Bond	.409**	.426**	.365*	.298

WAI-S = Working Alliance Inventory, short form. *= $p < .05$ **= $p < .01$

Discussion

The main finding was that that the patient's age and level of excitative symptoms were the primary predictors of the patients' ratings of working alliance, while level of insight was the strongest predictor of therapists' ratings. There was no indication of any associations between neurocognitive factors and working alliance. This has been suggested, but not consistently found in previous studies from more chronic groups [12, 13, 15, 17, 19, 20]. Overall, there was a moderate degree of shared opinion between patient and therapist ratings of the quality of the working alliance, which was not influenced by the previously identified predictors of patients' and therapists' alliance ratings. This may be an expression of the unique relational aspect of the working alliance, or pertain to other mediating variables that were possibly not included in the current study.

The association between excitative symptoms and patients' experience of global working alliance with therapists seems reasonable from a clinical perspective, as excitement, hostility, uncooperativeness and poor impulse control are behaviors contingent with negative relational experiences. Such an association has also been described in older groups of patients with schizophrenia spectrum disorders [19] although not consistently [12]. The multivariate regression analyses indicated that the bivariate association between total years of education and patient total alliance scores was mediated through age differences. This is in line with findings from older and more chronic patients, who do not indicate any relationships between education and alliance [13].

The current study does not reproduce previous findings from more chronic patients samples showing statistically significant associations between working alliance and positive (psychotic) symptoms, negative symptoms and levels of insight [13, 15, 17]. While the correlation coefficients for positive and negative symptoms reached sub threshold level for statistical significance, the level of association was consistently low for insight. When contrasted with the above mentioned previous research, the present findings suggest that there may be a qualitatively different pattern of associations between patient characteristics, insight and working alliance in the early treatment of the schizophrenia spectrum disorders relative to patients with longer duration of their illness. Insight (i.e. the quality of patient awareness and understanding of own psychiatric condition and degree of withdrawal) was the only factor influencing the therapist scores. Thus, therapists should be aware of how this may blur their perception of the quality of the therapeutic relation as the patient sees it, and also of the effect of lack of insight on his/her personal experience of the cooperation and bond with the patient in early phases of treatment. Both aspects could possibly exert a secondary effect on therapist behaviors.

Looking at the WAI's subscale level, patient and therapist ratings of their relational bond were uniquely associated with excitative symptoms, suggesting that the more unstable, hostile and uncooperative symptoms are specifically associated with both parts' experience of a poorer relational bond. Still, patient and therapist ratings of the relational bond are not consistently associated with each other, suggesting that other factors also influence bond scores as well. Thus, the data supports the notion that the therapeutic alliance is a complex phenomenon. Patient and therapist ratings of agreement on treatment tasks showed the same patterns of association as their working alliance total scores, perhaps illustrating the higher impact of these two subscales on the working alliance total score.

Patient ratings of less agreement on treatment goals were differentially associated with patients having shorter education and more positive psychotic symptoms, i.e. delusions, hallucinatory behavior, grandiosity, suspiciousness/persecution, unusual thought content, and lack of judgment and insight, in agreement with previous findings [13]. Therapist ratings of less agreement on treatment goals were solely associated with patients showing poorer judgment and insight. These results seem to mirror a well-known challenge in clinical work, when negotiating agreement on treatment goals with patients and there is little or no shared or common perception of reality: The delusional or hallucinating patient experiences the therapist as working towards different goals as him or herself, and the therapist who struggles with establishing joint goals experiences the patient as presenting with lack of insight. One could argue that due to lack of shared reality, differential patterns of factors that are associated with patient and therapist perspectives on the working alliance are to be expected in therapeutic work with psychotic patients.

In the present study WAI-S total score levels and distributions for patients and therapists were fairly high and comparable to those reported in other studies of schizophrenia spectrum samples using the same scale [13, 17, 19]. There was a moderate association between patient and therapist global ratings of the Working alliance, but with a higher concordance in alliance total scores between patients and therapists than in previous studies [12, 13, 15, 18, 19]. Multivariate linear regression analyses indicated that the association between patient and therapist working alliance total scores were not moderated by other predictors of the total scores. The higher degree of shared opinion on the Working alliance found in this study compared to previous studies possibly reflect a better quality of the therapeutic alliance with patients in early phases of schizophrenia spectrum disorders as compared to older patients with longer duration or more chronic courses of illness. If so, this adds weight to the importance of the early psychosocial treatment for patients with these disorders.

On the sub scale level, the differential characteristics of patient and therapist perceptions of the alliance were reflected in that both goal scores and bond scores were unrelated, while tasks scores were moderately associated. The strongest subscale associations were between therapist bond scores and patient tasks and goals scores, possibly indicating that patient experience of agreement on treatment tasks and goals and therapist experience of a stronger relational bond are aspects that are mutually dependent on each other.

Limitations

The study sample was of moderate size which may limit generalizability. Participating patients were not part of a standardized treatment program, but assessed in a naturalistic treatment setting at the hospital psychiatric department. This lessened the possibility to standardize timing of assessments in detail, and theoretically increased the number of possible confounding variables.

Conclusion

Patients and therapists qualitative experience of the Working alliance is associated with specific, but different patient characteristics in the early years of schizophrenia spectrum disorders. These may be phase specific characteristics associated with the quality of the early alliance. Patients in the early phase share opinion with their therapists on the quality of the Working alliance to a higher degree than patients in later phases of illness. These findings highlight the importance of utilizing the opportunity for early treatment gains, and may increase therapists' specificity in their alliance enhancing strategies.

Competing interests

None declared

Authors' contributions

RJ designed and conducted the study, analyzed and interpreted the data and wrote the first and final drafts of the manuscript. KH has made substantial contribution to the conception and design of the study, analysis and interpretation of the data and critical revision of the manuscript for all intellectual content. IM has made substantial contribution to the design of both this study and the TOP Study that it originates from. She contributed substantially to analysis and interpretation of the data and critical revision of the manuscript for all intellectual content. VI has contributed substantially to analysis and interpretation of the data, and critical revision of the manuscript for all intellectual content. All authors have read and approved the final manuscript.

Acknowledgements

Funding for the first author was provided by the Liaison Committee between the Central Norway Regional Health Authority (RHA) and the Norwegian University of Science and Technology (NTNU). Funding for the current study was provided by Josef and Haldis Andresens trust fund, Norway, Torstein Erbos trust fund, Norway, and “Småforsk” grant provided by Research Council of Norway and the Norwegian University of Science and Technology (NTNU). Funding for Knut Hestad and Valentina Iversen was provided by The Norwegian University of Science and Technology. Funding for Ingrid Melle was provided by K.G. Jebsen Centre for Psychosis Research, Oslo University Hospital. The funding body had no role in design or conduction of the study, nor in analysis or interpretation of data, writing of the manuscript or decision about submission for publication.

Other acknowledgements: We thank patients for their participation and express our gratitude towards health professionals who facilitated our work.

References

1. Melau M, Jeppesen P, Thorup A, Bertelsen M, Petersen L, Gluud C, Krarup G, Nordentoft M: **The effect of five years versus two years of specialised assertive intervention for first episode psychosis - OPUS II: study protocol for a randomized controlled trial.** *Trials* 2011, **12**:72.
2. Villeneuve K, Potvin S, Lesage A, Nicole L: **Meta-analysis of rates of drop-out from psychosocial treatment among persons with schizophrenia spectrum disorder.** *Schizophr Res* 2010, **121**:266-270.
3. Tait L, Birchwood M, Trower P: **A new scale (SES) to measure engagement with community mental health services.** *Journal of Mental Health* 2002, **11**:191-198.
4. Lecomte T, Spidel A, Leclerc C, MacEwan GW, Greaves C, Bentall RP: **Predictors and profiles of treatment non-adherence and engagement in services problems in early psychosis.** *Schizophr Res* 2008, **102**:295-302.
5. Johansen R, Hestad K, Iversen VC, Agartz I, Sundet K, Andreassen OA, Melle I: **Cognitive and clinical factors are associated with service engagement in early-phase schizophrenia spectrum disorders.** *J Nerv Ment Dis* 2011, **199**:176-182.
6. Martin DJ, Garske JP, Davis MK: **Relation of the therapeutic alliance with outcome and other variables: a meta-analytic review.** *Journal of consulting and clinical psychology* 2000, **68**:438-450.
7. Bordin ES: **Theory and Research on the Therapeutic Working Alliance: New Directions.** . In *The Working Alliance, Theory, Research, and Practice.* Edited by Horvath AOG, L. S. : John Wiley & sons, Inc.; 1994
8. Frank AF, Gunderson JG: **The role of the therapeutic alliance in the treatment of schizophrenia. Relationship to course and outcome.** *Archives of general psychiatry* 1990, **47**:228-236.
9. McCabe R, Bullenkamp J, Hansson L, Lauber C, Martinez-Leal R, Rossler W, Salize HJ, Svensson B, Torres-Gonzalez F, van den Brink R, et al: **The therapeutic relationship and adherence to antipsychotic medication in schizophrenia.** *PLoS one* 2012, **7**:e36080.
10. Priebe S, Richardson M, Cooney M, Adedeji O, McCabe R: **Does the therapeutic relationship predict outcomes of psychiatric treatment in patients with psychosis? A systematic review.** *Psychotherapy and psychosomatics* 2011, **80**:70-77.
11. Svensson B, Hansson L: **Therapeutic alliance in cognitive therapy for schizophrenic and other long-term mentally ill patients: development and relationship to outcome in an in-patient treatment programme.** *Acta psychiatrica Scandinavica* 1999, **99**:281-287.
12. Couture SM, Roberts DL, Penn DL, Cather C, Otto MW, Goff D: **Do baseline client characteristics predict the therapeutic alliance in the treatment of schizophrenia?** *J Nerv Ment Dis* 2006, **194**:10-14.
13. Lysaker PH, Davis LW, Buck KD, Outcalt S, Ringer JM: **Negative symptoms and poor insight as predictors of the similarity between client and therapist ratings of therapeutic alliance in cognitive behavior therapy for patients with schizophrenia.** *J Nerv Ment Dis* 2011, **199**:191-195.

14. McCabe R, Priebe S: **Are therapeutic relationships in psychiatry explained by patients' symptoms? Factors influencing patient ratings.** *European psychiatry : the journal of the Association of European Psychiatrists* 2003, **18**:220-225.
15. Wittorf A, Jakobi U, Bechdorf A, Muller B, Sartory G, Wagner M, Wiedemann G, Wolwer W, Herrlich J, Buchkremer G, Klingberg S: **The influence of baseline symptoms and insight on the therapeutic alliance early in the treatment of schizophrenia.** *European psychiatry : the journal of the Association of European Psychiatrists* 2009, **24**:259-267.
16. Svensson B, Hansson L: **Relationships among patient and therapist ratings of therapeutic alliance and patient assessments of therapeutic process: a study of cognitive therapy with long-term mentally ill patients.** *J Nerv Ment Dis* 1999, **187**:579-585.
17. Barrowclough C, Meier P, Beardmore R, Emsley R: **Predicting therapeutic alliance in clients with psychosis and substance misuse.** *J Nerv Ment Dis* 2010, **198**:373-377.
18. Catty J, White S, Koletsi M, Becker T, Fioritti A, Kalkan R, Lauber C, Lissouba P, Rossler W, Tomov T, et al: **Therapeutic relationships in vocational rehabilitation: predicting good relationships for people with psychosis.** *Psychiatry research* 2011, **187**:68-73.
19. Huddy V, Reeder C, Kontis D, Wykes T, Stahl D: **The effect of working alliance on adherence and outcome in cognitive remediation therapy.** *J Nerv Ment Dis* 2012, **200**:614-619.
20. Davis LW, Lysaker PH: **Neurocognitive correlates of therapeutic alliance in schizophrenia.** *J Nerv Ment Dis* 2004, **192**:508-510.
21. Lecomte T, Laferriere-Simard M-C, Leclerc C: **What does the alliance predict in group interventions for early psychosis?** *Journal of Contemporary Psychotherapy* 2012, **42**:pp.
22. Evans-Jones C, Peters E, Barker C: **The therapeutic relationship in CBT for psychosis: client, therapist and therapy factors.** *Behavioural and cognitive psychotherapy* 2009, **37**:527-540.
23. Lysaker PH, Dimaggio G, Buck KD, Callaway SS, Salvatore G, Carcione A, Nicolo G, Stanghellini G: **Poor insight in schizophrenia: links between different forms of metacognition with awareness of symptoms, treatment need, and consequences of illness.** *Comprehensive psychiatry* 2011, **52**:253-260.
24. Haddock G, Lewis S, Bentall R, Dunn G, Drake R, Tarrier N: **Influence of age on outcome of psychological treatments in first-episode psychosis.** *The British journal of psychiatry : the journal of mental science* 2006, **188**:250-254.
25. Bourdeau G, Theroux L, Lecomte T: **Predictors of therapeutic alliance in early psychosis.** *Early intervention in psychiatry* 2009, **3**:300-303.
26. Ringen PA, Melle I, Birkenaes AB, Engh JA, Faerden A, Jonsdottir H, Nesvag R, Vaskinn A, Friis S, Larsen F, et al: **Illicit drug use in patients with psychotic disorders compared with that in the general population: a cross-sectional study.** *Acta psychiatrica Scandinavica* 2008, **117**:133-138.

27. Faerden A, Finset A, Friis S, Agartz I, Barrett EA, Nesvag R, Andreassen OA, Marder SR, Melle I: **Apathy in first episode psychosis patients: one year follow up.** *Schizophr Res* 2010, **116**:20-26.
28. APA APA: *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)*. 1995.
29. Kay SR, Fiszbein A, Opler LA: **The positive and negative syndrome scale (PANSS) for schizophrenia.** *Schizophrenia Bulletin* 1987, **13**:261-276.
30. Kay SR, Opler LA, Spitzer RL, Williams JB, Fiszbein A, Gorelick A: **SCID-PANSS: two-tier diagnostic system for psychotic disorders.** *Comprehensive psychiatry* 1991, **32**:355-361.
31. Emsley R, Rabinowitz J, Torreman M: **The factor structure for the Positive and Negative Syndrome Scale (PANSS) in recent-onset psychosis.** *Schizophr Res* 2003, **61**:47-57.
32. Wechsler D: *Wechsler Adult Intelligence Scale – third edition (WAIS-III). Norwegian manual.* . Stockholm: Pearson Assessment; 2003.
33. Delis D, Kramer JK, Kaplan E: *CVLT-II. California Verbal Learning Test. Manual. Second Edition. Adult Version.* San Antonio: TX: The Psychological Corporation, a Harcourt Assessment Company.; 2000.
34. Heaton RK: *Wisconsin Card Sorting Test Computer Version 4-Research Edition.* . USA: PAR Inc. ; 2003.
35. Conners CK: *Conners Continuous Performance Test II. Technical guide and software manual.* . North Tonawanda, NY.: Multi Health systems Inc. ; (2002)
36. Tracey TJ, Kokotovic AM: **Factor structure of the Working Alliance Inventory.** *Psychological Assessment: A Journal of Consulting and Clinical Psychology* 1989, **1**:207-210.
37. Horvath AO, Greenberg L: **Development and validation of The Working Alliance Inventory.** *Journal of Counseling Psychology* 1989, **36**:223-233.
38. Bordin ES: **The generalizability of the psychoanalytic concept of the working alliance.** *Psychotherapy: Theory, Research and Practice* 1979, **16**:252-260.
39. SPSS-Inc.: *Statistical Package for the Social Sciences* 19.0 edn. Chicago, IL, USA: SPSS Inc.; 2010.

Paper III

Paper III was published 12 July 2013 in Comprehensive Psychiatry

Compr Psychiatry. 2013 Jul 12.

pii: S0010-440X(13)00133-8. doi: 10.1016/j.comppsy.2013.05.016. [Epub ahead of print]

Personality traits, interpersonal problems and therapeutic alliance in early schizophrenia spectrum disorders.

Ragnhild Johansen, MSc,^{1, 2} Ingrid Melle, MD, PhD,^{4, 5} Valentina C. Iversen, PhD,^{6, 7} and Knut Hestad, PhD,^{2, 3}

Footnotes:

¹ St. Olav's Hospital, Trondheim University Hospital, Forensic department Brøset Centre for Research and Education in Forensic Psychiatry, 7440 Trondheim, Norway.

² Dept of Psychology, The Norwegian University of Science and Technology, 7491 Trondheim, Norway.

³ Division of Mental Health Care, Innlandet Hospital Trust, 2380 Brumunddal, Norway.

⁴ Dept of Psychiatry, Institute of Clinical Medicine, University of Oslo, 0318 Oslo, Norway.

⁵ K.G.Jebsen Centre for Psychosis Research, Oslo University Hospital, 0407 Oslo, Norway.

⁶ St. Olav's Hospital, Trondheim University Hospital, 7006 Trondheim, Norway.

⁷ Department of Neuroscience, Faculty of Medicine, The Norwegian University of Science and Technology, 7491 Trondheim, Norway.

Corresponding author/requests for reprints:

Ragnhild Johansen, St. Olav's Hospital, Trondheim University Hospital, Department Brøset, P. Box 3008 Lade, N-7441 Trondheim, Norway. E-mail address: ragnhild.johansen@stolav.no Telephone number: +47 72 82 36 46 (office phone). Fax number: +47 72 82 37 03.

Abstract

Background: The quality of the therapeutic alliance is associated with engagement in- and thus important with the outcome of- treatment in schizophrenia. In non-psychotic disorders, general personality traits and individual patterns of interpersonal problems have been linked to the formation and quality of the therapeutic alliance. The role of these factors in relation to therapeutic alliance has not previously been explored in schizophrenia spectrum disorders.

Aim: To investigate associations between personality traits, interpersonal problems and the quality of the therapeutic alliance in early schizophrenia spectrum disorders.

Methods: Demographic and clinical characteristics including Positive and Negative Syndrome Scale (PANSS) scores were assessed in 42 patients. Personality traits and interpersonal problems were assessed with the NEO Five factor Inventory (NEO-FFI) and the circumplex model of the Inventory of Interpersonal Problems (IIP-64C). Therapeutic alliance was measured with the Working Alliance Inventory – short form (WAI-S).

Results: Patient WAI-S scores were predicted by IIP-64C Submissive/Hostile interpersonal problems, age and PANSS excitative symptoms. Therapist WAI-S scores were predicted by NEO-FFI Agreeableness and the PANSS insight item.

Conclusion: Core traits of personality and dimensions of interpersonal problems are associated with both patients' and therapists' perceptions of the quality of the working alliance.

Key words: Schizophrenia; alliance; interpersonal; psychosocial treatment; personality.

Introduction

Poor patient engagement in treatment is an obstacle to treatment success in schizophrenia spectrum disorders. Drop-out from treatment represents a major challenge not only to psychopharmacological but also to psychosocial treatments [1, 2]. Poor engagement with treatment in psychotic disorders has been found to be associated with patient related factors, including childhood physical abuse, lack of knowledge of consumer rights, clinical symptoms (PANSS positive and excitative symptoms), specific personality traits (NEO-FFI neuroticism and agreeableness), neurocognitive measures (conceptualization) [3] as well as to the quality of the therapeutic alliance itself [4].

Across patient groups and treatments, the therapeutic alliance is regarded a common therapeutic factor important to successful treatment outcomes [5]. A commonly used formulation of the therapeutic alliance is Bordin's definition of the "Working Alliance" [6] as comprised of the quality of the personal bond between patient and therapist, and the degree of agreement between the two on the tasks and goals of therapy. The therapeutic alliance is also identified as important in schizophrenia both for engagement and outcome of treatment [7-12]. This warrants identification of factors that may influence the quality of the therapeutic alliance [7, 13-16]

Most studies on the therapeutic alliance in schizophrenia spectrum samples have focused on the predictive value of characteristics inherent to the disorder itself, such as psychotic symptoms [9, 17, 18], insight [9, 14, 16, 19] and social disabilities [7, 11, 16]. The most consistent results have been found for insight, in the direction that high insight is positively associated with patient's ratings of a good working alliance, and good social abilities with therapist's ratings of a good working alliance. Linking insight to aspects of metacognition, some argue that the mutual agreement on goals of therapy needed to form a working alliance may depend on the ability to reflect upon one's own thinking and the thinking of others [20].

Alliance research in this patient group has however mainly been conducted as part of research studies on standardized treatment programmes (e.g. cognitive-behavioural therapy (CBT) and cognitive remediation therapy (CRT)) [7, 9, 11, 12, 14, 19, 21]; possibly limiting generalizability to other treatment settings. Until now, studies have also primarily explored the therapeutic alliance in patient samples with long duration of illness and multiple previous hospitalizations; factors that may affect the alliance through negative treatment experiences.

The number of studies in early psychosis is very limited. However, one early psychosis study [22] found that better quality of life, better insight and medication side effects were associated with lower- and good levels of friendship and leisure activities were associated with higher patient's working alliance ratings, together accounting for 22%

of the variance. Another study, investigating group therapy for early psychosis [21] reported that a social support subscale termed “attachment” was predictive of patient rated alliance, explaining 18% of the observed variance. Finally, a study using the Psychotherapy Status Report [8], reported that therapists found it more difficult to engage young patients in cognitive- behavioural therapy (CBT) or supportive therapy than older patients. [23].

Across theoretical models, methods and groups of patients, the interpersonal aspect remains a common element to the different forms of psychotherapy and psychosocial treatments [24]. Relational measures can be direct measures of relational behavior or indirect measures of individual characteristics that influence how a person feels about and relates to others [24, 25]. Core traits of personality and patterns of interpersonal problems are examples of individual characteristics with considerable relational impact. In non-psychotic axis I psychiatric disorders [26] and axis II borderline personality disorder [27], aspects of general personality traits are found to be associated with the formation of the therapeutic alliance. It has also been shown that the degree of interpersonal problems predict the quality of the therapeutic alliance [28-31].

It is documented that basic traits of personality, as defined by the five factor model of Costa and McCrae [32, 33], are applicable and stable also in patients with schizophrenia spectrum disorders [34-38]. There are also consistent reports that patients with schizophrenia score higher on neuroticism and lower on conscientiousness relative to other, non-psychotic patient groups and to healthy control samples, and that a higher level of neuroticism is associated with higher levels of positive psychotic symptoms. There are also reports of low scores on extraversion, agreeableness and openness [38, 39] but with mixed findings regarding the relation of these personality factors and symptomatology [34, 40]. To our knowledge, the role of personality in relation to the therapeutic alliance has not been explored in schizophrenia spectrum disorders. This is of importance, as a recent study of patients in the early treated phases of psychotic disorders found that higher levels of neuroticism and lower levels of agreeableness, together with childhood physical abuse, lack of knowledge concerning consumer rights and the quality of therapeutic alliance, accounted for 31% of the variance in patients’ engagement with treatment services [4].

In a previous report from the current study [41] we found that patient ratings of working alliance, as measured by the Working Alliance Inventory – Short (WAI-S), were predicted by patient age and the level of excitative symptoms as measured by the Positive and Negative Syndrome Scale (PANSS); while therapist ratings were predicted by the level of PANSS insight. No associations were found between any neurocognitive factors and the working alliance.

The aim of the present part of the study is to explore if personality (as measured by the NEO-FFI) and dimensions of interpersonal problems (as measured by the IIP-64C) in

patients in the early treated phase of schizophrenia spectrum disorders are associated with patients' and therapist' experience of the working alliance.

2. Materials and method

2.1 Design and sample

Subjects were included consecutively at the Division of Psychiatry, St. Olav's Hospital, Trondheim University Hospital, Norway (catchment area of approximately 230 000 inhabitants over the age of 18) during the period from December 2006 to November 2011. Both out- and inpatient services were included. Written informed consent was obtained from participants according to the Declaration of Helsinki. The study is an affiliated research project to the ongoing Thematically Organized Psychosis (TOP) study at the University of Oslo, Norway, and was approved by the Regional Committee for Medical Research Ethics and the Norwegian Data Inspectorate.

Inclusion criteria were: age 18 - 65 years, meeting the DSM-IV criteria for a schizophrenia spectrum psychosis (including schizophrenia, schizophreniform disorder, schizoaffective disorder, and delusional disorder) having adequate language abilities to complete the neurocognitive test battery, and having the ability to supply written informed consent. Patients were eligible for inclusion no more than two years following the first time they met the criteria for a schizophrenia spectrum psychosis (as defined above) and no more than one year after first establishing contact with their current therapist. Exclusion criteria were: comorbid cluster A or B personality disorder according to DSM-IV criteria, neurological disorders or mental retardation (IQ less than 70), or a history of moderate/severe head injury.

Both inpatients and outpatients were in general attending therapeutic sessions with their therapist once a week. At the hospital, non-pharmacological treatment for schizophrenia spectrum disorders is routinely given within an eclectic framework of interpersonal cognitive-behavioral theories.

Table 1. Sample description:

			Min	Max
Age (Mean ± SD)		27.5 (± 5.6)	20	51
Education (Mean ± SD)		11.8 (± 1.9)	9	17
Gender N (%)				
	Male	28(66.7)		
	Female	14(33.3)		
Diagnosis N (%)		42 (100)		
	Schizophrenia	36 (85.7)		
	Schizoaffective disorder	3 (7.1)		
	Delusional disorder	3 (7.1)		
Inpatients N (%)		28 (66.7)		
Outpatients N (%)		14 (33.3)		
Number of psychiatric hospitalizations (Mean ± SD)		2.8 ± 3.6		
Medication N (%)				
	Antipsychotic	33 (78.6)		
	Mood stabilizers	4 (9.5)		
	Antidepressive only	1 (2.4)		
	No medication	8 (19.0)		
Substance abuse N (%)		8 (19.0)		
Substance dependence N (%)		6 (14.3)		
Alcohol abuse N (%)		1 (2.4)		
Alcohol dependence N (%)		5 (11.9)		
PANSS (Mean ± SD)	Total score	66.9 ± 15.6	49	115
	POSITIVE (P1, P3, P5, P6, G9, G12)	17.0 ± 5.6	6	33
	DISORGANIZED (P2, N5, N7, G5, G10, G11, G15)	13.1 ± 4.3	7	24
	NEGATIVE (N1, N2, N3, N4, N6, G7, G16)	15.4 ± 6.1	7	28
	DEPRESSIVE/ANXIOUS (G1, G2, G3, G4, G6)	13.4 ± 4.5	5	23
	EXCITATIVE (P4, P7, G8, G14)	5.9 ± 2.2	4	13
	Item G12 insight	2.3 ± 1.3	1	6
WAI-S Patient (Mean ± SD)	Total score	61.6 ± 11.1	31	79
	tasks score	20.4 ± 4.1	8	28
	goals score	20.9 ± 3.8	12	27
	bond score	20.3 ± 4.9	7	28
WAI-S Therapist (Mean ± SD)	Total score	62.4 ± 7.7	38	80
	tasks score	20.4 ± 3.4	12	28
	goals score	20.6 ± 3.0	10	26
	bond score	21.5 ± 2.6	15	26
IIP-64C raw/ipsated scores (Mean ± SD)				
	Dominant/Hostile	1.7 / -0.7 ± 1.2		
	Submissive/Hostile	2.6 / 0.2 ± 1.4		
	Submissive/Friendly	3.1 / 0.6 ± 1.6		
	Dominant/Friendly	2.3 / -0.2 ± 1.4		
NEO-FFI T-scores (Mean ± SD)				
	Neuroticism	60.4 ± 10.1		
	Extraversion	40.0 ± 9.3		
	Openness	42.4 ± 6.8		
	Agreeableness	50.0 ± 10.4		
	Conscientiousness	42.2 ± 8.3		

WAI-S = Working Alliance Inventory, short form; PANSS = Positive and Negative Syndrome Scale; IIP-64C = Inventory of Interpersonal Problems 64 items Circumplex version; NEO-FFI = NEO Five-Factor Inventory; SD = Standard Deviation.

2.2 Clinical assessments

The assessments complied with the protocol for the TOP research study. All diagnoses and assessments were completed by clinical psychologists and psychiatrists trained specifically in administration and scoring of the applied measures. A consensus scoring was then reached through discussion with the first author, who had completed the TOP study group's comprehensive training program which have shown to achieve good potential and actual diagnostic reliability (group kappa of 0.77 both towards gold standard training videos and for blinded expert scorings of randomly selected case vignettes from the actual sample (details available in Ringen et al [42])) and good actual reliability for symptom assessments (Intra Class Coefficient (ICC) in the range 0.73 – 0.82 for the PANSS subscales (details available in Faerden et al [43])). Assessments of diagnoses and symptoms were done blind to working alliance scores, as patients and therapists separately filled in working alliance self-report forms and placed them in closed envelopes the same week or as soon as possible after symptom assessments.

Diagnoses were made by use of the Structured Clinical Interview for Diagnostic and Structural Manual of Mental Disorders (SCID), fourth version (APA, 1995). Symptoms were assessed with the Positive and Negative Symptom Scale (PANSS) (Kay et al, 1987) based on the Structural Clinical Interview for the Positive and Negative Symptom Scale (SCI-PANSS) (Kay et al, 1991) We here use a five factor solution for scoring scale components derived from a first episode sample (Emsley et al, 2003).

The Working Alliance Inventory - Short Version (WAI-S) [44], a 12-item short version of the Working Alliance Inventory (WAI) [45] was applied to assess the therapeutic alliance. The WAI is designed to measure Bordin's [46] concept of the working alliance; the therapeutic bond between client and therapist, as well as their agreement on therapeutic goals and tasks. The WAI-S is a self-report measure with corresponding therapist and patient versions. Twelve statements are rated on a seven point scale representing to what degree each statement is true (1= never, 2= rarely, 3= now and then, 4= sometimes, 5= often, 6= very often, 7= always). Statements number 4 and 10 are formulated as negations and scores therefore reversed. Chronbach's Alpha estimating internal consistency in the range from .69 to .89, confirmed good reliability for WAI-S therapist and patient total scores, as well as therapist and patient sub scores for Tasks, Goals and Bond.

To measure personality traits, the self-report measure NEO-FFI [47] was used. NEO-FFI is a 60 item short version of the NEO PI-R [47] where the respondent is asked to rate statements on a five point scale indicating the degree of agreement with each statement ('strongly disagree', 'disagree', 'neutral', 'agree', 'strongly agree'). The NEO-FFI assess the five basic traits of personality; Neuroticism, Extraversion, Openness, Agreeableness and Conscientiousness. The IIP-64C [48] was used to measure eight dimensions of interpersonal problems. The instrument is a self-report

measure that asks the respondent to indicate to what degree he or she experience a set of 64 different behaviors as difficult (39 items) or done too much (24 items) ('not at all', 'a little', 'moderately', 'quite a lot', 'a lot'). It yields results on eight dimensions of interpersonal problems constituting a circumplex of personality; Domineering (PA), Vindictive (BC), Cold (DE), Socially inhibited (FG), Nonassertive (HI), Exploitable (JK), Overly nurturant (LM) and Intrusive (NO). It has been suggested that these dimensions of interpersonal problems can be represented by two orthogonal dimensions indicating dominance versus submissiveness and friendliness versus hostility (figure 1). This yields four quadrants of interpersonal problems; Submissive/Hostile (Cold (DE) + Socially Avoidant (FG)), Submissive/Friendly (Nonassertive (HI) + Exploitable (JK)), Dominant/Friendly (Overly Nurturant (LM) + Intrusive (NO)) and Dominant/Hostile (Dominant (PA) + Vindictive (BC)) [24, 49, 50]. Methodological studies on the IIP-64C have shown that in addition to the eight dimensions of interpersonal problems, the instrument yields a strong general factor, often termed a "complaint dimension" or "interpersonal distress factor". In previous studies this general factor has been linked to level of symptoms and negative affect [51]. To separate the effect of severity of distress from the relative experience of interpersonal problems statistical ipsation of scores, i.e. indicating scores in terms of their deviation from the individuals mean IIP-64C score is used; the ipsated scores thus indicate to what extent each type of interpersonal problem is experienced as more troublesome to the person relative to other types of interpersonal problems [49]. Due to administrative error five IIP-64 and NEO-FFI forms as well as one patient and two therapists working alliance assessment forms were missing. Missing scores were replaced by mean scores for the total sample in our analyses.

2.3 Statistical analyses

The Statistical Package for the Social Sciences, version 19 [52] was used for statistical analyses. IIP-64C scores were ipsated by subtracting individual IIP-64C total mean score from individual sub scale scores. IIP-64C quadrant scores were computed by summing the relevant two of the original eight-scale scores in separate procedures for raw and ipsated scores. Bivariate analyses including WAI-S scores were performed by use of nonparametric tests (Spearman's correlations and Mann-Whitney U test for two independent samples) because alliance scores were not normally distributed. Other bivariate analyses were performed by use of parametric tests (Pearson's correlations and T-tests). Tests were two-tailed and had a pre-set level of significance of 0.05. Hierarchical linear regression analyses were performed to assess the individual contribution to patients' and therapists' total WAI-S scores of variables that had a significant bivariate association to the WAI-S total scores. In addition to measures of personality and interpersonal problems, patient's age and PANSS excitative symptoms were thus included in the analysis of WAI-S patient total scores. In the same way,

PANSS item G12 Insight was included in the analysis of WAI-S therapist total scores [3]. Model fit was evaluated through examination of residual plots.

3. Results

Patients' scores for this sample differed significantly from the normative sample mean for all NEO-FFI personality traits, with the exception of Agreeableness. Patients scored significantly higher on NEO-FFI Neuroticism, and lower on Extraversion, Openness and Conscientiousness. IIP-64C scores were significantly higher (>1 standard deviation) for all dimensions except Domineering (PA; > 0.9 standard deviation) compared to a Norwegian normal reference sample [53], but at the same level as a Norwegian non-psychotic outpatient sample [51]. Visual inspection of the normal curve displayed on histograms illustrating frequency distribution of scores, revealed normalization of scores through ipsation. Scores were highest for the IIP-64C Submissive/Friendly quadrant followed by the Submissive/Hostile quadrant and the Dominant/Friendly quadrant, with the lowest scores for the Dominant/Hostile quadrant (table 1). Scores in the Dominant/Hostile quadrant were significantly lower than the three other quadrants (versus Dominant/Friendly $t = 2.76$, $p < 0.010$; versus Submissive/Hostile $t = 4.33$, $p < 0.001$; and versus Submissive/Friendly $t = 5.48$, $p < 0.001$) and in the Submissive/Friendly quadrant significantly higher than the three other quadrants (versus Submissive/Hostile $t = -2.05$, $p < 0.05$; versus Dominant/Friendly $t = -3.84$, $p < 0.001$; and versus Dominant/Hostile $t = -7.24$, $p < 0.001$). There were no differences in NEO-FFI or IIP-64C scores between men and women or between outpatients and inpatients. Higher patient WAI-S total scores were statistically significantly associated with lower levels of NEO-FFI Neuroticism and higher levels of Agreeableness, as well as lower levels of interpersonal problems in the IIP-64C Submissive/Hostile quadrant in bivariate analyses. There was a trend level association ($p = .054$) between NEO-FFI Agreeableness scores and therapist WAI-S total scores but no associations between any IIP-64C interpersonal problem scores and WAI-S therapist scores. For associations between personality variables and WAI-S sub scores, see table 2.

Table 2. Bivariate correlations (Spearman’s correlations (rho) between WAI-S patient/therapist total- and sub scores, NEO-FFI personality traits and IIP-64C interpersonal problems.

	WAI-S patient Spearman’s rho				WAI-S therapist Spearman’s rho			
	Total	Tasks	Goals	Bond	Total	Tasks	Goals	Bond
NEO-FFI (T-scores)								
Neuroticism	-.325*	-.243	-.312*	-.277	.024	.027	.202	-.115
Extraversion	-.197	.234	.043	.236	.103	.111	.009	.105
Openness	.093	.201	.070	.017	-.109	-.153	-.219	.061
Agreeableness	.317*	.246	.230	.421**	.300	.332*	.146	.265
Conscientiousness	.254	.146	.265	.177	-.089	-.085	-.121	-.008
IIP-64C (ipsated scores)								
Dominant/Hostile (PA/BC)	-.277	-.104	-.442**	-.208	-.151	-.142	-.119	-.183
Submissive/Hostile (DE/FG)	-.458**	-.337*	-.408**	-.460**	-.232	-.259	-.075	-.227
Submissive/Friendly (HI/JK)	-.090	.040	-.094	-.1138	.068	.031	.171	-.023
Dominant/Friendly(LM/NO)	-.100	-.023	-.299	-.037	.016	.023	.153	-.098

WAI-S = Working Alliance Inventory, short form; NEO-FFI = NEO Five-Factor Inventory; IIP-64C = Inventory of Interpersonal Problems 64 items Circumplex version. *= $p < .05$ **= $p < .01$. Significant correlations in bold.

[Table 2 in here]

Several NEO-FFI and IIP-64C scores were highly statistically significantly correlated and could thus not be fitted in the multiple linear regression analyses at the same time (table 3).

Table 3. Bivariate correlations (Pearson’s r) between NEO-FFI personality traits and IIP-64C interpersonal problems.

	NEO-FFI (T-scores)				
	Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
IIP-64C (ipsated scores)					
Dominant/Hostile (PA/BC)	.612**	-.256	-.018	-.518**	-.373**
Submissive/Hostile (DE/FG)	.729**	-.499**	-.150	-.510**	-.424**
Submissive/Friendly (HI/JK)	.618**	-.233	-.137	-.032	-.369*
Dominant/Friendly(LM/NO)	.561**	-.032	-.046	-.035	-.429**

NEO-FFI = NEO Five-Factor Inventory; IIP-64C = Inventory of Interpersonal Problems 64 items Circumplex version. *= $p < .05$ **= $p < .01$. Significant correlations in bold.

The hierarchical linear regression analyses indicated that a model including patients' age, level of PANSS excitative symptoms and IIP-64C Submissive/Hostile had the best explanation of WAI-S patient total scores. The model accounted for 37% of the observed variance. Hierarchical linear regression analysis with therapist WAI-S total scores as the dependent variable indicated that PANSS insight (item G12) and NEO-FFI Agreeableness accounted for 23% of the observed variance (table 4).

Table 4. Hierarchical linear regression analyses with WAI-S total scores as dependent variable:

	Model summary		Partial effects				
	R ²	F	β	<i>t</i>	<i>p</i>	95% CI	
						Lower	Upper
Patient WAI-S total	0.37	7.3					
<i>Age</i>			0.27	2.03	0.049	0.002	1.076
+ <i>PANSS excitative</i>			-0.25	-1.94	0.060	-2.585	0.054
+ <i>IIP-64 Submissive/Hostile</i>			-0.39	-2.90	0.006	-5.143	-0.911
Therapist WAI-S total	0.23	5.7					
<i>Insight</i> (<i>PANSS item G12</i>)			-0.36	-2.53	0.015	-3.781	-0.424
<i>NEO-FFI Agreeableness</i>			0.25	1.76	0.087	-0.028	0.402

WAI-S = Working Alliance Inventory, short form; NEO-FFI = NEO Five-Factor Inventory; IIP-64C = Inventory of Interpersonal Problems 64 items Circumplex version.

4. Discussion

The main finding of this study was that both core traits of personality and interpersonal personality dimensions were clearly associated with patients' experience of their working alliance with their therapist in bivariate analyses. In multivariate analyses, the Submissive/Hostile quadrant of interpersonal problems, together with patient age and level of excitative symptoms accounted for more than one third of the observed variance in patient rated working alliance.

High scores on the IIP-64C Submissive/Hostile quadrant reflects patients experiencing problems in feeling and expressing emotional and relational closeness, love and affection towards others, difficulties in establishing social relations and making long term commitments and in being sociable with others [48, 49]. To our knowledge, the importance of patients' experience of interpersonal problems for the quality of the working alliance has not been previously shown in schizophrenia spectrum disorders. However, these results are consistent with findings from studies indicating that aspects of personality are associated with capacity for intimacy, levels of aggression and engagement with treatment services in schizophrenia [4, 54, 55], and suggest that personality factors may mediate these relationships. They are also in agreement with results from non-psychotic patient groups, indicating that submissive/hostile interpersonal problems are associated with patient reports of getting less out of their psychotherapy sessions compared to other patients [50]. In non-psychotic samples, poorer therapeutic alliance has also been found to be associated with interpersonal problems in the dominant/hostile domain [31, 56]. This suggests that it could be primarily the hostile elements of interpersonal problems that are associated with a poorer therapeutic alliance.

Knowledge about submissive/hostile interpersonal problems should make therapists particularly attentive towards possible challenges to the working alliance.

It is however important to note that this type of interpersonal problems were not characteristic of the current sample. In fact, scores in the Submissive/Friendly quadrant were significantly higher than for other interpersonal problems. These patients thus mainly experienced interpersonal problems in being assertive towards others, clearly stating needs, feelings and communicating anger because of fear of how others might respond [48]. The analyses however indicated that these interpersonal difficulties did not interfere with individual therapeutic relationships. From studies of non-psychotic samples it has been suggested that friendly/submissive qualities are in fact can be favorable to the process of therapy, such as greater openness to self-exploration and change, as well as more positive patient ratings of the working alliance [31, 56, 57].

Higher levels of NEO-FFI Agreeableness were associated with therapists' experience of the working alliance. The results thus indicate that patients describing themselves as being more empathic, helpful and trusting of others [58], in combination with higher levels of insight was important for the therapists experience. Therapist working alliance scores showed no association with patient experience of interpersonal problems. As NEO-FFI Agreeableness was clearly negatively associated with patient reports of interpersonal problems in both IIP-64C hostile quadrants there is fair reason to advice that therapists pay special attention to patients with core traits of personality characterized by low agreeableness. This is also in line with results from non-psychotic samples [59, 60].

We found a distinct interrelatedness between core personality traits and dimensions of interpersonal problems. Even after controlling for the general distress factor of the IIP-64C through ipsation, all IIP-64C quadrants of interpersonal problems were positively associated with the personality trait of Neuroticism, which reflects difficult and disabling emotionality, and general psychological distress [58]. This contrasts with results from non-psychotic samples, where ipsation has been reported to remove the association between IIP-64C interpersonal problems and Neuroticism [49]. Taken together with the observation that the general levels of both NEO-FFI Neuroticism and IIP-64C interpersonal problems were high in this sample, this difference may reflect the heavy burden of both emotional and relational problems patients in the early treated phases of their disorder are facing.

Generalizability of these results may be limited as the study sample size was moderate. Also subjects were assessed in a naturalistic treatment setting and not part of a standardized treatment program. The cross-sectional design prevents conclusions about causality.

Conclusion

Core traits of personality and dimensions of interpersonal problems are clearly associated with patients' experience of their working alliance with their therapist. Interpersonal problems (Submissive/Hostile qualities), patient's age and degree of excitative symptoms predict a considerable share of the variance in patient rated working alliance. Therapists perceive better working alliances with patients characterized by higher levels of Agreeableness and insight. Results highlight the relevance of addressing and exploring patients' characteristic basic traits of personality and their subjectively experienced interpersonal problems.

References

- [1] Villeneuve K, Potvin S, Lesage A, Nicole L. Meta-analysis of rates of drop-out from psychosocial treatment among persons with schizophrenia spectrum disorder. *Schizophr Res.* 2010;121:266-70.
- [2] Stowkowy J, Addington D, Liu L, Hollowell B, Addington J. Predictors of disengagement from treatment in an early psychosis program. *Schizophr Res.* 2012;136:7-12.
- [3] Johansen R, Hestad K, Iversen VC, Agartz I, Sundet K, Andreassen OA, et al. Cognitive and clinical factors are associated with service engagement in early-phase schizophrenia spectrum disorders. *J Nerv Ment Dis.* 2011;199:176-82.
- [4] Lecomte T, Spidel A, Leclerc C, MacEwan GW, Greaves C, Bentall RP. Predictors and profiles of treatment non-adherence and engagement in services problems in early psychosis. *Schizophr Res.* 2008;102:295-302.
- [5] Martin DJ, Garske JP, Davis MK. Relation of the therapeutic alliance with outcome and other variables: a meta-analytic review. *Journal of consulting and clinical psychology.* 2000;68:438-50.
- [6] Bordin ES. Theory and Research on the Therapeutic Working Alliance: New Directions. . In: Horvath AOG, L. S. , editor. *The Working Alliance, Theory, Research, and Practice*: John Wiley & sons, Inc.; 1994.
- [7] Couture SM, Roberts DL, Penn DL, Cather C, Otto MW, Goff D. Do baseline client characteristics predict the therapeutic alliance in the treatment of schizophrenia? *J Nerv Ment Dis.* 2006;194:10-4.
- [8] Frank AF, Gunderson JG. The role of the therapeutic alliance in the treatment of schizophrenia. Relationship to course and outcome. *Archives of general psychiatry.* 1990;47:228-36.
- [9] Lysaker PH, Davis LW, Buck KD, Outcalt S, Ringer JM. Negative symptoms and poor insight as predictors of the similarity between client and therapist ratings of therapeutic alliance in cognitive behavior therapy for patients with schizophrenia. *J Nerv Ment Dis.* 2011;199:191-5.
- [10] Priebe S, Richardson M, Cooney M, Adedeji O, McCabe R. Does the therapeutic relationship predict outcomes of psychiatric treatment in patients with psychosis? A systematic review. *Psychotherapy and psychosomatics.* 2011;80:70-7.
- [11] Svensson B, Hansson L. Therapeutic alliance in cognitive therapy for schizophrenic and other long-term mentally ill patients: development and relationship to outcome in an in-patient treatment programme. *Acta psychiatrica Scandinavica.* 1999;99:281-7.
- [12] Gottlieb JD, Mueser KT, Rosenberg SD, Xie H, Wolfe RS. Psychotic depression, posttraumatic stress disorder, and engagement in cognitive-behavioral therapy within an outpatient sample of adults with serious mental illness. *Comprehensive psychiatry.* 2011;52:41-9.
- [13] McCabe R, Priebe S. Are therapeutic relationships in psychiatry explained by patients' symptoms? Factors influencing patient ratings. *European psychiatry : the journal of the Association of European Psychiatrists.* 2003;18:220-5.

- [14] Wittorf A, Jakobi U, Bechdorf A, Muller B, Sartory G, Wagner M, et al. The influence of baseline symptoms and insight on the therapeutic alliance early in the treatment of schizophrenia. *European psychiatry : the journal of the Association of European Psychiatrists*. 2009;24:259-67.
- [15] Davis LW, Lysaker PH. Neurocognitive correlates of therapeutic alliance in schizophrenia. *J Nerv Ment Dis*. 2004;192:508-10.
- [16] Barrowclough C, Meier P, Beardmore R, Emsley R. Predicting therapeutic alliance in clients with psychosis and substance misuse. *J Nerv Ment Dis*. 2010;198:373-7.
- [17] Barrowclough C, Haddock G, Lobban F, Jones S, Siddle R, Roberts C, et al. Group cognitive-behavioural therapy for schizophrenia. Randomised controlled trial. *The British journal of psychiatry : the journal of mental science*. 2006;189:527-32.
- [18] Catty J, White S, Koletsi M, Becker T, Fioritti A, Kalkan R, et al. Therapeutic relationships in vocational rehabilitation: predicting good relationships for people with psychosis. *Psychiatry research*. 2011;187:68-73.
- [19] Huddy V, Reeder C, Kontis D, Wykes T, Stahl D. The effect of working alliance on adherence and outcome in cognitive remediation therapy. *J Nerv Ment Dis*. 2012;200:614-9.
- [20] Lysaker PH, Dimaggio G, Buck KD, Callaway SS, Salvatore G, Carcione A, et al. Poor insight in schizophrenia: links between different forms of metacognition with awareness of symptoms, treatment need, and consequences of illness. *Comprehensive psychiatry*. 2011;52:253-60.
- [21] Lecomte T, Laferriere-Simard M-C, Leclerc C. What does the alliance predict in group interventions for early psychosis? *Journal of Contemporary Psychotherapy*. 2012;42:pp.
- [22] Bourdeau G, Theroux L, Lecomte T. Predictors of therapeutic alliance in early psychosis. *Early intervention in psychiatry*. 2009;3:300-3.
- [23] Haddock G, Lewis S, Bentall R, Dunn G, Drake R, Tarrier N. Influence of age on outcome of psychological treatments in first-episode psychosis. *The British journal of psychiatry : the journal of mental science*. 2006;188:250-4.
- [24] Gurtman MB. Relational measures in psychotherapy research on process and outcome: A commentary on the studies. *Journal of personality assessment*. 2004;83:248-55.
- [25] Hansen CF, Torgalsboen AK, Rossberg JI, Andreassen OA, Bell MD, Melle I. Object relations and reality testing in schizophrenia, bipolar disorders, and healthy controls: differences in profiles and clinical correlates. *Comprehensive psychiatry*. 2012;53:1200-7.
- [26] Zinbarg RE, Uliaszek AA, Adler JM. The role of personality in psychotherapy for anxiety and depression. *Journal of personality*. 2008;76:1649-88.
- [27] Hirsh JB, Quilty LC, Bagby RM, McMain SF. The Relationship Between Agreeableness and the Development of the Working Alliance in Patients with Borderline Personality Disorder. *Journal of personality disorders*. 2012.
- [28] Howard I, Turner R, Olkin R, Mohr DC. Therapeutic alliance mediates the relationship between interpersonal problems and depression outcome in a cohort of multiple sclerosis patients. *Journal of clinical psychology*. 2006;62:1197-204.
- [29] Saunders SM. Pretreatment correlates of the therapeutic bond. *Journal of clinical psychology*. 2001;57:1339-52.

- [30] Paivio SC, Bahr LM. Interpersonal problems, working alliance, and outcome in short-term experiential therapy. *Psychotherapy Research*. 1998;8:392-407.
- [31] Muran JC, Segal ZV, Samstag LW, Crawford CE. Patient pretreatment interpersonal problems and therapeutic alliance in short-term cognitive therapy. *Journal of consulting and clinical psychology*. 1994;62:185-90.
- [32] Costa PT, Jr., McCrae RR. Stability and change in personality assessment: the revised NEO Personality Inventory in the year 2000. *Journal of personality assessment*. 1997;68:86-94.
- [33] McCrae RR, Costa PT, Jr. Personality trait structure as a human universal. *Am Psychol*. 1997;52:509-16.
- [34] Lysaker PH, Wilt MA, Plascak-Hallberg CD, Brenner CA, Clements CA. Personality dimensions in schizophrenia: associations with symptoms and coping. *J Nerv Ment Dis*. 2003;191:80-6.
- [35] Kentros M, Smith TE, Hull J, McKee M, Terkelsen K, Capalbo C. Stability of personality traits in schizophrenia and schizoaffective disorder: a pilot project. *J Nerv Ment Dis*. 1997;185:549-55.
- [36] Bagby RM, Bindseil KD, Schuller DR, Rector NA, Young LT, Cooke RG, et al. Relationship between the five-factor model of personality and unipolar, bipolar and schizophrenic patients. *Psychiatry research*. 1997;70:83-94.
- [37] Gurrera RJ, Nestor PG, O'Donnell BF. Personality traits in schizophrenia: comparison with a community sample. *J Nerv Ment Dis*. 2000;188:31-5.
- [38] Reno RM. Personality characterizations of outpatients with schizophrenia, schizophrenia with substance abuse, and primary substance abuse. *J Nerv Ment Dis*. 2004;192:672-81.
- [39] Camisa K, Bockbrader M, Lysaker P, Rae L, Brenner C, O'Donnell B. Personality traits in schizophrenia and related personality disorders. *Psychiatry research*. 2005;133:23-33.
- [40] Lysaker PH, Bell MD, Kaplan E, Greig TC, Bryson GJ. Personality and psychopathology in schizophrenia: the association between personality traits and symptoms. *Psychiatry*. 1999;62:36-48.
- [41] Johansen R, Iversen V.C., Melle I., Hestad K. Therapeutic alliance in early schizophrenia spectrum disorders: a cross sectional study. Submitted 2013.
- [42] Ringen PA, Melle I, Birkenaes AB, Engh JA, Faerden A, Jonsdottir H, et al. Illicit drug use in patients with psychotic disorders compared with that in the general population: a cross-sectional study. *Acta psychiatrica Scandinavica*. 2008;117:133-8.
- [43] Faerden A, Finset A, Friis S, Agartz I, Barrett EA, Nesvag R, et al. Apathy in first episode psychosis patients: one year follow up. *Schizophr Res*. 2010;116:20-6.
- [44] Tracey TJ, Kokotovic AM. Factor structure of the Working Alliance Inventory. *Psychological Assessment: A Journal of Consulting and Clinical Psychology*. 1989;1:207-10.
- [45] Horvath AO, Greenberg L. Development and validation of The Working Alliance Inventory. *Journal of Counseling Psychology*. 1989;36:223-33.
- [46] Bordin ES. The generalizability of the psychoanalytic concept of the working alliance. *Psychotherapy: Theory, Research and Practice*. 1979;16:252-60.
- [47] Costa PTM, R. R. . Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI). Professional Manual.: Psychological Assessment Resources, Inc.; 1992.

- [48] Alden LE, Wiggins JS, Pincus AL. Construction of circumplex scales for the Inventory of Interpersonal Problems. *Journal of personality assessment*. 1990;55:521-36.
- [49] Nysaeter TE, Langvik E, Berthelsen M, Nordvik H. Interpersonal problems and personality traits: The relation between IIP-64C and NEO-FFI. *Nord Psychol*. 2009;61:82-93.
- [50] Gurtman MB. Interpersonal problems and the psychotherapy context: The construct validity of the inventory of interpersonal problems. *Psychol Assessment*. 1996;8:241-55.
- [51] Monsen JTH, K. A.; Eilertsen, D. E.; Havik, O. E. Circumplex Structure and Personality Disorder Correlates of the Interpersonal Problems Model (IIP-C): Construct Validity and Clinical Implications. *Psychol Assessment*. 2006;18:165-73.
- [52] SPSS-Inc. *Statistical Package for the Social Sciences 19.0 ed.* Chicago, IL, USA: SPSS Inc.; 2010.
- [53] Pedersen G. *Assessment of self-reported symptoms and interpersonal problems: Psychometric considerations and validity of clinical use.* : Warnborough University, London.; 2001.
- [54] Lysaker PH, Davis LW. Social function in schizophrenia and schizoaffective disorder: associations with personality, symptoms and neurocognition. *Health and quality of life outcomes*. 2004;2:15.
- [55] Bo S, Abu-Akel A, Kongerslev M, Haahr UH, Simonsen E. The role of co-morbid personality pathology in predicting self-reported aggression in patients with schizophrenia. *Comprehensive psychiatry*. 2013.
- [56] Renner F, Jarrett RB, Vittengl JR, Barrett MS, Clark LA, Thase ME. Interpersonal problems as predictors of therapeutic alliance and symptom improvement in cognitive therapy for depression. *Journal of affective disorders*. 2012;138:458-67.
- [57] Orlinsky DEG, K.; Parks, B.K. Process and outcome in psychotherapy: Noch einmal. In: Bergin AEG, S.L., editor. *Handbook of psychotherapy and behavior change*. 4th ed. Oxford, England: John Wiley & Sons; 1994. p. 270-376.
- [58] Costa PTW, T.A. Introduction: Personality disorders and the five-factor model of personality. . In: Costa PTW, T.A., editor. *Personality disorders and the five-factor model of personality 2nd ed.* Washington, DC, US: American Psychological Association; 2002. p. 3-14.
- [59] Hirsh JB, Quilty LC, Bagby RM, McMain SF. The relationship between agreeableness and the development of the working alliance in patients with borderline personality disorder. *Journal of personality disorders*. 2012;26:616-27.
- [60] Coleman D. Client Personality, Working Alliance and Outcome: A Pilot Study. *Social Work in Mental Health*. 2006;4:pp.