Object Relations, Reality Testing and Social Withdrawal in Schizophrenia and Bipolar Disorder

A cross sectional study of psychological processes and social behavior in persons with psychotic disorders

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List of Papers

Paper I

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Paper II

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Abbreviations

Schizophrenia	Schizophrenia, schizophreniform disorder and schizoaffective disorder
Bipolar disorder	Bipolar I and bipolar II disorders
DSM	Diagnostic and Statistical Manual of Mental Disorders
SCID	The Structured Clinical Interview for the DSM-IV Axis I Disorders
ICD-10	International Classification of Diseases
PANSS	Positive and Negative Syndrome Scale
BORRTI	Object Relations and Reality Testing Inventory
PANSS Components	Five Factor Model of the PANSS
History of psychosis	Current and previous psychotic episodes

1. Introduction

The last few decades, research within schizophrenia and bipolar disorder has been dominated by a biological focus. Focus has especially been on possible genetic variants and components involved, including the associations to behavioral features (Lindholm et al., 2012). This biological approach has gained a significant amount of new knowledge, and has been an important contribution to the understanding of the development and course of illness. However, *"… human behavior is not necessarily best or most completely understood by tracing their behavior to fundamental biological processes… the personality remains an important influence on its expression…"* (Bell, Greig, Bryson, & Kaplan, 2001). Thus, the investigation of persons with severe mental disorders should include their psychological functioning, in order to understand the complex composition that lies behind every person's expressed behavior. This is the overall aim of this thesis.

Object relation is a theoretical-derived concept comprising aspects of interpersonal functioning (Klein, 1948). Object relations theory states that internalized self-other representations are formed from the early life, between the inner experience of one self and the other (the object). Thus, it is important for later social interaction and function in daily life. Dysfunctions in object relations have been found in patients with schizophrenia (Bell & Bruscato, 2002; Bell, 2004; Greig, Bell, Kaplan, & Bryson, 2000a; Westen, 1991b), in addition to impairments in reality testing. Reality testing comprises the ability to accurately perceive and interpret external and internal reality. This is often a challenge for persons with psychotic symptoms. However, few studies have investigated and found associations between object relations and reality testing, and social withdrawal in persons with schizophrenia (Bell et al., 2001).

Social withdrawal is a common behavioral feature in patients with schizophrenia. These patients may struggle not only with symptoms of delusional thoughts and hallucinatory experiences such as hearing voices, but many also have difficulties in psychosocial functioning and withdraw

themselves from interpersonal relationships (Addington, Young J, & Addington D, 2003; Levy & Manove, 2011; Simonsen et al., 2010). Social withdrawal is one of the first signs of illness in the prodromal phase (Iyer et al., 2008) and can be linked to the core symptoms of the disease. Despite this, knowledge about the psychological features that underlie social withdrawal in persons with psychotic disorders is limited. The aim of this thesis is to investigate the relationship between object relations functioning, reality testing and social withdrawal in persons with schizophrenia and bipolar disorder.

1.1.   Background

1.1.1. Psychosis

Psychosis has many definitions, but is limited to symptoms of thought distortion (delusions) and perception disturbances (prominent hallucinations), disorganized speech, disorganized or catatonic behavior, as described in the diagnostic system of DSM-IV (American Psychiatric Association, 1994a) and the WHO-ICD-10 (WHO Collaborating Centre, 2012). Symptoms of psychosis occur in several of the diagnostic categories in the DMS-IV system, although they are not necessarily part of the main criterion. The presence of psychotic symptoms are required in the diagnoses of schizophrenia, schizoaffective-, delusional-, brief psychotic- and psychotic disorder not otherwise specified (NOS). While they may also occur in both unipolar and bipolar disorder (predominantly affective states), they are not part of the diagnostic criteria for these categories. Another important feature of psychosis is loss of social and occupational function, which is also a diagnostic criterion for schizophrenia.

The German psychiatrist Emil Kraepelin, originally introduced the categorical system of dividing different psychiatric states into diagnostic categories, in 1919. He proposed a clinical classification system based on differences in symptoms and nature (Kraepelin, 1919). One of the

main categories with psychotic features; Dementia Preacox, was classified based on cognitive

deterioration and included catatonia, hebephrenia and dementia paranoid. It was categorical

distinguished from manic-depressive insanity and paranoid states (Kraepelin, 1919). Later the focus

changed into one primary and predominantly psychotic condition that was schizophrenia. This was

categorically distinguished from the manic-depressive state, that also presented psychotic

symptoms, but was categorized as being a predominantly affective state with a more episodic nature

(Angst, 2002).

Theories of schizophrenia have changed over the last century. Originally schizophrenia was

seen as a degenerative disorder with deterioration of the brain (Kraepelin, 1919). Recently,

schizophrenia is viewed as a neurodevelopment disorder (Weinberger, 1987). The

neurodevelopment model has gained ground in the last few decades, and there is continued support

for a broad understanding in both adult and childhood schizophrenia (Rapoport, Giedd, & Gogtay,

2012). The model hypothesizes genetic and environmental factors with respect of timing and

specificity that interfere with normal brain development. It is suggested to be a "..*a collection of

neurodevelopmental disorders that involve alterations in the brain circuits*…" (Insel, 2010). Although

the etiology of the schizophrenia is still unknown, several risk factors have been identified. Attention

has especially been paid to prenatal brain development that may have causal associations with later

onset of illness (Weinberger, 1987). Individual risks factors that have been identified include

prenatal condition e.g. placental pathology (lack of adequate production of substances for the

infant) and low birth weight. Environmental risk factors have also been identified and include;

infection during pregnancy (toxoplasma gondii), urban environment, childhood trauma and being

offspring from ethnic immigrant from selected countries (Rapoport et al., 2012; Torrey, Bartko, &

Yolken, 2012). Heritability around 80% indicates that non-genetic factors also are crucial considering

the wide range in the age of onset. Recent studies reviewing other risk factors indicate that being

born or raised in urban areas, cannabis use, minor physical abnormalities, or having a father 55 years

or older (because of increased genetic errors in sperm production) seems to increase the risk for

schizophrenia (Torrey et al., 2012). Especially relevant for this thesis, is the cohort studies that indicate increasing risk of psychosis in poorer social development; poor peer relationships, social isolation and social anxiety (Olin & Mednick, 1996). However, these factors should be regarded as giving a general underlying risk for psychosis rather than a threshold model (Rapoport, Addington, Frangou, & Psych, 2005).

1.1.2. Schizophrenia

The current thesis included patients with schizophrenia spectrum disorders, i.e. schizophrenia, schizophreniform and schizoaffective disorder. Throughout the manuscript, this is referred to as schizophrenia spectrum disorders or schizophrenia. Other types of diagnoses with psychotic features; psychosis not otherwise specified (NOS), delusional disorder, brief psychosis, major affective disorder with mood incongruent psychotic symptoms were excluded.

Schizophrenia is presently defined based on the diagnostic classification systems of the WHO-ICD-10 and the DSM-IV. The criteria for schizophrenia differs slightly in the two systems, but since the DSM-IV system is the most commonly used within research, these are the diagnostic criteria referred to in this thesis, and the mentioned differences between the two systems will not be discussed further here.

According to the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2005) six general criteria (A-F) have to be met for the schizophrenia diagnosis. The A Criteria requires presence of at least two symptoms in a period of at least six months, with a four-week active-phase symptom period, (or less if successfully treated). The following characteristics are Criteria A Symptoms: Delusions; (distortion of thought; e.g. experiences of thoughts being controlled by an external source; beliefs that someone is watching you or out to get you): Hallucinations; (distortion of perception; e.g. hearing voices, e.g. hearing voices that no one else can hear):

Disorganized speech (e.g. frequent derailment of incoherence): Grossly or catatonic behavior (e.g. motoric immobility): Negative symptoms (e.g. affective flattening, alogia or asociality). If delusions are bizarre in nature or if hallucinations consist of a voice continually commenting the person's thoughts or behavior, or if hearing conversation consisting of two or more voices, only one Criterion A Symptom is required. In addition, a *social/occupational dysfunction*: one of more major areas of functioning such as work, interpersonal relations or self-care must be present markedly below the level achieved prior to the onset of illness and must be present in a significant portion of the time since the onset of illness. The *Duration* is as mentioned at least six months with continuous signs of Criterion A Symptoms (including the four-week active-phase period) and can also include periods of prodromal or residual symptoms (consisting maybe only negative symptoms or Criterion A Symptoms in a more attenuated form). In addition, *Schizoaffective Disorder* and *Mood Disorder with Psychotic Features* must be ruled out, because no Major Depressive, Manic or Mixed episode must occur concurrently with the active-phase, or if mood episodes have occurred during active-phase symptoms, the total duration has been brief compared to the duration of active and residual periods. *Substance and general medical condition* must be excluded, as well as relationship to a *Pervasive Developmental Disorder.*

Different *Longitudinal Course* classifications can be applied after at least one year after onset, and the diagnosis is differentiated into subtypes based on the predominant symptomatology at the time of evaluation: *Paranoid type, Disorganized type,; Catatonic type, Undifferentiated type* and *Residual type.*

The other diagnosis included in the schizophrenia spectrum disorder of this study is *Schizoaffective disorder*. An uninterrupted period of illness during which there is a Major Depressive, a Manic Episode, or a Mixed episode concurrent with Criterion A Symptoms of Schizophrenia, must be present in a substantial portion of the total duration. At the same period of illness, there has been a period of at least two weeks with delusions and hallucinations in absence of the prominent

mood symptoms. There are two specific subtypes of schizoaffective disorder: *Bipolar type* (either

Manic or Major Depressive, or Mixed Episodes, and *Depressive type* (only includes Major Depressive

Episodes), both are included in the current study.

The prevalence among adults is reported within the range of 0.5-1.5% of the population

(American Psychiatric Association, 2005), although this varies geographically. Gender, latitude,

urbanicity and migrations are found to influence the incidence rate (McGrath, Sukanta, Chant, &

Welham, 2008). Although schizophrenia is the most severe form of psychotic disorder, and the

diagnostic criteria are rather strict, the diagnosis actually captures a very heterogeneous group of

patients. The prognosis for schizophrenia patients therefore varies significantly. Some findings

suggest successive relapses for a majority (70%) of patients throughout their lives since the first

episode, including neurocognitive decline and resistance of negative symptoms (Müller, 2004). A

systematic review on follow-up studies found 25 % with only one episode of illness, while other 25 %

have a chronic course throughout life. The remaining 50 % would be somewhere in between these

(Häfner & Heiden, 1999). Other follow-up studies on recovery from schizophrenia indicate full

recovery for a significant amount of patients 25-30% including sustainability over a period of time

(Harding, Brooks, Ashikaga, Strauss, & Breier, 1987b; Harding, Brooks, Ashikaga, Strauss, & Breier,

1987a; Harrison et al., 2001; Torgalsbøen, 2012). However, the concept of the course of illness and

recovery is yet to be fully defined.

1.1.3. Bipolar disorders

Bipolar disorder is subordinated the category of mood disorders and is characterized by

periods of extreme affects; major depression, mania or hypomania, or mixed episodes. The criterion

for major depressive episode require at least five or more of the following symptoms (Appendix 1):

1) depressed mood most of the day, 2) markedly diminished interest or pleasure, 3) significant

weight loss/gain, 4) insomnia, 5) psychomotor agitation or retardation, 6) fatigue of loss of energy

nearly every day, 7) feelings of worthlessness or excessive or inappropriate guilt, 8) diminished

ability to think or concentrate, or indecisiveness, nearly every day, 9) recurrent thoughts of death

(not just fear of dying) or suicidal ideation without a specific plan, or a specific plan, or suicide

attempt. The symptoms must be present for at least two weeks, representing a change from

previous function, and must cause clinically significant distress or occupational/social dysfunction –

or dysfunction in other important areas. A manic episode is a distinct period of abnormally and

persistently elevated expansive or irritable mood for at least a week (or less if successfully treated).

At least three (four if only irritable) out of the following seven possible manic symptoms (Appendix

A): 1) inflated self-esteem or grandiosity, 2) decreased need for sleep, 3) more talkative than usual,

4) flight of ideas or subjective experience that thoughts are racing, 5) distractibility, 6) increase in

goal-directed activity or psychomotor agitation, 7) excessive involvement in pleasurable activities

that have high potential for painful consequences. The symptoms must have been present during

that period to a significant degree causing occupational/social dysfunction, or hospitalization. A

hypomanic episode consists of at least four days of abnormally and persistently elevated irritable or

expansive mood that is clearly different from normal mood. At least three (four if only irritable) of

the manic mood symptoms mentioned above must be present during that period and may be

uncharacteristic of the person. The symptoms must be observable for others, but *not* cause

social/occupational dysfunction as in manic episode. A mixed episode means that criteria are met for

both a manic episode and a major depressive episode (except for duration) nearly every day for at

least one week, and that the symptoms cause marked impairments in social/occupational

functioning or hospitalization to prevent harm for self or others, or there are psychotic features.

The DSM-IV criteria for bipolar I requires at least one manic or mixed episode, which can be

combined with major depression episode. The clinical course is characterized by the occurrence of

one or more manic episodes and often of one or more major depressive episodes or mixed episodes

in between euthymic phases. The current clinical status of the latest episode can be specified by;

mild, moderate and severe episode with or without psychotic features, catatonic features, or

postpartum onset; partial or full remission; chronic course, with or without melancholic features, atypical features; longitudinal course specifies with seasonal pattern or rapid cycling.

The lifetime prevalence of bipolar I disorder varies from 0.4-1.6% of the population (American Psychiatric Association, 1994b). Average age at onset is 20 for both genders and most of the patients having a single manic episode have recurrent episodes (90%). First degree biological relatives have 4-24% elevated rates for bipolar I disorder and twin studies supports the evidence for a strong genetic disposition. About 5-15% have multiple episodes that occur within a given year; this is noted with rapid cycling and is associated with poor prognosis. As many as 60% of the patients with bipolar I disorder experience chronic interpersonal or occupational difficulties between acute episodes.

The DSM-IV criteria for bipolar II include presence or history of one or more major depressive episodes or at least one hypomanic episode, but no manic or mixed episode. The symptoms cause clinical distress or occupational/social dysfunction or in other important areas. Also here, the current clinical status of the latest episode can be specified by; mild, moderate and severe episode with or without psychotic features, catatonic features, or postpartum onset; partial or full remission; chronic course, with or without melancholic features, atypical features; longitudinal course specifies with seasonal pattern or rapid cycling.

Lifetime prevalence for bipolar II disorder across countries is about 0.4-1% (American Psychiatric Association, 1994b). However, a recent study indicates that the prevalence estimates are significantly higher in prospective studies (3-4%) and points to the fact that previous estimates are based on studies that do not distinguish between bipolar I and bipolar II disorders (Merikangas & Lamers, 2012). Bipolar II may be more common in women than in men and there seems to be a gender difference regarding the type and number of episodes. In men the number of hypomanic episodes is equal or higher than the major depressive episodes, while major depressive episodes are predominant in women. A precise elevated risk coefficient is not reported in bipolar II disorder, but

some studies indicate that first degree biological relatives have elevated rates of bipolar II and other

mood disorders compared with the general population. The majority of patients with bipolar

disorder fully regain occupational/social functioning between episodes, but approximately 15%

continue to have difficulties within these areas.

1.1.4. The continuum hypothesis

In the context of the currently ongoing work on the revision of the next edition of the

Diagnostic System Manual DSM (American Psychiatric Association, 1994b), the DSM-V, there has

been an ongoing discussion whether schizophrenia, schizoaffective disorder and bipolar disorders

are categorically different diseases or part of a psychotic continuum. Kraepelin's proposal of the

diagnostic category system (Kraepelin, 1919) may have misled to the common conception that

schizophrenia and bipolar disorder are fundamentally different diseases with different etiology. The

first to question this were Kendell and Gourley (1970), when they did not find a statistical

discrimination between groups of affective psychosis and schizophrenia (Kendell & Gourlay, 1970). A

more recent hypothesis have been proposed (Crow, 1990; Crow, 2008) stating that schizophrenia,

schizoaffective disorders and bipolar disorders should be considered dimensionally rather than

categorically different disorders with overlaps especially in genetic variations. This is supported by

genetic research (Craddock & Owen, 2007; Craddock & Owen, 2010). Recent research has supported

the notion that the two diagnostic groups share a considerable overlap of genetic- and other risk

factors, as well as overlaps of clinical characteristics including both psychotic symptoms and mood

episodes (Jabben, Arts, Van Os, & Krabbendam, 2010). In addition, emotional disturbances, in

particular depression, are prevalent in schizophrenia (Romm et al., 2010) and a significant number of

patients with bipolar disorder also experience psychotic symptoms. It has been shown recently, that

having a lifetime history of psychotic symptoms ("history of psychosis") may play an important role

for aspects of illness severity also in bipolar disorder (Simonsen et al., 2009). Finally, both disorders

are characterized by social dysfunction. This can be present in the very early clinical stages (Addington et al., 2003; Melle et al., 2005), and in clinically stable patients (Simonsen et al., 2010; Vaskinn et al., 2011; Torres et al., 2011). Based on the research indicating considerable overlap in both psychopathological features and social dysfunction, this thesis included patients with bipolar disorder.

1.2.   Psychological processes

1.2.1. Object relations

Interpersonal functioning and social interactions are relevant themes within severe mental diseases. For patients with schizophrenia an observable reduction in the psychosocial level is required in the diagnostic criteria including social withdrawal and impaired social functioning. In patients with schizophrenia and bipolar disorder social functioning are of great interest within research and extensive dysfunction has been found in both patient groups. However, social functioning includes both occupational, personal and daily life function as well as interpersonal relationships. The latter topic has mainly been investigated from a cognitive viewpoint e.g. social cognition. However, this line of research mainly includes investigations of cognitive processes and does not include the person's capacity to establish, maintain and sustain close relationships on the relational level. More specific delineations of these concepts are described below.

1.2.2. Object relations theory

Object relation is originally a psychoanalytical concept that deals with all aspects of interpersonal relatedness and social interaction. Historically, the concept was part of Freud's ego function, which is the term for *"the highest level of human organization for human thought and behavior"* (Bell, 2004). It contains aspects of mental functioning that regulate and mediate between

the experience of reality and the experience of the individual (Marcus, 1999). Being one of several ego functions, object relations administrate a person's inner experience of social processes, and the behavioral experience when interacting with other people. The theory presupposes that development of the ego (or self) function is based on the early social interaction, on which later administration of object relations is based.

Definitions of object relations are divergent mainly because the development of the concept was characterized by disagreements regarding its content and function. This may be due to the psychoanalytical theorists, who disagreed on the definitions, contents and development of object relations. The field was split into two traditions; the European School and the American School. Melanie Klein was the main founder of the European School. Her theory of the complex interpsychological processes included projection and introjections involving primitive defense mechanisms during different positions (e.g. depressive and paranoid-schizoid position) (Klein, 1948). Klein's theory focused on the internalization of the representations of one self and others, on which present social interactions are formed. It is developed from an early and fundamental need for social interaction (an *inter*subjective model) (Klein, 1948; Stern, 1985). According to Klein's theory, the positions were especially vulnerable during a certain time, and disturbances or disruptions in the interpsychological processes would lead to psychiatric diseases of both bipolar disorder and schizophrenia (Klein M, 1940). Anna Freud represented the other view of object relations. She further developed her fathers' work and was "more true" to the original Freudian concept of ego functioning. This theoretical foundation on which the so-called Egopsychology was built, dominated the American School of Psychoanalysis. According to this tradition the need for social interaction had libidinous motives (an *intra*subjective model) (Freud, 1923; Mahler, 1960). Thus, the theoretical understanding of object relations differs as does the definition of the concept.

1.2.3. Object relations definitions

One attempt to define the modern ego psychological concept was recently made by Eric Marcus. According to him, "Object relations" refers to fantasy contents of psychodynamic themes with characters, plot, associated motivations, and fears. Object relation is fantasy and reality representations, current and past, with different mixes at different topographical levels. By "agencies" we usually mean clusters of similar mental functions. Agency appears at two different levels in relation to object relations. First, agency is an organizer of clusters of object relations related to the same functions (the macro level). Second, agency refers to constituents of object relations contents (the micro level)", (Marcus, 1999). In his evaluation, Marcus also points to future challenges and integration of ego psychology with overlapping aspects of both structural theory and neuroscientific mental processes (Marcus, 1999).

Empirical evidence within psychoanalytical theory was lacking for many years despite the predominant position of this tradition within psychological treatment and in the understanding of severe mental illness. However, synthetic thinkers such as Bowlby (1969), Mahler (1979) and Stern (1986) used systematic empirical methods (direct observations of interactions, ethological reports, animal research and neurobiological studies) in the collection of empirical evidence of their syntheses. They documented the importance of early attachment experiences in developing the capacity for interpersonal relatedness. In addition, they found that an appropriate level of stimulation, affection and freedom to explore, is required for adequate development of basic trust and the self-regulation of affects. (Bell, 2004). Further psychological growth is built upon this and adjustment can be made through stages in the life span in the achievement of normal object relations functioning (Bellak, Hurvich, & Gediman, 1973). The development of good levels of object relations can be interfered within several ways, by e.g. childhood trauma (Haviland M, Sonne J, & Woods L, 1995) or medical conditions as brain disease (Damasio, 2012). These ideas are basic elements in the object relation theory regardless of traditional affiliation.

Empirical research in schizophrenia has recently been focusing more on empirically derived concepts than on object relations, such as social cognition, metacognition and Theory of Mind. For instance metacognition, that refers to a general capacity to think about thinking (Lysaker et al., 2009), has overlaps with aspects of object relations in the function of representations of self and others (Lysaker et al., 2010a).

Ego psychology and cognitive psychology are separate traditions both historically and scientifically. Yet, they provide complimentary properties to the understanding of the complex processes of social interaction. More specifically, the two constructs were distinguished by Westen when introducing the Social Cognition and Object Relations Scale SCORS (Westen, 1991b): *"… Both are interested in the way mental representations of the self and other people (whether called object representations or person schemas) are constructed and encoded, in the cognitive and affective processes ... and to some degree, in the way theses psychological processes mediate behavior…"* (Westen, 1991b). Westen also points out three anchor points, where object relations can provide more fulfilling models that social cognition is lacking: 1. The existence of unconscious schemas that may be qualitatively different from schematic contents/representations that are consciously available. 2. A lack of distinction between conscious and unconsciousness,which mainly is a distinction between automaticity or awareness of cognitive issues. 3. A lack of mechanisms to account for defensive process information including interpersonal investments (Westen, 1991b). A more recent proposal was offered in a paper on the two versions of the SCORS (Inslegers et al., 2012): *"… object relations can be understood as affectively colored mental representation of self and others, which originate early in development… Their content, structure, and affective quality are proposed to mediate interpersonal functioning. Social cognition on the other hand, focus on cognitive processes that are understood to influence interpersonal behavior"* (Inslegers et al., 2012). Their mutual relationship was described by Morris D. Bell: *"… a certain amount of social cognition processing skill is necessary to establish and sustain good object relations … but superior social*

cognition may not be sufficient to produce good object relations. Indeed, many people excel at

processing social information in the purpose of serving narcissistic aims" (Bell, 2004).

Empirical measurement of object relations has significantly advanced during the past

decades. Huprich and Greenberg (Huprich & Greenberg, 2003) reviewed the measurements

developed during 1990's including the Bell Object Relations and Reality Testing Inventory (BOORTI).

Among 12 evaluated measurements the BORRTI is emphasized because of good reliability and

validity and its' relative ease of administration. The BORRTI also provides direct assessment of object

relations by self-report which was previously reserved through derivatives (Huprich & Greenberg,

2003). However, the authors raise concerns about the multiple definitions and conceptualizations of

object relations as a primary limitation of this research field.

Since object relations functioning is measured by the Bell Object Relations and Reality

Testing Inventory (BORRTI) (Bell, 1995) in this study, the theoretical framework on which it is build, is

part of the conceptual understanding of object relations in this thesis. The development of the

BORRTI is based on the tradition of the American School of Psychoanalysis and the theory of ego

functioning. The concept of object relations is thus mainly an intra-subjective model and one of

twelve different ego functions. Below, the concept of object relations is further clarified by the

dimensions measured in the BORRTI.

1.2.4. Reality testing

Within the psychoanalytical framework (according to Freud) accurate perception of reality is

one of the major and most important ego functions. The role of reality testing is essential for

adapting to the environment and the origin of reality testing is associated with the development of

ego boundaries (Bell & Billington, 1985). In severe mental diseases the weakened ego boundaries

lead to reality distortions and within this understanding this serves as restitution defenses against

further ego disintegration (Bell & Billington, 1985). In this context, "Reality testing" comprises the

person's ability to accurately perceive external reality, and to distinguish it from internal processes

(i.e. delusions of influence, thought withdrawal and broadcasting, grandiose or depressive beliefs,

doubt about one's perception of reality or the actual presence of hallucinations and delusions that

manifest themselves in the positive symptoms of psychosis) (Bell & Billington, 1985). When

investigating persons with psychotic symptoms it is relevant to include the ego function of reality

testing.

Also this concept is limited and clarified by the assessment of the Bell Object Relations and

Reality Testing Inventory (Bell, 1995) which includes the following three dimensions: Reality

Distortion, Uncertainty of Perception and Hallucinations and Delusions. The dimensions are further

clarified below.

1.2.5. Object relations and reality testing in persons with schizophrenia

As mentioned the previous theoretical approaches within object relations have hypothesized

a close relationship to pathological development – indicating that early disturbances in interpersonal

relatedness may have a causal effect on the development of e.g. schizophrenia. It is important to

point out, that this thesis is not based on such hypothetical insinuations. Rather, the association

between disturbances in object relations and psychotic illness may be explained in other

hypothetical ways. For instance, within the frame work of the neurodevelopment model for

schizophrenia one could imagine that the neurological aspects related to dysfunctions of

schizophrenia, may interfere with normal development, or disrupt a good level of object relations

functioning. However, since schizophrenia is a heterogeneous disorder, object relations also may

vary (Bell, 2004). For instance: for some patients the compromised cognitive processes that are

fundamental for object relations may prevent optimal functioning. For other patients early onset of illness may interfere with the acquisition of experiences in the maturing of object relations. The negative symptoms (alogia or avolition) and positive symptoms (hallucinations and delusions) may disrupt normal social functioning so that the person's potential capacity is not fully developed. Finally, for some patients their object relations functioning is not disturbed at all (Bell, 2004).

Empirical research in object relations is as mentioned, characterized by the challenges of divergent definitions of the theoretical concepts. Within recent schizophrenia research, two measurements are the most frequently used: The Social Cognition and Object Relations Scale (SCORS) (Westen, 1995), and The Bell Object Relations and Reality Testing Inventory (BORRTI) (Bell, 1995). The SCORS integrates aspects of both social cognition and object relations measures. It relies on trained raters considering information from either Thematic Apperception Test narratives or clinical interviews (Inslegers et al., 2012). This instrument is theoretically based on structural theories, while the BORTTI is conceptually based on ego function theory.

Bell Object Relations and Reality Testing Inventory (BORRTI) was originally merged by two inventories: The Bell Reality Testing Inventory (Bell & Billington, 1985) developed in 1985 and the Bell Object Relations Inventory (BORI) (Bell & Billington, 1986) from 1986. The two scales were self-report questionnaires, which was a new way of measuring object relations and reality testing at the time. Systematic empirical measurement of object relations had mainly been made by interpreting Rorschach responses (Urist, 1977), by themes from early memory (Mayman, 1968), or the manifest content of dreams (Krohn & Mayman, 1974). These assessment methods were based on the hypothesis, that object relations functioning can be detected in the projective content of dreams and memories etc. Another alternative for assessing the quality of object relations was by evaluating the way a person conducts herself and the way she experiences herself in relation to others. Based on this, Bellak, Hurwich and Gediman (1973) proposed a multidimensional continuum for rating object relations from clinical interviews in which the respondents described their experiences of

relationships (Bellak et al., 1973). In the inventory, twelve ego functions were evaluated, of which object relations function was one, and reality testing was another. Reality testing was mainly evaluated by the Rorschach test in addition to formal testing and the clinical descriptions of positive symptoms (Bell & Billington, 1985). Inspired by Bellak's interview, Bell and collaborators designed at true/false questionnaire for measuring both object relations and reality testing (Bell & Billington, 1985; Bell & Billington, 1986). As mentioned the two inventories were merged into one the Bell Object Relations and Reality Testing Inventory in 1995 (Bell, 1995). The BORRTI is a self-report inventory based on the person's most recent experiences and is developed especially for use in empirical research. The inclusion of the reality testing dimension makes it especially suitable for research within psychotic disorders. Further information about the inventory is found in the methods section below.

Studies using the BORRTI have found significantly higher levels of impairment in reality testing and object relations among people with schizophrenia compared to healthy controls (Bell, Lysaker, & Milstein, 1992). Patients with schizophrenia appear to have significant deficits in object relations compared to healthy controls (Bell et al., 2001; Bellak et al., 1973) and more disturbances in reality testing compared to other clinical groups (Bell et al., 1992; Bell & Bruscato, 2002; Bell & Zito, 2005). Studies have also found that object relation deficits, as measured by the BORRTI, discriminate better between patients with adolescent- and adult onset of schizophrenia than clinical symptoms and cognitive functioning (Greig, Bell, Kaplan, & Bryson, 2000b). Object relation deficits have also been associated with a higher level of negative symptoms. While people with schizophrenia in general show reduced ability to establish basic trust and achieve satisfying relationships, those with prominent negative symptoms showed less interest in relationships and lack of longing for closeness. (Bell et al., 1992)

The mentioned continuum hypothesis (Craddock & Owen, 2010) and the research showing considerable overlap between the two disorders (Jabben et al., 2010), makes it relevant to

investigate the function of object relations and reality testing in patients with bipolar disorder. One could expect that the bipolar disorder patients also may have object relations deficits, but perhaps to a milder degree than patients with schizophrenia.

In summary, deficits in object relation and reality testing may be common in patients with schizophrenia. However, most of the research within this field includes patients with a relatively chronic course, while less is known about object relations functioning and reality testing in younger patients with a less chronic course. In addition, to my knowledge these functions have not previously been investigated in patients with bipolar disorder.

1.2.6. Measurements of object relations (BORRTI)

The Bell Object Relations and Reality Testing Inventory (BORRTI) limits the concept of object relations into four dimensions measured by the BORRTI (Bell, 1995). These dimensions are theoretically derived and validated by factorial analyses (Bell, 1995). Methodological issues of the instrument are further discussed in the methods section and discussion section. The following four dimensions are:

Alienation: This subscale captures basic trust in relationships and the ability to achieve and sustain stable relationships. It contains fundamental feelings of trust in other people, a sense of belonging and connection with important others. Pathological scores on this subscale often reflect feelings of suspiciousness or hostility, which may lead to experiences of disconnection. In social interaction, this may manifest itself in superficial relationships and withdrawn behavior from intimate relationships. People with such scores may be guarded and isolate themselves. This may be interpreted as a defense against the pain of relating to others by keeping a distance to them. The ability to experience empathy may also be limited.

Insecure Attachment: This subscale identifies the construct of attachment. It comprises the fundamental need for genuine relationships and the ability to tolerate closeness. High scores reflect difficulties with loneliness, separations and loss of close relationships. Pathological concerns of being liked and accepted with feelings of worry, guilt, jealousy and anxiety may lead to maladaptive patterns. However, high scores on this scale do not necessarily directly lead to social dysfunction, but could lead to a sadomasochistic binding.

On the BORRTI Insecure Attachment subscale it is also possible to obtain pathologically lower scores. This is often interpreted as a reflection of being fundamentally less interested in relationships, while higher scores on the other hand may indicate less vulnerability of rejection.

Egocentricity: This subscale captures the ability to assert yourself as an individual in an adjusted and appropriate manner. The variation on this dimension ranges from the underlying trust in other people's motivation towards oneself, to a belief that others exist only in relation to one-self. High scores reflect a tendency to believe that others are to be manipulated for one's own self-centered purposes. This includes underlying feelings that other people want to humiliate you. People with such scores may take a self-protective and exploitive attitude towards relationships. They may be intrusive, demanding and manipulative.

Social Incompetence: This subscale captures shyness, nervousness and insecurity towards how to interact with persons that they are attracted to and difficulties in making friends. High scores reflect the perception of being socially incompetent. This may lead to confusion in relationships and the feelings that these are bewildering and unpredictable. In turn this may lead to anxiety that make them withdraw from social interaction.

1.2.7. Measurements of reality testing (BORRTI)

Reality Distortion – This dimension captures distortion of perception of external reality and internal reality, i.e. difficulties in distinguishing reality from inner fantasy. Distortions may manifest themselves in psychotic symptoms such as delusions of influence (being controlled by an external force), thought withdrawal/broadcasting and paranoid beliefs (being watched, plotted against, condemned or victimized). Reality distortion may also harbor depressive beliefs, excessive guilt or grandiosity (Bell, 1995). There may also be confusion in the persons own feelings and the feelings of others. Furthermore, problems with paranoid projections of impulses, fears and wishes may be present.

Uncertainty of Perception - This dimension captures a person's doubt about the accuracy of his/her perceptions regarding external and internal reality. This includes doubt of his/her own behavior and feelings, as well as the behavior and feelings of others. High scores on this subscale may lead to poor social judgments, experiences of ambivalence and indecisiveness even in small matters. Denial is a principal defense against feelings of anxiety and when confronted with conflict. Despite having large distortions in reality, the person may still remain certain that his/her perceptions are correct, i.e. the person may have poor insight.

Hallucinations and Delusions – This subscale identifies a dimension of ego function involving severe breaks with reality. It captures the presence of hallucinations and delusions and reflects the experience of hearing voices or seeing visions. Also paranoid delusions of various types are included in this dimension of reality testing. Pathological scores on this dimension gives suspicion of psychotic features and should be investigated further.

1.3. Social functioning

1.3.1. Social dysfunction in persons with psychotic disorders

The majority of people with schizophrenia do not attain "normal" milestones in social and occupational functioning. Many people struggle with impairments in cognitive functioning, self-care and independent living. Having reduced social network and being socially isolation is frequently evident already from early onset of illness (Addington et al., 2003). In addition, few people with schizophrenia work. A review from 2004 reports rates between 10 % and 20 % in most European studies (Marwaha & Johnson, 2004). A recent Norwegian study is in line with this and found 13 % of the study population are employed (Tandberg, Sundet, Andreassen, Melle, & Ueland, 2012). Although the lifetime prevalence of schizophrenia is relatively low (around 0.3 – 1 % in most western populations), the expenses for treatment and rehabilitation programs are high. According to the World Health Organization (WHO), both schizophrenia and bipolar disorders are on the top ten list over global burden of diseases worldwide; updated 2004 (World Health Organization, 2008), and in many western countries the costs of schizophrenia is estimated to a little more than 1 % of the gross domestic product. In the USA, applicants and receivers in a group called "Schizophrenia/Paranoid Functional Disorders" accounted for 3.5 % of the whole group of applicants and receivers from the Social Security Administration (Harvey et al., 2012). In Norway, approximately 10 % of all disability pensions are received by persons diagnosed with schizophrenia. The total costs for schizophrenia (treatment and research) was found to be NOK 1.2 billiard per year in one study (35 % of the total costs of mental health care in Norway) (Rund, 1999). One of the reasons for these high expenses despite the relatively low prevalence is the functional impairments that characterize the lives of many of these patients.

Social disability is found to be a persistent phenomenon in schizophrenia and longitudinal studies indicate that its severity does not decrease significantly over the course of illness (Wiesma et al., 2000). The correlates and predictors of poor social functioning have been extensively investigated in schizophrenia (Brissos, Dias, Carita, & Martinez-Aran, 2008; Mueser et al., 2010; Sanches-Moreno et al., 2009; Vaskinn et al., 2011). The positive and negative symptoms are found to be significant contributors to poorer social functioning in early psychosis (Addington et al., 2003; Puig et al., 2008). A retrospective study investigating the impact of neurocognitive functioning and negative symptoms on social functioning indicated, that both the negative symptoms and neurocognitive deficits predicted poorer social functioning. Particularly the negative symptoms were involved in poorer relational functioning in patients with schizophrenia (Milev, Ho, Arndt, & Andreasen, 2005). Social dysfunction in schizophrenia has also been investigated from the perspective of social cognition and specific aspects of metacognition have been identified as possible correlates. Especially inflexible use of knowledge regarding representations (Lysaker et al., 2010a; Lysaker, Erikson, Tunze, Gilmore, & Ringer, 2012) seems to be associated with reduced social engagement, as do disturbances in Theory of Mind (disability to reason about mental states) (Iyer et al., 2008; Lysaker et al., 2009; Lysaker et al., 2010b; Lysaker et al., 2012a). A study that included social withdrawal as a sustaining factor in negative symptoms found the effect of this was mediated by impaired personal narratives in schizophrenia patients (Lysaker et al., 2012).

Research on social dysfunction has mainly focused on patients with schizophrenia, but recently there has been an increased interest also in bipolar disorder patients. Although psychosocial functioning varies enormously within this patient group and some may achieve an extraordinarily high level of functioning, the experience of significant difficulties in managing daily life is a reality for many people with bipolar disorder (Sanches-Moreno et al., 2009). Suggested predictors of poor social functioning in patients with bipolar disorder are younger age at onset, neurocognitive dysfunction, number of previous affective episodes, durations of mood episodes, current depressive symptoms, psychosis, previous hospitalizations, and older age (Sanches-Moreno et al., 2009). This

has also been found in patients during the euthymic phase (Rosa et al., 2011). A few comparison studies between schizophrenia and bipolar disorder have found no significant differences in the levels of psychosocial functioning between the two diagnostic groups (Hellvin et al., 2010; Simonsen et al., 2010).

However, a wide definition of the concept of social functioning and differences in assessment methods makes this research field challenging (Figueira & Brissos S, 2011). Clinical observation and self-report measures do not consistently overlap (Bowie et al., 2008). However, although some researchers have recommended that observation-based reports should be used (Figueira & Brissos S, 2011), the self-report method is very accurate for certain conditions e.g. quality of life (Sabbag et al., 2011). In addition, it has recently been mentioned, that there is a lack of adequate methodology in the collection of reliable data reporting social dysfunction (Stanghellini G & Massimo B, 2011), indicating a need for research of self-reported subjective experienced social function.

Thus, the literature demonstrates that poor social functioning is a complex concept involving many different factors and processes. In addition, it also suggests that different domains of social functioning have different predictors (Puig et al., 2008) (Milev et al., 2005). The aim of this thesis is to explore possible predictors and associations to social withdrawal. Social withdrawal is a common behavior in patients with schizophrenia and there are different ways of understanding this behavior: Primarily, the behavior is considered closely associated to the symptoms of the disease and observation of these symptoms may help clarify the type of social withdrawal the patient is exhibiting. Alternatively, social withdrawal can be considered as separate from the symptomatology. This is based on the individual's own subjective experience of being socially withdrawn from others and having reduced social engagement. In the following, these different forms of social withdrawal will be further distinguished.

1.3.2. Passive Social Withdrawal and Active Social Avoidance

Social withdrawal is a core symptom in schizophrenia causing occupational impairment and social isolation and it is one of the first signs in the prodromal phase (Iyer et al., 2008). Most commonly social withdrawal is considered a part of the negative symptoms. The negative symptom complex in schizophrenia is originally based on the dichotomy of positive (too much) and negative (too little) symptoms. The positive symptoms are characterized by the presence of too many features (hearing voices that others do not hear, having beliefs about being watched without any evidence etc.), and the negative symptoms are characterized by the absence of a range of features that are present among persons with normal functioning. Lack of motivation, joy, extroversion, emotional scope and social interaction are such features, and the negative symptoms are recognized as alogia, anhedonia, affect flattening, apathy, and asociality. Asociality is thus an absence of a normal level of social interaction associated with the other negative features and is mainly based on the lack of social desire. However, social withdrawal can also be understood as a secondary symptom to positive symptoms e.g. an avoidant behavioral response to paranoid fears, suspiciousness or hostility. Both types of withdrawal are defined as the behavioral manifestation of the underlying symptomatology of schizophrenia. These symptoms are evaluated separately in the Positive And Negative Syndrome Scale (PANSS) (Kay, Fizbein, & Opler, 1987), a commonly used assessment scale in psychotic disorders. In the PANSS, Passive Social Withdrawal (N4), which is one item on the negative symptom scale, assesses the behavioral correlates of diminished social interest related to passivity/apathy. Active Social Avoidance (G16), which is an item on the general psychopathology scale of the PANSS, assesses avoidant behavior due to hostility or distrust.

Since social withdrawal in schizophrenia generally is closely linked to the symptoms of the illness such as is measured by the PANSS, focus has not been on their underlying psychological processes. In light of the reduced capacity in interpersonal relatedness among schizophrenia patients, mentioned in the literature above, it is reasonable to assume that disturbances in object

relations functioning and reality testing may be related to social withdrawal in persons with schizophrenia. To our knowledge, exploration of this relationship is limited to only one study.

In a subsequent cluster analysis of the Bell Object Relations and Reality Testing (BORRTI) profiles in a large sample of schizophrenia outpatients (n = 224), Bell and collaborators (Bell et al., 2001) identified 6 reliable BORRTI profiles: Residually impaired (Sealed-Over-Recovery and Integrated Recovery), Socially Withdrawn (Socially Withdrawn and Socially Withdrawn Autistic) and Psychotically Egocentric (Psychotically Egocentric and Psychotically Egocentric Severe). Two of the clusters were characterized by high levels of social withdrawal, one labeled "Socially Withdrawn" and the other "Socially Withdrawn Autistic". Both profiles presented higher scores on the object relations BORRTI subscale *Alienation* (lack of basic trust in relationships) and *Social Incompetence* (experiences of being social inept)*,* but were distinguished by high levels of reality impairment (*Reality Distortion, Uncertainty of Perception* and *Hallucinations and Delusions*) for the "Socially Withdrawn Autistic" cluster. The finding supports the hypothesis that some patients are socially withdrawn because of object relation deficits. Others are also influenced by the severity of their reality testing impairment and may demonstrate the greatest improvement in quality of life as a result of rehabilitation (Bell, 2004). Based on these findings, we hypothesized that the two types of social withdrawal as measured by the PANSS would reveal different patterns of object relations functioning and reality testing. Passive/apathetic Social withdrawal would be related primarily to dysfunction in object relations, while Active Social Avoidance would be linked to deficits in reality testing, reflecting different underlying psychological mechanisms. This was the aim of the first study and was investigated in a sample of 273 schizophrenia patients attending an ongoing research project in Connecticut, USA.

1.3.3. Subjective experience of social withdrawal

The two types of social withdrawal are in the context of the PANSS, assessed based on the individual's report in a structural interview and observations by professionals or family members. This means that the behavior is based on an interpretation of the observer, and thus relies on the observer's ability to evaluate the withdrawn behavior. It does however, not include the person's subjective experience of social withdrawal and limited relational interaction. A person may be observed and considered socially withdrawn, but may not necessarily experience their behavior as such e.g. the person may lack desire for affiliation in interpersonal relationships. Despite the mentioned disagreement regarding the best measurements of social dysfunction (Figueira & Brissos S, 2011; Stanghellini G & Massimo B, 2011), self-report is a widely used method for measuring social functioning in schizophrenia and bipolar disorders.

Thus, based on the mentioned BORRTI cluster study (Bell et al., 2001), a further exploration of the association between social withdrawal and dysfunction in object relations and reality testing in schizophrenia, should be conducted. This should include not only the two different symptom related types of social withdrawal, that are objectively observed in the PANSS, but also the person's subjective experience of having reduced interpersonal engagement. This is the aim of the third paper in this thesis.

Since symptoms are found to be associated with self-reported social dysfunction, we aimed to explore the association between self-reported social withdrawal and the two types of symptom related social withdrawal measured by the PANSS. We assessed the subjective experience of social withdrawal by isolating two subscales on the Social Functioning Scale (SFS): SFS *Withdrawal* and SFS *Interpersonal Behavior,* (Birchwood, Cochrane, Wetton, & Copestake, 1990). This is a widely used measurement for evaluating social functioning in patients with schizophrenia and bipolar disorder. Furthermore, we also aimed to investigate whether these are associated with object relations functioning and reality testing.

2. AIMS

The overall aim of this thesis is to investigate the psychological function of object relations and reality testing in persons with schizophrenia and bipolar disorder and the relationship to social withdrawal.

The first aim of this study was to investigate if there were differences in the object relations functioning and reality testing between passive social withdrawal and active social avoidance. Therefore the associations between object relations and reality testing and the two types of withdrawal were compared in an American sample of 283 outpatients with schizophrenia. (Paper I).

The second aim was to examine and compare the object relation functioning and reality testing in patients with schizophrenia, bipolar disorder and healthy controls. We also wanted to investigate if differences would depend on level of symptoms and history of psychosis. Object relations and reality testing was therefore evaluated on a group of Norwegian patients with schizophrenia, bipolar disorders and healthy controls and compared across groups. We also investigated whether the level of symptoms and history of psychosis could explain group differences. (Paper II).

The third aim of this thesis was to re-exam the differences between object relations functioning and reality testing and Passive Social Withdrawal and Active Social Avoidance in a new sample of patients with schizophrenia. Moreover, we wanted to expand the investigation to include patients with bipolar disorder. Object relations and reality testing were therefore evaluated in a mixed group of the Norwegian patients with schizophrenia and bipolar disorder and the associations to Passive Social Withdrawal, Active Social Avoidance were explored. Finally, we wanted to include the subjective experience of social withdrawal. The contribution of object relations functioning, reality testing, Passive Social Withdrawal and Active Social Avoidance to the patients' subjective experienced of social withdrawal was examined. (Paper III).

3. Methods

3.1.   Design

The present study is naturalistic with a cross sectional design. It is organized as a substudy in the larger Thematically Organized Psychosis research (TOP) study. Data from the TOP study was used in two of the three studies (paper II and III) in this thesis. Data for the first study (paper I) was drawn from an existing database of a research program of the Veterans Affairs Connecticut Healthcare System and the Connecticut Mental Health Center, USA (1995-2002). The reader is referred to paper I for more detailed description of the American study.

The TOP study is an ongoing translational research study in Oslo, Norway aiming at investigating a range of issues associated to psychotic disorders from biological characteristics to clinical mechanisms. The TOP study is affiliated to the University of Oslo and University Hospitals in the Oslo area and participants are enrolled from mental health services including both in- and outpatients-units. The Norwegian health care has a system where patients are admitted by catchment area, i.e. all people are offered mental health care when needed within a given catchment area. This system allows for a high degree of patient representativity. The healthy controls used in paper II were randomly drawn from the population registers for the same catchments areas in Oslo as the patients and were contacted by letter with the request to participate. A screening process was conducted beforehand with an interview concerning severe mental illness, substance abuse and the Primary Care Evaluation of Mental Disorders (Spitzer et al., 1994). The TOP study has been approved by the Regional Committee for Medical Research Ethics and the Norwegian Data Inspectorate.

3.1.1. Procedure

Data from the American participants (paper I) was collected between 1995 and 1999 and between 1999 and 2002 as part of a vocational rehabilitation study program. Informed written consent was based upon procedures approved by the IRB at the VA Connecticut Healthcare System and participants completed The BORRTI and the PANSS as part of the intake measures.

Data for the TOP project was collected from clinical patients (n = 106) and healthy controls (n = 158) participating in the Thematically Organized Psychosis research (TOP) study in Oslo, Norway. The clinical participants were referred to the TOP study on the suspicions of severe mental illness, mainly schizophrenia and bipolar disorders from their treatment units. Clinical and neuropsychological data were collected along with structural and functional MRI and genetic information. Trained psychologists and psychiatrists carried out the clinical interviews under supervision of experienced psychiatrists specialized in diagnostics. Psychologists under supervision of specialized neuropsychologists conducted the neurocognitive assessments. Evaluation of symptoms (the PANSS) and information about object relations and reality testing (the BORRTI) was collected either at baseline or at six months follow-up. The PANSS and the BORRTI were administered concurrently. If this was not possible, they were administered within maximum one week of one another.

Healthy controls from the same catchments areas as those of the treatment units were invited to participate in the TOP project by letter. The people who then responded received a phone call with questions regarding exclusion criteria. Assessments of object relations and reality testing (BORRTI) were carried out when the healthy controls were administered the neurocognitive assessments. For some participants this procedure was not carried out. They received the BORRTI questionnaire by letter and returned their replies by letter. Since this thesis was part of the Norwegian TOP study, I participated in the collection of data for paper II and III by carrying out

neurocognitive testing, clinical interviews and symptom evaluation of about a third of the patients in this study.

3.2.   Participants

3.2.1. The American cohort

The American cohort consists of two hundred and seventy three outpatient participants from the mental health service of the VA Connecticut Healthcare System or the Connecticut Mental Health Center. They completed intake measures as part of a vocational rehabilitation study program. Data was collected from 122 outpatients enrolled between 1995 and 1999 and from 151 outpatients enrolled between 1999 and 2002. The study is affiliated to The Yale University, School of Medicine and the VA Connecticut Healthcare System and Connecticut Mental Health Care Center, US. In addition to personality, symptoms, and insight measures, all participants were administered the BORRTI, (Bell, 1995) and the PANSS; (Key, Fizbein, & Opler, 1987) within the same period. All participants were diagnosed with schizophrenia or schizoaffective disorder and met the following criteria: no documented neurological disorder or development disability; GAF score over 30; no change in medication in the last 30 days. Eighty-seven percent (87 %) of the participants were male, 63 % were white, 32 % were African American and 4 % were Hispanic. Mean age at inclusion was 43.1 years, mean education was 13.0 years, mean age of illness onset was 22.6 years and mean duration of lifetime hospitalizations was 9.7 years.

3.2.2. The Norwegian cohort

The Norwegian cohort consists of 106 patients and 158 healthy controls (paper II). The patients (schizophrenia n = 55), (bipolar disorders n =51) were recruited to the study through their participation in the ongoing Thematically Organized Psychosis (TOP) Study, from in- and outpatient

units of the University Hospital of Oslo, Norway. The overall inclusion criteria for the TOP study were: age between 18 and 65 years, diagnosis within the psychosis spectrum disorders (DSM-IV); schizophrenia, schizophreniform, schizoaffective disorder, psychosis not otherwise specified (NOS), delusional disorder, brief psychosis, major affective disorder with mood incongruent psychotic symptoms and bipolar disorder. Patients with neurological disorder, history of head injury, IQ<70, were excluded. In addition participants were required to comprehend Norwegian language at an acceptable level. Further inclusion criteria for the present study were, diagnosis within the schizophrenia spectrum disorders (schizophrenia and schizoaffective) and bipolar disorder (bipolar I and bipolar II).

Healthy controls (n = 158) were contacted by letter with the request to participate and were randomly drawn from the population registers for the same catchments areas in Oslo as the patients. A screening process was conducted beforehand with an interview about severe mental illness, substance abuse and the Primary Care Evaluation of Mental Disorders (Spitzer et al., 1994). Trained psychologists and masters of neurosciences conducted the screening. The exclusion criteria's were mental retardation (IQ<70), a history of head injury or difficulty speaking and understanding the Norwegian language. In addition, participants were excluded if they or any first-degree relative had a lifetime history of severe mental disorders, or if they had ongoing substance abuse in the last 6 months.

3.3.   Measurements

3.3.1. Assessments of diagnosis

The diagnoses of the American cohort were based on the Structured Clinical Interview for DSM-III-R or DSM-IV (American Psychiatric Association, 1994b). Trained clinicians interviewed the participants. In the Norwegian cohort, diagnostic evaluations were based on the Structured Clinical

Interview for DSM-IV (First, Spitzer, Gibbon, & Williams, 1997). Trained psychiatrists and clinical psychologists, who had completed training course in SCID assessment and were regularly supervised on consensus meetings to assure high inter-rater reliability, carried out interviews. Diagnostic agreement was found satisfactory and the mean overall kappa based on the training program at UCLA (Ventura J, Libermann RB, Green MF, Shaner A, & Mintz J, 1998) was 0.77 (95% CI 0.60-0.94). In paper II a separate variable for measuring the diagnosis of both schizophrenia and bipolar disorder was created in order to investigate their relationship to each of the BORRTI subscales.

3.3.2. Assessments of object relations and reality testing

The Bell Object Relations and Reality Testing Inventory (BORRTI) (Bell, 1995) is a self-report inventory consisting of 90 descriptive true or false statements answered according to the respondent's most recent experience. 45 items are measuring object relations and 45 measures reality testing – divided into the seven dimensions. Scoring yields the four factor-analytically derived object relations subscales – *Alienation, Insecure Attachment, Egocentricity and Social Incompetence* – and the three reality testing subscales – *Reality Distortion, Uncertainty of Perception* and *Hallucinations and Delusions*. Development of the inventory and definitions of the seven subscales are thoroughly described in the introduction above.

The inventory can be used to separately measure object relations part of the BORRTI (Form O) if investigating this function in non-psychotic persons (See Appendix). On the BORRTI, lower scores as well as higher scores can represent pathological features depending on the scale. For most scales higher scores indicates more pathology, but for *Insecure Attachment* and *Uncertainty of Perception* lower scores are considered pathological in persons with mental disorders. A low score on *Insecure Attachment* indicates insensitivity and indifference to relationships, - and a low score on *Uncertainty of Perception* in someone with schizophrenia is strongly associated with poor insight. Psychometric studies of the BORRTI demonstrates good reliability and validity (Bell, 1995). A recent

study on validity of self-report in schizophrenia patients with poor insight and the BORRTI, showed limitations on the ability of these patients to accurately report on the accuracy of the perceptions, but otherwise there were external support for the validity of the BORRTI subscales (Bell, Fiszdon, Richardson, Lysaker PH, & Bryson G, 2007).

The BORRTI has shown good psychometric properties. The reliability of the instrument was evaluated by calculations of internal consistency, split-half reliability, test-retest reliability and stability of classifications. Internal consistency for each of the seven subscales (n = 336) was satisfactory (Cronbach's Alpha was within the range of 0.79-0.90 and Spearman Split-Half between 0.77-0.90). The test-retest calculations (that evaluates the degree to which a respondent's score remains stable over time) was assessed over 4, 13 and 26 weeks time and showed not too high or too low test-retest correlations for each scale. Because of the assessment was conducted in clinical groups undergoing treatment, and that the instruction to describe "your most recent experience" may change the mental state of the respondent, fluctuation in the correlations may occur, which it did. Good reliability of classifications was found as the same deficits were found after re-evaluation at 6 months in a schizophrenia sample.

Validity of the clinical constructs that the BORRTI is measuring is much more difficult to determine than the instrument reliability. The instrument must be used a number of times and across a variety of respondents and settings to establish this. However, the construct validity of the BORRTI has included three components: theoretical-substantive, structural and external validity. The theoretical-substantive and structural validity was obtained in the development process and found satisfactory as far as it can be established. The external validity was evaluated by the convergence of experience derived from using the instrument in a variety of settings and studies. This indicates the BORRTI's importance as a measure of individual differences and denotes the robustness of the underlying construct. (Bell, 1995). The ability of the BORRTI to discriminate among well-defined diagnostic groups was evaluated by comparing the group-mean of their BORRTI scores in several

studies, - and was found satisfactory. Also the relationship to other personality and clinical

measurements (Brief Psychiatric Rating Scale (BRPS) (Overall & Gorham, 1962), The Global

Assessment Scale (GAS) (Endicott, Spitzer, Fleiss, & Cohen, 1976) and the Positive And Negative

Syndrome Scale (PANSS) (Kay et al., 1987) showed good convergent and divergent validity (Bell,

2004). This was confirmed in a review of the BORRTI that concluded that it is a reliable and valid

assessment of object relations and reality testing (Alpher, 1990).

In order to investigate object relations and reality testing functioning in the Norwegian

cohort of this study, the BORRTI was translated into Norwegian. The translation was validated using

the back-translation method (Brislin, 1970) and the Norwegian version of the BORRTI was translated

back to English by a bilingual psychologist, and approved by the author of the original inventory. The

Norwegian translation of the BORRTI showed good psychometric properties. The Cronbach's alpha

seems satisfactory for both the Norwegian and US BORRTI subscales and when compared they had

high inter-correlations Furthermore, the Norwegian translation of the BORRTI showed good

discriminant validity, as significant group differences were found between the two diagnostic groups

and healthy controls included in the study on almost all the subscales (Hansen, Torgalsbøen, Bell, &

Melle, 2012).

3.3.3. Assessments of Passive Social Withdrawal and Active Social Avoidance

In order to assess observed social withdrawal we used The Positive and Negative Symptom Scale

(PANSS); (Key et al., 1987), a 30 item rating scale comprising a wide range of positive, negative and

general psychopathological symptoms. It is scored after a semi-structured interview and rated from

1 (not present) to 7 (extremely severe) using behavioral anchors based upon the last seven days. In

paper I and III we isolated two items on the Positive And Negative Syndrome Scale (PANSS), (Kay et

al., 1987); N4 (Passive/Apathetic Social Withdrawal) on the negative symptom scale, and G16 (Active Social Avoidance) on the general psychopathology scale.

The differences between the two items have been found in most factor analyses of the PANSS. Without exception the N4 loads on the negative components, the G16 Active Social Avoidance has found to load on several factors, a depression-anxiety factor (Bell, Lysaker, Beam-Goulet, & Milstein, 1994), negative, excitement, emotional distress and positive factor (van der Gaag et al., 2006) and not on any factor at all (White, Harvey, Opler, & Lindenmayer, 1997).

The validity of PANSS scores on the item level was recently evaluated by Santor et al. (2007) using item response theory (IRT). This explores the performance of each item on the PANSS regarding their effectiveness to discriminate among individual differences in symptom severity and the appropriateness of cutoff scores. Each item went through an analysis of response within an acceptable region on option characteristic curves. The regions are created based on an overall total score of the sample and both the N4 Passive Social Withdrawal and G16 Active Social Avoidance were found "very good" (Santor, Ascher-Svanum, & Obenchain, 2007).

The PANSS was rated by clinically trained research staff and the American inter-rater reliability for raters were in the excellent range for the five component scores (ICC = 0.88 to 0.93) of the five factor model that was used (Bell et al., 1994). The Norwegian cohort was also rated by clinically trained research staff and the inter-rater reliability was good: intra-class correlation coefficient (ICC 1.1), for the Positive subscale: 0.82 (95% CI0.66-0.94), the Negative subscale: 0.76 (95% CI 0.58-0.93), and General subscale 0.73 (95% CI 0.54-0.90). In paper II we used the Five Factor-Model of schizophrenia based on the factorial invariance of the PANSS (Bell et al., 1994), in order to be able to compare with previous BORRTI studies. The components are: Positive component (unusual thought content, delusions, suspiciousness, grandiosity, hallucinatory behavior, somatic concern); Negative component (passive withdrawal, emotional withdrawal, blunted affect, preoccupation, lack of spontaneity & flow of conversation, poor rapport, motor retardation,

disturbance of volition); Cognitive component (conceptual disorganization, poor attention, tension, difficulty in abstract thinking, lack of judgment & insight, stereotyped thinking); Emotional Discomfort component (anxiety, guilt, depression and active social withdrawal) and Hostility component (hostility, poor impulse control, uncooperativeness, excitement). The Emotional Discomfort component is used to measure current depressive symptoms in paper II.

3.3.4. Assessments of subjective experience of social withdrawal

Subjective experienced social withdrawal was evaluated using the Social Functioning Scale (SFS), (Birchwood et al., 1990). Two subscales were isolated: SFS *Withdrawal* (time spent alone, social avoidance and conversation initiative); and the SFS *Interpersonal Behavior* (romantic involvement, number of friends and quality of communication). The SFS is a self-report questionnaire measuring; *Withdrawal, Interpersonal Behavior, Prosocial Activities, Recreation, Independent Competence, Independent Performances* and *Employment.* Scaled Scores (normalized) have a mean of 100 and standard deviation of 15. The Norwegian translation has shown good reliability and validity (Hellvin et al., 2010).

3.3.5. Other measurements

In the TOP project, information about history of mental illness, present symptoms and pharmacological treatment were collected by interview with the patients. Information was also gathered from treatment records and clinical staff. To evaluate current level of symptoms The Positive And Negative Syndrome Scale (PANSS) (Kay et al., 1987), the Young Mania Rating Scale (YMRS) (Young, Biggs, Ziegler, & Meyer, 1978) and the Inventory of Depressive Symptoms (Clinician rated) (IDS – C), (Rush, Gullion, Jarrett, & Trivedi, 1996) were included in the general TOP protocol. For the three studies in this thesis, we used the Five Factor-Model of the PANSS of schizophrenia

(Bell MD., Lysaker, Beam-Goulet, & Milstein, 1993) to be able to compare with previous BORRTI studies. The PANSS Positive component (unusual thought content, delusions, suspiciousness, grandiosity, hallucinatory behavior, somatic concern) was used, for evaluating current level of positive symptoms. For assessment of the current level of depression, we used the Emotional Discomfort component (anxiety, guilt, depression and active social withdrawal) and Hostility component (hostility, poor impulse control, uncooperativeness, excitement).

In paper II, several other variables were included. In order to explore the role of lifetime history of psychosis and its relationship to BORRTI subscale scores, we created a variable measuring whether or not each participant had had a lifetime psychotic episode based on information from the SCID interview. No episode of psychosis during lifetime includes only patients with bipolar disorder, since the schizophrenia diagnosis requires the presence of psychotic features.

In paper III we needed to ensure that combining the two diagnostic groups in one analysis was valid. We therefore created several variables with the BORRTI subscales and diagnosis. Then we conducted a series of linear regression analyses with the PANSS PSW, the PANSS ASA, the SFS Withdrawal and the SFS Interpersonal Behavior as dependent variables. The variables comprised each of the BORRTI subscales, the diagnostic groups, - and the interaction term between the BORTTI subscales and the diagnostic group. These were then used as independent variables. After ruling out any interaction effects for diagnosis, we continued with the main analyses in the combined patient sample.

3.4.   Statistical analysis

All analyses were carried out using the Statistical Package for the Social Sciences version 16 for paper I and PASW version 18 for paper II and III (SPSS Inc., Chicago, IL, USA). Primary analyses were performed to ensure data quality for all variables including inspection of skewness, linearity and outliers. Descriptive statistics for both the American and Norwegian samples were obtained using standard deviations, means, medians or range according to the type of assessment. Relationships between continuous variables were analyzed with Pearson's correlation and the level of significance was set to $p=0.05$, two-sided. A range of multiple regression analysis was used to predict scores on a continuous variable (paper I), and analyses were done in a forward stepwise procedure with an entry criterion of $p = 0.15$. Age and gender were entered as covariates.

In paper II and III we merged the schizophrenia and bipolar disorder patients into one sample. In order to ensure that combining the two diagnostic groups in one analysis were valid (paper III), we did a series of linear regression analyses with the continuous assessments and the interaction term between diagnostic group and the BORTTI subscales as independents to rule out any possible interaction effects for diagnosis.

Raw scores of the BORRTI subscale were transformed into *z-scores* based on the norms of the Norwegian healthy control sample. To compare the BORRTI profiles across diagnostic groups we used a one-way ANOVA with Scheffe's Post- Hoc corrections. For a more detailed description of the statistical analyses used in the three studies, the reader is referred to the method section of each of the papers.

4. Summary of Papers

4.1.   Paper I

The aim of the first study was to investigate if social withdrawal, when divided into Passive Social Withdrawal and Active Social Avoidance, has differences in the underlying psychological processes of Object Relations and Reality Testing. Diagnosis were evaluated according to the Diagnostic System Manual DSM-IV (American Psychiatric Association, 1994b) in 272 outpatients with schizophrenia and schizoaffective disorders from the VA Connecticut Healthcare System/Connecticut Mental Health Center, US. Social withdrawal was evaluated using the Positive And Negative Symptoms Scale (PANSS), and two items were isolated: N4 Passive/Apathetic Social Withdrawal and G16 Active Social Avoidance. The Bell Object Relations and Reality Testing Inventory (BORRTI) evaluated the object relations functioning and reality testing. Pearson's correlation showed significant associations, and stepwise regression analyses revealed distinct patterns; Passive Social Withdrawal was associated with Object Relation subscales explaining 5% of variance, Active Social Avoidance was associated with Object Relations and all Reality Testing subscales explaining 12% of the variance. Conclusions: Individuals with schizophrenia may have differences in the underlying psychological patterns of object relations and reality testing between Passive Social Withdrawal and Active Social Avoidance; passive social withdrawal may be due to less interest in social interaction with other people, while avoidant behavior may be due to disturbances in reality testing. However, both types of withdrawal may be related to profound mistrust in relationships in these patients. Findings also confirm that Passive Social Withdrawal is a primary negative symptom, while Active Social Avoidance is related more to positive symptoms.

4.2.   Paper II

In this paper, we examined if there are differences in the profiles of object relations and reality testing between schizophrenia and bipolar disorder compared to healthy controls, and to what extent differences in clinical characteristics mediates the putative effect of diagnosis. We used the Bell Object Relation and Reality Testing Inventory (BORRTI) to measure object relations and reality testing in schizophrenia (n = 55), bipolar disorder (n =51) and healthy controls (n = 158). Diagnoses and the life time presence of psychotic symptoms were evaluated based on the SCID-I for DSM-IV. We used the Five Factor Model of the Positive And Negative Symptom Scale (PANSS) to measure current symptoms.

Results: ANOVAs with post hoc tests showed statistically significant differences in OR and RT between the SCZ, BD and HC groups. Multiple regression analyses indicated that a lifetime history of psychotic symptoms contributed significantly to the variance in one BORRTI subscale (*Social Incompetence*) while PANSS components (either the positive component and emotional discomfort component) contributed significantly to the variance in all BORRTI subscales except one (*Uncertainty of Perception*).

Conclusions: Patients with schizophrenia and bipolar disorder have deficits in object relations and reality testing compared to healthy controls. To my knowledge this dysfunction has never previously been shown in patients with bipolar disorder. The differences among patient groups and healthy controls were only moderately explained by diagnosis, current symptoms and history of psychosis.

4.3.   Paper III

The aim of the third paper was to investigate the relationships between observed social (PANSS Passive Social Withdrawal and PANSS Active Social Avoidance), subjective experienced social withdrawal (SFS *Withdrawal* and SFS *Interpersonal* Behavior) and their associations to the underlying psychological patterns of Object Relations and Reality Testing. Patients with schizophrenia (N=55) and bipolar disorder (N=51) were included from the ongoing TOP project, Oslo University Hospital, Norway were evaluated using the Bell Object Relations and Reality Testing Inventory (BORRTI), the Positive And Negative Symptoms Scale (PANSS) and the Social Functioning Scale (SFS). Results: We found different patterns of associations between object relations dysfunctions, the PANSS Passive Social Withdrawal and PANSS Active Social Avoidance, respectively. These two measures, together with the level of *Alienation,* explained a significant amount of variance in self-experienced social dysfunction.

Conclusions: Re-examination of Passive Social Withdrawal and Active Social Avoidance (paper I) in the Norwegian mixed cohort indicated difference in the underlying patterns of object relations and reality testing. However, the findings were different from the results of the first study, with the exception for the associations between Active Social Avoidance and *Alienation*. Furthermore, Passive Social Withdrawal and Active Social Avoidance are important and independent contributors to subjective experience of social withdrawal along with the relational mistrust (*Alienation*).

5. Discussion

The main findings of the three studies in this thesis are discussed in light of existing research and theoretical background (5.1). Central methodological issues will be discussed (5.2.). Clinical implications are debated (5.3.) along with strengths and limitations. Finally, future research is suggested (5.4.).

5.1.   Passive and active social withdrawal in schizophrenia

The findings in the first study of differences in the psychological patterns of object relations and reality testing underlying Passive Social Withdrawal and Active Social Avoidance supported our hypothesis. The variance in Passive Social Withdrawal was explained only by object relations deficits while Active Social Avoidance was associated with dysfunction in both object relations and reality testing. When dividing social withdrawal into the two types of symptom related behaviours, the different psychological functioning indicate that they are parts of different constructs.

The fact that Passive Social Withdrawal was related to higher scores on *Alienation* and lower scores on *Insecure Attachment* is interpreted as mistrust in relationships and a pathological lack of interest in other people. The lack of interest in other people indicates that Passive Social Withdrawal is part of the negative syndrome. Based on the factor analyses reviewed in the introduction (White et al., 1997), one might speculate whether other aspects of illness, particularly impairments in motivation, may underlie the type of social deficit that is captured by the N4 PANSS item. This would also explain why Passive Social Withdrawal is repeatedly found to be highly loaded on the negative symptom factor and does not load on other factors (Bell et al., 1994; van der Gaag et al., 2006; White et al., 1997). Again, this is consistent with this PANSS item being part of a clinical presentation in which negative symptoms appear more prominently than positive symptoms.

The results of the study indicated that Active Social Avoidance was associated with more reality testing dysfunctions and may thus be secondary to psychotic symptoms and a behavioural manifestation of the underlying symptomatology of schizophrenia.

The finding that basic mistrust (higher *Alienation*) was associated with both types of withdrawal is in line with earlier findings on object relations and social withdrawal mentioned in the introduction (Bell et al., 2001). Here, the clusters of Socially Withdrawn schizophrenia patients were divided into Withdrawn and Withdrawn Autistic based on the elevation of *Alienation* and differentiated by the co-existence of reality impairments in Withdrawn Autistic. Our results may indicate that the BORRTI profile of those with Passive Social Withdrawal match those of the cluster Withdrawn and Active Social Avoidance to Withdrawn Autistic. This underlines that socially withdrawn schizophrenia patients may have specific patterns in the object relations functioning and reality testing compared to other schizophrenia patients. In addition, the differences in underlying psychological functioning of object relations and reality testing suggest that the two types of withdrawal should be distinguished and targeted by different types of interventions.

The distinction of the two types of withdrawal is also supported by the assessment method, self-report of the BORRTI. The two PANSS ratings for Passive and Active Social Withdrawal were based upon clinical assessments, using informants report and observation. The self-report method of the BORRTI provides convergent evidence that persons suffering from the one type of withdrawal, experience themselves differently than persons suffering from the other type of withdrawal. The self-reported *Alienation* and mistrust in Active Social Avoidance seem to reflect chosen isolation, rather than be a consequence of general lack of interest and inactivity, which patients suffering from Passive Social Withdrawal are reporting. This verifies the distinction between these two symptoms on the PANSS, and lends supports to the conclusion of the previously mentioned NIMH-MATRICS group, that any measurement of poor social functioning should include a measure of a subject's desire for relationships (Kirkpatrick, Fenton, Carpenter, & Marder, 2006). Issues regarding the assessment method are further discussed below.

Since our first study only included the American cohort, which mainly consisted of male participants with multi-episode schizophrenia, further explorations were required. The planned data collected from participants with psychotic disorders in the context of the ongoing Norwegian TOP project thus included a re-examination of these issues. Findings are discussed in the discussion section of paper III below (5.1.2).

5.1.1. Object relations and reality testing in psychotic disorders

In the second study, we investigated object relations functioning and reality testing in the Norwegian patients with schizophrenia and bipolar disorder and a group of healthy controls. The main findings showed significant differences in object relations- and reality testing profiles between the clinical groups of schizophrenia and bipolar disorder, compared to healthy controls. The finding of disturbed object relations and reality testing among patients with schizophrenia compared to healthy controls is in line with previous findings showing extensive deficits (Bell et al., 1992; Bell et al., 2001; Greig et al., 2000a; Lysaker et al., 2010a). However, the finding of higher BORRTI scores in bipolar disorder patients compared to healthy controls has never previously been shown and thus provides new knowledge about this patient group.

The significant differences found in object relations and reality testing between patients with schizophrenia and healthy controls has been shown previously and was thus expected. The fact that these dysfunctions were also found in the bipolar disorder patients is interesting. Although the level of dysfunction was less severe than in the schizophrenia patients, the bipolar disorder patient's BORRTI scores were closer to the level of the schizophrenia group than the level of the healthy control group. The bipolar disorder group even had numerically higher scores on the *Insecure Attachment* scale and scores at the same level on the *Uncertainty of Perception* subscale as patients with schizophrenia. Clinically, these findings may indicate that patients with bipolar disorder have more profound interest in relating to other people, and a greater fear of being rejected. This is in

contrast to the lower scores on the *Insecure Attachment* that were previously found among

schizophrenia patients with prominent negative symptoms (Bell et al., 2001), indicating less interest

in other people and less vulnerability to rejection. The focus on impaired functioning and social

isolation has mainly been on patients with schizophrenia, while less attention has been paid to this

issue in bipolar disorder patients. Our findings indicate that there may be important interpersonal

challenges in both patient groups.

The dysfunctions in the clinical groups were only partially explained by having the diagnosis.

This means that persons having either schizophrenia or bipolar disorder may struggle with

interpersonal relationships because of the mental illness. The presence of lifetime history of

psychosis did not mediate this association or predict the levels of the BORRTI subscales (only *Social*

Incompetence), while the presence of current positive and depressive symptoms both predicted

and/or mediated the effect of diagnosis for all of the BORRTI subscales, (except *Uncertainty of*

Perception). Still, the majority of the dysfunctions that were found were not explained by these

factors, indicating that individuals with psychotic disorders present severe disturbances in object

relations functioning and reality testing.

In light of the object relations theory the lack of influence from having had previous episodes

of psychosis on interpersonal dysfunction (except for *Social Incompetence*) is surprising.

Traditionally, psychoanalysts argue that schizophrenia results from ego disintegration with psychotic

features as a defense against further disintegration of the ego. One may speculate that object

relations, founded in stages of early interaction and further developed in later stages, would be

especially vulnerable to a greater number of psychotic episodes (ego disintegration defenses),

especially if there have been several episodes before the development of object relations is

completed in young adulthood. Previous research has shown better object relations functioning

among schizophrenia patients with late onset than those with early onset (Greig et al., 2000a).

Deficits on at least three subscales of the BORRTI were found among early onset patients. Thus, our findings support the disturbances in *Social Incompetence*.

Vice versa, the neurodevelopmental model for schizophrenia (Weinberger, 1987), suggesting that the vulnerability for developing psychosis is latent from prenatal stages, makes it reasonable to think that psychotic episodes may have possible interruptive elements that could interfere with the development of good object relations. However, our findings do not support any such indications for any object relation and reality testing dimensions, except for the feelings of social incompetence and insecurity in these patients when interacting socially.

Somewhat different was the relationship between current symptoms and dysfunction in object relations and reality testing. The strong relationship between positive symptoms and the fact that they explain a significant amount of variance in most of the reality testing subscales is in line with previous findings (Bell, 1995). These symptoms explained a significant amount of variance in both *Reality Distortion* and *Hallucination and Delusion*. Both subscales of reality testing measure the self-report of core psychotic symptoms and the finding is thus not surprising. The subscale *Uncertainty of Perception* is self-report on how reliable the patient's own perceptions are, and may therefore not be associated with the measurements of the positive symptoms in the PANSS.

The extensive role of current depressive symptoms (measured by the PANSS Emotional Discomfort component in the PANSS) (Bell et al., 1994), in the ego functions among schizophrenia and bipolar disorder patients, is an interesting finding. The fact that depression was associated with two object relations subscales (*Insecure Attachment* and *Social Incompetence*) and to some extent the reality testing subscale *Uncertainty of Perception,* indicates poorer function in these object relations and reality testing dimensions, when depressive symptoms are present. Recent research has found depression to be highly prevalent in psychotic patients (Romm et al., 2010). Our results illuminate the consequences of these symptoms and the importance of targeting current symptoms and social incapability with psychological interventions.

The *Social Incompetence* subscale is of particular interest because of its relationship to both state and trait symptoms. This indicates that the subscale may represent a dimension connected to both current depression and risk of developing psychotic symptoms. Further research is needed to confirm this relationship. Clinically, our results indicate, that depressive symptoms in patients with schizophrenia and bipolar disorder may be related to the fear of loss and rejection, in addition to nervousness and uncertainty about how to interact with people they feel attracted to.

In sum, the results of the second study are consistent with the previous findings of dysfunction in object relations and reality testing in patients with schizophrenia (Bell et al., 1992; Bell, 2004). More surprisingly, we also found these dysfunctions in patients with bipolar disorders. Furthermore, the disturbances were associated with several types of current symptoms (positive and depressive), but not with history of psychosis. However, the fact that most of the dysfunction in object relation and reality testing could not be explained by having the diagnosis or by current or past symptoms, underlines the need for further research.

5.1.2. Objectively observed and subjective experienced social withdrawal - and object relations and reality testing

The third study showed slightly different results than those of the first study regarding object relations functioning, reality testing and Passive Social Withdrawal and Active Social Avoidance. Here we found associations between Passive Social Withdrawal and the reality testing subscale *Hallucinations and Delusions,* but no associations to the expected subscales *Insecure Attachment* and *Alienation.* Active Social Avoidance was not associated with the expected reality testing subscales, but was consistent with the previous results, related to the object relation subscale *Alienation*.

The differences between the results from the first and the third study may be explained by different sample characteristics. The first study comprised a sample of multi-episode, mainly male patients (87 %), while the current sample included patients with shorter durations of illness and more females. Since negative symptoms usually are more pronounced in patients with a chronic course and in males, this may have led to lower levels and less variance of negative symptoms in this sample and thus, lower statistical power. The relatively higher level of negative symptoms in the American sample (PANSS neg. Component mean = 18, 7), than in the Norwegian sample (PANSS neg. Component mean = 13, 7), may confirm the presumption of a statistical problem (see Appendix, table 1).

The fact that all analyses conducted on the schizophrenia sample alone produce them same findings indicates that the difference in results cannot be caused by the inclusion of patients with bipolar disorder in the Norwegian cohort. In addition, possible cultural differences between the American and Norwegian sample are not indicated to cause the different findings, even for differences in the design. The translation of the BORRTI has shown good cross-cultural reliability and validity in a Brazilian population (Bell & Bruscato, 2002), and thus preclude the differences in culture to cause the different findings. Again, we argue that the cause may be differences in sample characteristics. However, it may also be due to a limitation in the measurement of the PANSS items.

As described above, Passive Social Avoidance is the behavioral correlate to the negative symptom complex in schizophrenia that characterized the absence of specific features. This means that Passive Social Withdrawal is not a symptom in itself, but that it is considered and interpreted as such by the observation of others. The understanding and interpretation of Passive Social Withdrawal as a behavioral manifestation of the negative syndrome – may better explain the difference in our results. Passive Social Withdrawal may rather be related to the lack of motivation of the negative syndrome than the self-reported mistrust and lack of interest in other people measured by the *Alienation* and *Insecure Attachment* subscales. The very lack of self reported

Passive Social Withdrawal as measured by the PANSS N4, may thus contribute to the difference in findings.

The expected finding of significant contributions from *Alienation* to Active Social Avoidance in paper III may be taken to indicate a misinterpretation of the psychological experiences of basic mistrust. The external observer may assess this as a symptom related avoidant behavior due to psychotic suspiciousness instead.

In light of the mentioned aspects of observed and self reported social withdrawal, the results of our third study are interesting. The independent contributions from the two types of passive and active social withdrawal to both measures of self-reported social withdrawal (SFS subscales), highlight these as separate constructs based on symptomatology with their own unique qualities. In addition, their independencies from the BORRTI subscale *Alienation,* emphasize object relation as a construct that is separable from symptoms. Moreover, it points out the importance of differentiating between these. This is underlined by the fact that *Alienation* did not mediate or moderate the contributions from the PANSS items. It also suggests that basic mistrust in relationships is an important feature in these patients' subjective experience of social withdrawal.

Despite the large variations in ego dysfunction in schizophrenia (Bell et al., 1992; Bell et al., 2001), Bell and co-workers classified two Socially Withdrawal clusters exclusively based on elevations of *Alienation* in their BORRTI profiles (Bell et al., 2001). Our findings are not only in line with this, but may also reflect basic mistrust as a core object relation dysfunction in these patients that affect both objectively observed and subjectively experienced social withdrawal.

Finally, as mentioned in the introduction previous research has found several contributors to social dysfunction in both diagnostic groups (Addington et al., 2003; Melle et al., 2005; Simonsen et al., 2010; Vaskinn et al., 2011). Our findings may be most consistent with Milev and co-workers indicating a close relationship between negative symptoms and reduced relational outcome in

schizophrenia patients (Milev et al., 2005). However, the current studies add new knowledge to this research field by showing the involvement of object relations and reality testing. Our findings also offer a more detailed understanding of the complex psychological processes involved in social withdrawal. The most interesting fact is that these results are found in patients with both schizophrenia and bipolar disorder.

5.2.   Methodological Issues

The methodological issues discussed in the following sections are: The study populations (generalizability and reliability) (5.2.1.) and the instruments used (reliability and validity) (5.2.2.).

5.2.1. Study population - representativity and generalizability

Participants in the American sample were included from only two clinical units, which may reduce the strength of the naturalistic design, but increase the control of possible confounders. Still, the informed written consent was based upon procedures approved by the Institutional Review Board (IRB) at the VA Connecticut Healthcare System. The investigation of our hypothesis on an existing sample required no extraordinary informed consent in order to use data for this specific study. The procedures in collection and use of data were written in the informed consent given to the participants at the time of inclusion.

The gender imbalance (87% male) and long duration of illness (lifetime hospitalizations = 9.7 years) makes it difficult to generalize our findings to the general schizophrenia population. As mentioned, negative symptoms are more prevalent in males than females (Leung & Chue, 2000; Roy, Maziade, Labbé, & Mérette, 2001) and in patients with longer duration of illness (Harvey, Koren, Reichenberg, & Bowie, 2006). The distribution of 63% Caucasians, 32% African Americans and 4%

Hispanic may be representative for other American patient populations, but less so for Scandinavian populations.

Data from the Norwegian cohorts in paper II and III was collected from participants as part of the ongoing TOP study in Oslo. The study recruitment of participants from in- and outpatient units in the area of Oslo, in addition to the absence of recruitment from alternative private mental health care centers, offers a naturalistic research design. This indicates a relatively high degree of representativity of the Norwegian population of the study.

However, the patients were referred to the research project by their main therapist responsible for their treatment (psychologist or psychiatrist). Thus, their participation could be dependent on the therapist's knowledge about the existence of the research project, although information was frequently given to the treatment units. It may also depend on the therapist's recognition and evaluation of the relevant symptoms in the inclusion criteria of the project. Some therapists may be concerned about the burden for the patient to go through the inclusion process in the TOP study, i.e. several days of clinical interviews, neurocognitive assessments, physical evaluation and fMRI scanning procedures. Thus, they may be reluctant to refer the patient to the research project. Some patients that were invited to participate were either in an acute phase of the illness or had too severe symptoms (depressive, psychotic etc.), and thus, not able to sign the informed consent. These patients were invited again, when the symptom level had been stabilized. Finally, inviting participants from different treatment units means that they receive treatment at the time of study recruitment, while patients who are not receiving treatment will be missed. These factors may imply exclusion of participants with either very low or very high levels of functioning, and since a public patient register of all diagnoses given at discharge does not exist, it was not possible to collect information about those patients who were not included in our study. These conditions may incidentally bias the sample towards either a higher functioning group, or a group of more diagnostically complex patients. Since some patients may have refused to either participate, or

have dropped out during the participating process for a number of unknown reasons, our sample may not represent the heterogeneity of the patient population.

Compared to the American cohort, the Norwegian sample (51% male) has a more representative gender balance than those of the American sample in paper I (87% male) (Appendix I). The Norwegian participants included in the studies may be relatively well functioning. However, compared to other studies on object relations and reality testing with mainly in-patients or patients from private treatment units, the sample of participants may be relatively representative. Thus, it may be more generalizable to the general schizophrenia and bipolar disorder patient populations.

5.2.2. Instruments - reliability and validity

The reliability of the instruments in this study relies on their ability to assess the intended aspects and the methods used to measure these (clinical interview, observation, evaluation and self-report). Diagnostic evaluations were based on the Structured Clinical Interview for DSM-IV (SCID-I) which has good reliability for the measurement of the diagnostic categories in Axis I of DSM-IV (First et al., 1997). Interviewers had completed a training course in SCID assessment (Ventura J et al., 1998). The reliability for the actual diagnosis was assessed using a stratified random sample consisting of cases from each of the individual raters involved. Interviewers were regularly supervised at consensus meetings and the overall agreement was found satisfactory. The reliability of the two PANSS items measuring the two types of passive and active social withdrawal were included in the general evaluation of inter-rater reliability of the PANSS. In the TOP study the raters individually scored ten PANSS interviews taped on video. The inter-rater reliability was calculated based on an expert conclusion and found satisfactory.

The BORRTI has several issues regarding the reliability and validity. Psychometric properties have been shown to be good (Bell, 1995). This is thoroughly outlined in the methods section

describing the BORRTI. Here, we chose to discuss the theoretical-substantive validity of the object relations construct that the instrument measures, since this is mentioned as a possible limitation of the instrument. Huprich and colleagues (Huprich & Greenberg, 2003) notes that the BORRTI assessment is based on the respondents' most recent experience. This carries the assumption that these experiences not only easily come to awareness, but also presupposes an association between earlier dysfunctional social experiences and the present BORRTI scores. "…*which is a valid means by which to conclude that early experiences have a formative role in the construction of object relations...*" (Huprich & Greenberg, 2003). As mentioned, the construct validity was obtained during the development of the BORRTI (Bell, 1995) as far as this can be established. The limitations regarding the theoretical construct of object relations are implicit in the BORRTI instrument by the self-report. This is also reflected in the interpretations of those (Bell, 1995).

Finally, the use of self-report measures among persons with severe mental disorders can be challenging for several reasons, including cognitive difficulties, report bias and poor insight. However, a recent study on validity of self-reports in patients with schizophrenia showed that most BORRTI subscale scores were not significantly correlated with poor insight. Moreover, behavioral measures related to the subscale constructs provided external support for the validity of the BORRTI subscales. The one exception was on *Uncertainty of Perception*, in which patients with lower scores had poorer insight, indicating that self-report is generally valid, except when patients are asked to report on their ability to accurately report the correctness of their perceptions (Bell, Fiszdon J, Richardson R, Lysaker, & Bryson, 2007).

5.3.   Clinical implications

The findings of this study have clinical implications that should be taken into consideration when planning treatment for patients with schizophrenia and bipolar disorders. The distinction between Passive/Apathetic Social Withdrawal and Active Social Avoidance may be particularly important in terms of treatment recommendations. Individuals with Passive Social Withdrawal may experience difficulties with basic trust in relationships, and have a profound feeling of being disconnected from other people. This may lead to a belief that relationships cannot be gratifying or worthwhile. In addition, they may probably not be particularly vulnerable to painful interactions because they do not invest in them to begin with. Individuals with Active Social Avoidance may lack basic confidence in interpersonal relations as is the case for Passive Social Withdrawal. They may experience profound feelings of disconnection in relationships, but without an antagonistic self-centered position. Severe distortion of external and internal reality may also be present, with delusions of influence, (being controlled externally), thought broadcasting or paranoid beliefs of being watched or plotted against. In addition, their reality distortion may make it difficult for them to understand their own feelings or the feelings of others, all which may contribute to active avoidance and social withdrawal.

Schizophrenia patients with higher levels of negative symptoms, who are isolated primarily due to avolition and amotivation, may benefit from psychosocial programs that encourage socialization. For patients with higher levels of positive symptoms, who actively avoid social interaction out of suspiciousness and mistrust, cognitive behaviour therapy for positive symptoms and social cognitive interventions that address misattributions may be more useful. Treatment such as Cognitive Behavioural Social Skills Training has recently been found to have an impact on motivations in older patients with schizophrenia patients, i.e. patients with less interest for engaging themselves in social interactions (Granholm, Holden, Link, McQuaid, & Jeste, 2012a).

The dysfunction in object relations and reality testing found among patients with schizophrenia and bipolar disorder in paper II also has implications for treatment planning. The knowledge could potentially be a valuable addition to the current development of specialized psychotherapy programs that focus on metacognitive-oriented therapy for self-awareness (Salvatore et al., 2012) and poor insight (Lysaker et al., 2012b). Patients who have a hostile attitude towards relationships and superficially engage in them (higher levels of *Alienation*) or have more maladaptive expectations and invest less in relationships (higher levels of *Insecure Attachment*) will need a higher degree of predictability. They may benefit from a secure treatment environment that has room and time to allow for development of trust in the therapeutic relationship. Furthermore, it is important to concurrently target the symptoms that are found to have an impact on the disturbed object relations and reality testing; i.e. the positive and depressive symptoms. The positive symptoms are among the primary targets for medical treatment of patients with psychosis. Depressive and anxiety symptoms, on the other hand are less often targeted in this patient group (Cosoff & Hafner, 1998). Interventions such as Competitive Memory Training (COMET) has been found to be efficient for misattributions causing depressive symptoms in patients with persistent positive symptoms (Granholm, Holden, Link, McQuaid, & Jeste, 2012b).

5.4.   Strengths, limitations and future research

The current study has several strengths. The TOP study's naturalistic design and large catchment area with recruitment from different mental health in- and outpatient units facilitates inclusion of a high number of patients. The large TOP research project benefits from well functioning logistics and inclusion procedures. Frequent reliability meetings secure sound diagnostic evaluations and highly reliable clinical data. The Norwegian sample used in paper II and III has a more satisfactory gender balance than most studies on object relations in schizophrenia, that include

mainly male participants in their populations. Since this increases the generalizability, this is a significant strength of this study.

Studying object relations in such a setting have several strengths. Using an empirically derived instrument such as the BORRTI to evaluate the theoretical constructs of object relations and reality testing in this population provides the advantage of a relatively high number of participants. This increases the representativity of sample and the generalizability of findings. The self-report method of the BORRTI provides easily collected information in contrast to the more traditional evaluating of object relations by interpretation of Rorschach responses, themes from early memory or analyzing the manifest content of dreams.

The current study also has several limitations. The American sample used in paper I had a majority of male patients in the American sample (87%) and may not be representative for the general schizophrenia population. In addition, relying only on the self-report method of the BORRTI may be another limitation of the current study. Valuable information about the very complex processes of object relations collected from such method may be lost when answering the BORRTI statements according to the person's most recent experience. Finally, the cross-sectional design of this study does not allow any conclusions regarding the theoretical assumptions of the object relations development and its associations to social withdrawal in patients with psychotic disorders.

Since the current study is the first to show object relations and reality testing dysfunction in bipolar disorder patients, future research should explore this issue in other bipolar disorder samples. The associations between object relations, reality testing and social withdrawal should also include different sample compositions in order to explore the specific patterns in mixed samples with psychotic disorders.

Explorations of the relationships and overlaps with the constructs of social cognition, metacognition and Theory of Mind (Greig, Bryson, & Bell, 2004) should be conducted in order to

investigate the role of these especially in relation to reduced social activity in patients with psychotic

disorders. Since *Alienation* appears to play a key role in social withdrawal it is also relevant to

investigate the possible associations to personal narratives (Lysaker et al., 2012). Finally, assessment

of interpersonal aspects other than self-report should be included, for instance by the use of the

Social Cognition and Object Relations Scale (SCORS), (Westen, 1991a).

6. Conclusion

This thesis investigated the relationship between object relations and reality testing, and different types of social withdrawal in patients with psychotic disorders. The study also compared the levels of object relations and reality testing functioning across three groups: schizophrenia, bipolar disorder and healthy controls, and whether these were related to previous psychosis and current symptoms in the two clinical groups.

Findings are consistent with previous research indicating extensive dysfunction in object relations and reality testing in patients with schizophrenia patients. The current thesis is the first to show that these dysfunctions also are present in patients with bipolar disorder, although less severe than in schizophrenia. Relationships between object relations and reality dysfunctions and current positive and depressive symptoms were revealed, but not to previous psychotic episodes.

Furthermore, this thesis showed associations between object relations and reality testing and social withdrawal in patients with both schizophrenia and bipolar disorder. Consistent with previous findings, we found differences in the underlying patterns of object relations and reality testing between Passive Social Withdrawal and Active Social Avoidance suggesting that the two types of behavior are part of different constructs with different psychological processes involved.

We also found that basic mistrust in relationships is involved in both types of withdrawal indicating that this is an important feature in social withdrawal. When these associations were investigated in the mixed sample of schizophrenia and bipolar disorder (paper III), the results were slightly different, but basic mistrust continued to be an important feature.

The subjective experience of social withdrawal (self-reported) was found to be influenced by the two types of symptom related behavior (passive and active social withdrawal) (objectively observed) and dysfunction in object relations (basic mistrust in relationships). The findings suggest that the symptoms and psychological dysfunction are independent factors and that they all are

involved in the complex processes underlying the subjective experience of social withdrawal. The current thesis is the first to show these associations in patients with both schizophrenia and bipolar disorder.

Despite the limitations mentioned above, the findings highlight the importance of the psychological functioning of object relations and reality testing in patients with schizophrenia and bipolar disorders. Our findings also support the assumptions that the two types of passive and active social withdrawal are part of different constructs. Passive withdrawal is indicated to be closely associated to the negative symptoms (lack of motivation, apathy), and active avoidance is secondary to other symptoms. Furthermore, the independency of the symptom related types of passive, active social withdrawal and mistrust in relationships stress the need to target these separately. Especially, since they require different interventions.

Finally, this thesis underlines the importance of considering schizophrenia and bipolar disorder patients as individuals with psychological processes that are independent from the symptoms of the disease. It is equally important that these processes are targeted in treatment. Ultimately, this may contribute to easing the suffering of these individuals.

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Appendix

Table 1.

DEMOGRAPHICHS OF THE AMERICAN SAMPLE (Paper I) and THE NORWEGIAN SAMPLE (Paper II)

Demographics	Schizophrenia, US (n=272)	Schizophrenia and bipolar disorder merged sample, (n=106)
Age (mean/years)	43.1	29.8
Gender (male%)	87 %	51%
Education (mean/years)	13.0	13.1
Lifetime hospitalization (mean/years)	9.7	2.6
PANSS pos. comp (mean/sd)	18.7 (5.6)	12.4 (5.7)
PANSS neg. comp (mean/sd)	18.7 (6.1)	13.7 (5.6)
PANSS cog. Comp (mean/sd)	18.1 (5.1)	11.7 (3.5)
PANSS host. Comp (mean/sd)	7.8 (3.3)	6.0 (2.2)
PANSS emo.dis.comp (mean/sd)	12.0 (3.3)	10.6 (4.0)
PANSS total (mean/sd)	75.2 (14.4)	55.7 (14.5)

Object Relations - BORRTI items (Form O)

1. I have at least one stable and satisfying relationship

6. I may withdraw and not speak to anyone for weeks at a time

8. I usually end up hurting those closest to me

10. I believe that people have little or no ability to control their sorrows

14. I can deal with disagreements at home without disturbing family relationships

16. I am extremely sensitive to criticism

17. Exercising power over other people is a secret pleasure of mine

18. At times, I will do most anything to get my way

20. When a person close to me is not giving me his or her full attention, I often feel hurt and rejected

22. If I become close with someone and he or she proves untrustworthy, I may hate myself for the way it turned

25. I is hard for me to get close to anyone

26. My sex life is satisfactory

32. I have no influence on anyone around me

34. People do not exist when I do not see them

36. I have often been hurt in life

37. I have someone with whom I share my innermost feelings, and who shares such feeling with me

39. No matter how hard I try to avoid them, the same difficulties crop up in my most important relationships

41. I yearn to be completely "at one" with someone

44. In relationships, I am not satisfied unless I am with the other person all the time

48. Relationships with someone whom I am attracted to, always turn out the same way with me

49. Others frequently try to humiliate me

52. I generally rely on others to make my decisions for me

54. I am usually sorry that I trusted someone

55. When I am angry with someone close to me, I am able to talk it through

58. Manipulating others is the best way to get what I want

59. I often feel nervous when I am around persons whom I am attracted to

61. I often worry that I will be left out of things

62. I feel that I have to please everyone or else they might reject me

65. I shut myself up and don't see anyone for months

66. I am sensitive to possible rejection by important people in my life

68. Making friends is not a problem for me

70. I do not know how to meet or talk with persons whom I am attracted to

71. When I cannot make someone close to do what I want, I feel hurt or angry

73. It is my fate to lead a lonely life

76. People are never honest with each other

78. I put a lot into relationships and get a lot back

80. I feel shy about meeting or talking with persons whom I am attracted to

89. I believe that a good mother should always please her children

Reality Testing – items BORRTI

4. I would like to be a hermit forever

5. I usually have trouble deciding whether something happened or if it was a dream

7. Even if my perceptions are incorrect, I am quickly aware of it and can correct myself easily

9. Drinking alcohol or smoking marijuana can so drastically affect my mind that I cannot be sure what is real

11. My people treat me more like a child than an adult

12. I experience hallucinations

15. I feel out of touch with reality for days at a time

19. I possess mystical powers

21. I am usually able to size up a new situation quickly

23. I almost never have reason to doubt the accuracy of my own perception of reality

24. I know my own feelings

27. There is an organized plot against me

30. I feel my thoughts taken away from me by an external force

33. I have the feeling that I am a robot, forced to make movements or say things without a will of my own

35. Often, I read things in other people's behavior that really aren't there

38. I believe that I am being plotted against

40. I am being followed

43. I am not sure what month of year this is

45. I experience strange feelings in various parts of my body that I cannot explain

46. Being independent is the only way not to be hurt by others

50. I can hear voices that other people cannot seem to hear

51. I am rarely out of touch with my own feelings

53. It is common for me to be convinced that people, places, and things are familiar to me when I really don't know them

57. People are often angry with me, whether they admit it or not

60. At times I feel like my body is being changed into that of the opposite sex

63. People who hardly know me are reading my thoughts whenever they want

67. I am often victim of the cruelty of other people

69. I believe that I am a condemned person

72. I hear voices that others do not hear, which keep up running commentary on my behavior and thoughts

74. I am under some force or power other than myself, which forces me to think things or have impulses that are not my own

75. My mood affects how I see things

79. I have the feeling that the world is about to come to an end soon

81. The most important thing to me in a relationship is to exercise power over the other person

82. I have a good sense of direction and virtually never lose my way

83. I try to ignore unpleasant events

84. I experience anxious feelings that I cannot explain

86. I pay so much attention to my own feelings that I may ignore the feelings of others

87. I frequently don't know where I am, even in my own neighborhood

88. I have a hard time accepting the reality of tragic events in my life, like a death in the family

90. Sometimes I only see what I want to see

Object Relations Subscales – BORRTI

Alienation

Insecure Attachment

Egocentricity

Social Incompetence

Reality Testing Subscales – BORRTI

Reality Distortion

Uncertainty of Perception

Hallucinations and Delusions

Errataliste:

Page 3; second section, line 4:

"… *My main supervisor Associate Professor Anne-Kari Torgalsbøen*…"

Page 25; second section, line 3:

"…*higher scores on the other hand may indicate more (not less) vulnerability of rejection*."

The Bell Object Relations and Reality Testing Inventory

– BORRTI –

The English Version

BORRTI

AutoScore™ Form

Morris D. Bell, Ph.D.

Name: _____ ID#: _____ Age: _____

Gender: ☐ Female ☐ Male   Administration Date: _____ Examiner ID#: _____

Education (years completed): ☐ <12 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐ >16

Race/Ethnicity: ☐ American Indian/Alaska Native ☐ Asian ☐ Black/African American ☐ Hispanic/Latino ☐ Native Hawaiian/Pacific Islander ☐ White ☐ Other

DIRECTIONS

First, fill in the background information. (If you don't know your ID#, ask your examiner.) Next, read each item carefully, then circle the letter that shows your answer. Respond according to your *most recent* experience. If a statement tends to be true for you, circle **T** in the column labeled *True*. If a statement tends to be false for you, circle **F** in the column labeled *False*. Circle only one letter for each statement. Please try to respond to all of the statements.   *PLEASE PRESS HARD WHEN MARKING YOUR RESPONSES.*

	True	False
1. I have at least one stable and satisfying relationship.	T	F
2. Sometimes I think I have been possessed by the devil.	T	F
3. If someone dislikes me, I will always try harder to be nice to that person.	T	F
4. I would like to be a hermit forever.	T	F
5. I usually have trouble deciding whether something really happened or if it was a dream.	T	F
6. I may withdraw and not speak to anyone for weeks at a time.	T	F
7. Even if my perceptions are inaccurate, I am quickly aware of it and can correct myself easily.	T	F
8. I usually end up hurting those closest to me.	T	F
9. Drinking alcohol or smoking marijuana can so drastically affect my mind that I cannot be sure what is real.	T	F
10. I believe that people have little or no ability to control their sorrows.	T	F
11. My people treat me more like a child than an adult.	T	F
12. I experience hallucinations.	T	F
13. If someone whom I have known well goes away, I may miss that person.	T	F
14. I can deal with disagreements at home without disturbing family relationships.	T	F
15. I feel out of touch with reality for days at a time.	T	F
16. I am extremely sensitive to criticism.	T	F
17. Exercising power over other people is a secret pleasure of mine.	T	F
18. At times I will do almost anything to get my way.	T	F
19. I possess mystical powers.	T	F
20. When a person close to me is not giving me his or her full attention, I often feel hurt and rejected.	T	F
21. I am usually able to size up a new situation quickly.	T	F
22. If I become close with someone and he or she proves untrustworthy, I may hate myself for the way things turned out.	T	F
23. I almost never have reason to doubt the accuracy of my own perception of reality.	T	F
24. I know my own feelings.	T	F
25. It is hard for me to get close to anyone.	T	F
26. My sex life is satisfactory.	T	F
27. There is an organized plot against me.	T	F
28. I tend to be what others expect me to be.	T	F
29. No matter how bad a relationship may get, I will hold on to it.	T	F
30. I feel my thoughts are taken away from me by an external force.	T	F
31. I don't usually have strong opinions about things.	T	F
32. I have no influence on anyone around me.	T	F
33. I have the feeling that I am a robot, forced to make movements or say things without a will of my own.	T	F
34. People do not exist when I do not see them.	T	F
35. Often, I read things in other people's behavior that really aren't there.	T	F
36. I've been hurt a lot in life.	T	F
37. I have someone with whom I can share my innermost feelings and who shares such feelings with me.	T	F
38. I believe that I am being plotted against.	T	F
39. No matter how hard I try to avoid them, the same difficulties crop up in my most important relationships.	T	F
40. I am being followed.	T	F
41. I yearn to be completely "at one" with someone.	T	F

W-283AF

	True	False
42. I am not sure what month or year this is.	T	F
43. I am usually able to say the right things.	T	F
44. In relationships, I am not satisfied unless I am with the other person all the time.	T	F
45. I experience strange feelings in various parts of my body that I cannot explain.	T	F
46. Being independent is the only way not to be hurt by others.	T	F
47. I am a very good judge of other people.	T	F
48. Relationships with people of the opposite sex always turn out the same way with me.	T	F
49. Others frequently try to humiliate me.	T	F
50. I can hear voices that other people cannot seem to hear.	T	F
51. I am rarely out of touch with my own feelings.	T	F
52. I generally rely on others to make my decisions for me.	T	F
53. It is common for me to be convinced that people, places, and things are familiar to me when I really don't know them.	T	F
54. I am usually sorry that I trusted someone.	T	F
55. When I am angry with someone close to me, I am able to talk it through.	T	F
56. My thoughts are being broadcast so that other people know what I am thinking.	T	F
57. People are often angry at me, whether they admit it or not.	T	F
58. Manipulating others is the best way to get what I want.	T	F
59. I often feel nervous when I am around members of the opposite sex.	T	F
60. At times I feel like my body is being changed into that of the opposite sex.	T	F
61. I often worry that I will be left out of things.	T	F
62. I feel that I have to please everyone or else they might reject me.	T	F
63. People who hardly know me are reading my thoughts whenever they want.	T	F
64. Sometimes I have dreams so vivid that, when I wake up, it seems like they really happened.	T	F
65. I shut myself up and don't see anyone for months at a time.	T	F
66. I am sensitive to possible rejection by important people in my life.	T	F
67. I am often the victim of the cruelty of other people.	T	F
68. Making friends is not a problem for me.	T	F
69. I believe that I am a condemned person.	T	F
70. I do not know how to meet or talk with members of the opposite sex.	T	F
71. When I cannot make someone close to me do what I want, I feel hurt or angry.	T	F
72. I hear voices that others do not hear, which keep up a running commentary on my behavior and thoughts.	T	F
73. It is my fate to lead a lonely life.	T	F
74. I am under the control of some force or power other than myself, which forces me to think things or have impulses that are not my own.	T	F
75. My mood affects how I see things.	T	F
76. People are never honest with each other.	T	F
77. I can always distinguish between reality and fantasy, even during the time I am going to sleep or awakening.	T	F
78. I put a lot into relationships and get a lot back.	T	F
79. I have the feeling that the world is about to come to an end soon.	T	F
80. I feel shy about meeting or talking with members of the opposite sex.	T	F
81. The most important thing to me in a relationship is to exercise power over the other person.	T	F
82. I have a good sense of direction and virtually never lose my way.	T	F
83. I try to ignore all unpleasant events.	T	F
84. I experience anxious feelings that I cannot explain.	T	F
85. When I drink or use drugs, it seems as if those around me have it in for me.	T	F
86. I pay so much attention to my own feelings that I may ignore the feelings of others.	T	F
87. I frequently don't know where I am, even in my own neighborhood.	T	F
88. I have a hard time accepting the reality of tragic events in my life, like a death in the family.	T	F
89. I believe that a good mother should always please her children.	T	F
90. Sometimes I see only what I want to see.	T	F

BORRTI
Profile Sheet
Morris D. Bell, Ph.D.

Name (or ID#): _____

| %ile | T-score | Object Relations | | | | Reality Testing | | | T-score | %ile |
		ALN	IA	EGC	SI	RD	UP	HD		
>99	>80	>36	24	21		>34	>21	>21	>80	>99
	80	36	23	20		29–34	21	21	80	
	79					27–28		17–20	79	
	78	35		19		26	19–20		78	
	77			18		24–25			77	
	76	33–34		17				14–16	76	
	75	31–32						13	75	
	74	29–30	22					12	74	
99	73			16		21–23		11	73	99
	72	28		15				10	72	
98	71	27	20–21	14	15	19–20	17	9	71	98
	70	26		13					70	
97	69	24–25	19			17–18		7–8	69	97
96	68					16	16		68	96
95	67		18		13–14	14–15	15		67	95
94	66	21–23	17		12	13	14	6	66	94
93	65	20		12		12			65	93
92	64		16	10–11	11			5	64	92
90	63					10–11	13		63	90
88	62	17–19	15		10		12	4	62	88
85	61			9		9		3	61	85
83	60	16	14			8	11		60	83
81	59		12–13	8		7			59	81
79	58	14–15			8–9				58	79
76	57					5–6	9–10	2	57	76
73	56	12–13		7	5–7				56	73
70	55	10–11	11			4			55	70
67	54			5–6			8		54	67
63	53	9	9–10				7		53	63
60	52			2–4		3			52	60
55	51		8				6		51	55
50	50	7–8						1	50	50
45	49	6				2			49	45
40	48		7		1–4	1			48	40
37	47	5	6				5		47	37
33	46	3–4							46	33
29	45		5				4		45	29
26	44								44	26
23	43		4	1					43	23
20	42					0		0	42	20
17	41		3		0		3		41	17
15	40	1–2		0					40	15
13	39						2		39	13
11	38								38	11
9	37	0	2						37	9
7	36		1						36	7
6	35								35	6
5	34						1		34	5
4	33								33	4
3	32								32	3
	31		0						31	
2	30						0		30	2
<2	<30								<30	<2
%ile	T-score	ALN	IA	EGC	SI	RD	UP	HD	T-score	%ile
Raw Score		____	____	____	____	____	____	____	Raw Score	
T-Score		____	____	____	____	____	____	____	T-Score	

INC index score ____ (values of 7 or higher suggest a need for further inquiry)

FREQ score _____ (values of 8 or lower are unusual if *any* BORRTI T-score is 70T or higher)

The Bell Object Relations and Reality Testing Inventory

– BORRTI –

The Norwegian Version

BORRTI

Bell Object Relations And Realiry Testing Inventory
Objekt Relasjon og Realitetstesting Svarskjema

Navn: _____ Kjønn: K:☐ M:☐

Dato: ☐☐☐☐☐☐☐ Alder: ☐☐

Fødselsdato: ☐☐☐☐☐☐☐ Intervjuer: _____

Norsk som morsmål: ja:☐ nei:☐

Utdanning (antall år fullført): ☐☐

	Stemmer	Stemmer ikke
1. Jeg har minst ett stabilt og tilfredsstillende forhold til et annet menneske.	☐	☐
2. Noen ganger tror jeg at jeg har blitt besatt av djevelen.	☐	☐
3. Hvis noen misliker meg prøver jeg alltid å være mer vennlig overfor den personen.	☐	☐
4. Jeg kunne tenke meg å være en eneboer for alltid.	☐	☐
5. Jeg har vanligvis problemer med å avgjøre om noe var virkelig eller om det var en drøm.	☐	☐
6. Det hender at jeg trekker meg tilbake uten å snakke med noen i flere uker.	☐	☐
7. Hvis mine oppfatninger ikke er korrekte, blir jeg raskt klar over det og kan lett korrigere meg selv.	☐	☐
8. Jeg ender vanligvis opp med å såre mine nærmeste.	☐	☐
9. Å drikke alkohol eller røyke cannabis påvirker meg så drastisk at jeg er usikker på hva som er virkelig.	☐	☐
10. Jeg tror at folk har lite eller ingen evne til å kontrollere sin sorg.	☐	☐
11. Min familie behandler meg mer som et barn enn som en voksen.	☐	☐
12. Jeg opplever hallusinasjoner.	☐	☐
13. Hvis noen som jeg kjenner godt drar vekk/reiser bort, hender det at jeg savner vedkommende.	☐	☐
14. Jeg kan takle uenigheter hjemme uten at det går ut over mitt forhold til familien.	☐	☐
15. Jeg føler meg ute av kontakt med virkeligheten i flere dager av gangen.	☐	☐
16. Jeg er ekstrem følsom overfor kritikk.	☐	☐
17. Å utøve makt overfor andre er en hemmelig tilfredsstillelse for meg.	☐	☐
18. Noen ganger gjør jeg nesten hva som helst for å få viljen min.	☐	☐
19. Jeg har mystiske krefter.	☐	☐
20. Når en person som står meg nær ikke gir meg sin fulle oppmerksomhet, blir jeg ofte såret og føler meg avvist.	☐	☐
21. Jeg klarer vanligvis raskt å få oversikt over en ny situasjon.	☐	☐
22. Hvis jeg utvikler et nært forhold til noen og vedkommende viser seg å være upålitelig, hender det at jeg hater meg selv for det.	☐	☐
23. Jeg har nesten aldri grunn til å tvile på min egen virkelighetsoppfattning.	☐	☐
24. Jeg kjenner mine egne følelser.	☐	☐

	Stemmer	Stemmer ikke
25. Det er vanskelig for meg å få et nært forhold til noen.	☐	☐
26. Sexlivet mitt er tilfredsstillende.	☐	☐
27. Det eksisterer en sammensvergelse mot meg.	☐	☐
28. Jeg har en tendens til å være slik andre forventer at jeg skal være.	☐	☐
29. Uansett hvor dårlig et forhold blir, holder jeg fast ved det.	☐	☐
30. Jeg føler at tankene mine blir tatt fra meg av en kraft utenfor meg selv.	☐	☐
31. Vanligvis har jeg ikke sterke meninger om ting.	☐	☐
32. Jeg har ingen påvirkning på noen rundt meg.	☐	☐
33. Jeg føler at jeg er en robot som er tvunget til å gjøre eller si ting uten at jeg har en egen vilje.	☐	☐
34. Mennesker eksisterer ikke når jeg ikke ser dem.	☐	☐
35. Jeg oppfatter ofte ting i andres atferd som faktisk ikke er der.	☐	☐
36. Jeg har ofte blitt såret i livet	☐	☐
37. Jeg har noen som jeg kan dele mine innerste følelser med og som deler sine med meg.	☐	☐
38. Jeg tror det blir planlagt noe mot meg.	☐	☐
39. Uansett hvor mye jeg prøver å unngå det, oppstår stadig de samme vanskeligheter i mine viktigste forhold.	☐	☐
40. Jeg blir overvåket.	☐	☐
41. Jeg lengter etter å smelte sammen med/"bli ett" med noen.	☐	☐
42. Jeg er ikke sikker på hvilken måned eller hvilket år vi er i nå.	☐	☐
43. Jeg er vanligvis i stand til å si de riktige tingene.	☐	☐
44. Når jeg er i et forhold, er jeg ikke tilfreds med mindre jeg er sammen med den andre personen hele tiden.	☐	☐
45. Jeg har merkelige fornemmelser i forskjellige deler av kroppen som jeg ikke kan forklare.	☐	☐
46. Den eneste måten å unngå å bli såret av andre på, er å være uavhengig.	☐	☐
47. Jeg er svært god til å bedømme andre mennesker.	☐	☐
48. Forhold til personer som jeg er tiltrukket av ender alltid opp på samme måte for meg.	☐	☐
49. Ofte prøver andre å ydmyke meg.	☐	☐
50. Jeg kan høre stemmer som andre ikke later til å høre.	☐	☐
51. Det er sjelden jeg ikke har kontakt med følelsene mine.	☐	☐
52. Jeg er vanligvis avhengig av at andre tar beslutninger for meg.	☐	☐
53. Det er vanlig for meg å tro at mennesker og steder er kjente, selv om jeg ikke virkelig kjenner dem.	☐	☐
54. Jeg angrer vanligvis på at jeg stolte på noen.	☐	☐
55. Når jeg er sint på noen som står meg nær, er jeg i stand til å snakke med dem om det.	☐	☐
56. Tankene mine blir kringkastet slik at andre mennesker vet hva jeg tenker.	☐	☐
57. Folk er ofte sinte på meg uansett om de innrømmer det eller ikke.	☐	☐
58. Å manipulere andre er den beste måten å få det som jeg vil.	☐	☐
59. Jeg føler meg ofte nervøs når jeg i nærheten av personer som jeg er tiltrukket av.	☐	☐

	Stemmer	Stemmer ikke
60. Noen ganger føles det som om kroppen min blir forvandlet til å bli det motsatte kjønn.	☐	☐
61. Jeg er ofte bekymret for at jeg skal bli holdt utenfor.	☐	☐
62. Jeg føler at jeg må gjøre alle til lags ellers avviser de meg kanskje.	☐	☐
63. Mennesker som knapt kjenner meg leser tankene mine når det måtte passe dem.	☐	☐
64. Noen ganger drømmer jeg så levende at når jeg våkner så virker det som om det virkelig skjedde.	☐	☐
65. Jeg lukker meg inne og ser ikke andre mennesker i månedsvis.	☐	☐
66. Jeg er sensitiv overfor mulig avvisning fra betydningsfulle mennesker i livet mitt.	☐	☐
67. Jeg er ofte offer for andre menneskers grusomheter.	☐	☐
68. Å få venner er ikke noe problem for meg.	☐	☐
69. Jeg tror at jeg er et fordømt menneske.	☐	☐
70. Jeg vet ikke hvordan man møter eller snakker med personer som man er tiltrukket av.	☐	☐
71. Når jeg ikke får et menneske som står meg nær til å gjøre som jeg vil, føler jeg meg såret eller sint.	☐	☐
72. Jeg hører stemmer som andre ikke hører og som hele tiden kommenterer min atferd og mine tanker.	☐	☐
73. Min skjebne er å leve et ensomt liv.	☐	☐
74. Jeg kontrolleres av en slags kraft eller makt utenfor meg selv, som tvinger meg til å tenke ting eller ha impulser som ikke er mine.	☐	☐
75. Humøret påvirker hvordan jeg ser på ting.	☐	☐
76. Folk er aldri ærlige mot hverandre.	☐	☐
77. Jeg kan skjelne mellom virkelighet og fantasi, selv når jeg er i ferd med å sovne eller å våkne.	☐	☐
78. Jeg gir mye i mine forhold og får mye tilbake	☐	☐
79. Jeg har en følelse av at verden snart går under.	☐	☐
80. Jeg føler meg sjenert når det gjelder å møte eller snakke med personer som jeg er tiltrukket av.	☐	☐
81. Det viktigste for meg i et forhold er å utøve makt over den andre personen.	☐	☐
82. Jeg har god retningssans og går meg sjelden bort.	☐	☐
83. Jeg prøver å overse alle hendelser som gir meg ubehagelige følelser.	☐	☐
84. Jeg opplever følelser av angst som jeg ikke kan forklare	☐	☐
85. Når jeg drikker eller bruker narkotiske stoffer virker det som om de rundt meg er ute etter meg.	☐	☐
86. Jeg er så opptatt av mine egne følelser at det hender jeg ignorerer andres følelser.	☐	☐
87. Ofte vet jeg ikke hvor jeg er, selv i mitt eget nabolag.	☐	☐
88. Jeg har vanskelig for å akseptere at tragiske begivenheter i mitt liv er reelle, som f.eks. et dødsfall i familien.	☐	☐
89. Jeg mener at en god mor alltid bør gjøre sine barn til lags.	☐	☐
90. Noen ganger ser jeg bare det jeg vil se.	☐	☐

I

II