Mentalization-based treatment of female patients with severe personality disorder and substance use disorder

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Table of contents

Scientific environment

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Abstract

Personality disorder (PD) and substance use disorder (SUD) are frequently co-occurring conditions which severely affect individuals in different domains of their life. Around half of patients with SUD also suffer from a PD. Clinical research indicates that each of these conditions separately are difficult to treat and many obstacles to successful outcomes can be found. When these conditions occur together, consequences for treatment are even graver. Furthermore, these patients are often excluded from specialised psychiatric treatments for PD and are left to random treatment programmes in the SUD field where competence and knowledge on PD are often lacking.

This dissertation sought to explore, through different methodological approaches, the experiences and changes in mentalization-based treatment (MBT) of 18 female patients with comorbid PD/SUD. Do they achieve beneficial results from the treatment, and do they accept and endure this long-term combination treatment which is tailored to patients with borderline PD? The dissertation consists of three papers. The first paper was a single-case study which investigates the treatment process of a patient suffering from SUD and schizotypal PD, which is considered difficult to treat and that could enlighten the process of working with transference and handling countertransference. The methodology was a hermeneutical single case efficacy design (HSCED) and vignettes from the treatment process together with abundant data collection were used in the analysis. The research question for paper 1 was: What are the effects of disorganised attachment on personality functioning and substance abuse, and how is it transformed through MBT? What are the central mechanisms of change? In paper 2, thirteen patients were interviewed qualitatively on their experiences of MBT and their view on own pathology approximately 2 years after terminating MBT. A thematic analysis within a hermeneutical-phenomenological epistemology was the methodological approach chosen for the analyses of transcribed semi-structured qualitative interviews. The

research questions of paper 2 was: How do female patients with clinical significant borderline traits and comorbid SUD experience their own central change processes after participating in a MBT programme? When these patients experience change in psychotherapy, what central change processes do they highlight? Do they experience changes in their ability to mentalize when looking back at the therapy process? In paper 3, longitudinal quantitative data were collected from 18 patients at baseline, every 6 months in treatment, at the end of treatment and at follow-up two years after treatment. The assessment protocol had measures on PD, SUD, interpersonal functioning, symptomatic distress, general functioning and self-esteem. Furthermore paper 3 aimed to evaluate the feasibility aspects of the pilot project. Linear mixed models were utilised for the analyses of the quantitative data. The research questions of paper 3 were: What is the feasibility of MBT with female patients with severe PD and SUD? Does MBT have any positive effect on PD/SUD patients' substance use and personality structure (primary outcome)? Does MBT have any positive effect on symptom distress, interpersonal and social functioning (secondary outcome)?

In paper 1 we found that: 1) that the patient had changed in a clinically significant way, 2) that MBT was the main causative process for her change, 3) that the main mechanisms of change were reparations of ruptures in the alliance, handling countertransference and working in the transference through constant efforts a mentalizing the relationship, and 4) that treatment gains made it possible for her to maintain her mentalizing abilities even in close relationships that formerly would activate profound mental confusion. In paper 2 we found that patients experienced meaningful psychological change after participating in MBT and that by gaining the ability to reflect on their own feelings and thinking processes, interpersonal encounters became more flexible and ultimately patients experienced an increased sense of an agentic self. The themes that described their change processes were "by feeling the feeling", "by thinking things through", "by walking in your shoes to see myself",

and "by stepping outside of own bad feeling in seeing you". In paper 3, we found that preliminary data on changes in several outcome measures indicated that MBT treatment gave both clinically and statistically significant changes in primary and secondary outcome measures. Furthermore, in evaluation of the feasibility aspects of the study we concluded that embarking on a randomized controlled trial (RCT) with this study protocol and treatment programme is "feasible with close monitoring". Treatment adherence and routines for frequent and coherent assessment are important to implement and monitor.

The findings in this dissertation indicate that MBT could be a potential beneficial treatment approach for female patients suffering from PD/SUD. Furthermore, different hypotheses on what are important mechanisms of change in MBT have been found. These include working in the transference, managing countertransference and mentalizing as a central change process. These suggestions for mechanisms of change should be further investigated in psychotherapy process studies. The lack of a control group and the limited number of participants suggest that conclusions must be made with caution. The feasibility aspects seem promising and larger studies on MBT with PD/SUD are recommended.

List of abbreviations

AA	Alcoholics anonymous
ANOVA	Analysis of variance
BCF	Bergen Clinic Foundation
BPD	Borderline personality disorder
CIP	Circumplex of interpersonal functioning
DBT	Dialectical behavioural therapy
DDP	Dynamic deconstructive psychotherapy
DFST	Dual focus schema therapy
DSM	Diagnostic and statistical manual of mental disorders
GAF	Global Assessment of Functioning
GSI	General Symptom Index
HSCED	Hermeneutic single-case efficacy design
LEAD	Longitudinal Expert All Data
LMM	Linear mixed models
MBT	Mentalization-based treatment
MI	Motivational interviewing
NESARC	National epidemiologic survey of alcohol and related conditions
PD	Personality disorder
RCT	Randomised controlled trial
RSES	Rosenberg self-esteem scale
SCID	Structured clinical interview for DSM disorders
SCL-90-R	Symptom check list - revised
SUD	Substance use disorder

TFT   Transference focused therapy

WSAS   Work and social functioning scale

List of papers

Paper 1:   Morken, K., Karterud, S., & Arefjord, N. (2014). Transforming disorganized attachment through mentalization-based treatment. *Journal of Contemporary Psychotherapy, 44*(2), 117-126.

Paper 2:   Morken, K. T., Binder, P. E., Arefjord, N., & Karterud, S. (2017). Juggling thoughts and feelings: How do female patients with borderline symptomology and substance use disorder experience change in mentalization-based treatment? *Psychotherapy Research*, 1-16.

Paper 3:   Morken, K. T., Binder, P. E., Molde, H., Arefjord, N., & Karterud, S. (2017). Mentalization-based treatment for female patients with comorbid personality disorder and substance use disorder: A pilot study. *Scandinavian Psychologist, 4*, 16e.

General introduction: Scope and background for the dissertation

In the field of personality disorder (PD), models of how to understand PD and how to effectively treat PD have developed. Dialectical behavioural therapy (DBT) (Linehan et al., 2006) is among the most well researched treatment approaches for borderline PD; other approaches like transference focused therapy (TFT), mentalization-based therapy (MBT) or schema focused therapy (SFT) have also been found to be effective (Bateman & Fonagy, 2009; Doering et al., 2010; Nadort et al., 2009). The growing optimism around the treatment potential of patients with PD is due to much scientific and clinical effort in the last 20 years. One group of patients has received too little attention though: those with dual diagnoses of PD and substance use disorder (SUD). These patients, with multiple challenges in psychosocial functioning, have become the outcasts of the mental health field. These patients are often excluded from specialised treatment programmes for PD (Bosch & Verheul, 2007), and unverified ideas about their negative prognosis and the chronicity of their addiction exist. With this as a background, we aimed at investigating broadly the prognostic potential, and treatment experiences of patients with severe PD and SUD. The context was a pilot trial of MBT in a drug treatment institution in Bergen, Norway. In the pilot, 18 female patients with severe PD and SUD participated. Longitudinal quantitative data were collected during treatment and at a follow-up approximately two years after treatment termination; qualitative interviews were performed at follow-up.

The Bergen Clinic Foundation is a medium-sized drug treatment institution in Bergen, Norway with both outpatient and inpatient treatment programmes. At any given time, there are about 800 patients receiving treatment, counting both in- and outpatient treatment. A growing interest in personality pathology appeared here, partly due to persons working in the Bergen Clinics and their affiliation with the "The Norwegian Network of Personality-Focused treatment programs", and partly because some of the patients were difficult to treat and posed

challenges both relationally and in the attendance to psychotherapy. Thus, the need for more competence on PD pathology emerged. As the Bergen Clinics have an explicit focus on gender, where male and female patients receive gender specific treatment, this pilot was performed with female patients alone.

Diagnosis of PD and SUD

When we started the pilot study in 2009/2010, the new diagnostic manual for mental disorders, DSM-V, was not yet published (APA, 2013). In the pilot study, all our assessments are based on the former diagnostic manual for mental disorders – DSM-IV (APA, 1994). In order to both inform on the present understanding of the diagnosis of PD and SUD and to ensure that we have sufficiently described our assessment procedures, we will describe the diagnosis in DSM-V, but in other parts of this dissertation the assessment procedures and in the description of assessments used in the study, we will use material and references from DSM-IV. Furthermore, there are some changes from DSM-IV to DSM-V. For PD, the diagnosis stays the same, with the exception of a new alternative model of PDs found in the appendices in the DSM-V. For SUD some changes have occurred: Gambling disorder has been included under the diagnosis of "Substance-related and addictive disorders". The separation of the diagnosis of substance abuse and dependence from DSM-IV no longer exists, and is now one single diagnostic label "Substance use disorder". The criteria for SUD are nearly identical in DSM-IV and DSM-V with two exceptions; recurrent legal problems as a criterion has been deleted in DSM-V and a new criterion of craving has been added. Severity of the DSM-V SUD is based on the number of criteria. Furthermore, the new manual has moved to a non-axial documentation of diagnosis (formerly Axis I, II and III), and with separate notations for psychosocial and contextual factors (formerly Axis IV) and disability

(formerly Axis V). We will sometimes refer to the old axial system in this dissertation because earlier studies do use the categories Axis I and II disorders when studying PD.

Diagnosis of PD

According to the DSM –5, PD can be defined as (APA, 2013): "an enduring pattern of inner experience and behaviour that deviates markedly from the expectations of the individual's culture, is pervasive and inflexible, has an onset in adolescence or early adulthood, is stable over time, and leads to distress or impairment (p. 645) ". The PDs are divided into three clusters based on similarities, but this separation into clusters is not yet sufficiently validated and is mainly used for descriptive purposes. The criteria for general PD are as follows:

"Criteria

A. An enduring pattern of inner experience and behaviour that deviates markedly from the expectations of the individuals culture, manifested in two or more of the following areas: 1. Cognition, 2. Affectivity, 3. Interpersonal functioning and 4. Impulse control

B. The enduring pattern is inflexible and pervasive across a broad range of personal and social situations.

C. The enduring pattern leads to clinically significant distress or impairment in social, occupational, or other important areas of functioning.

D. The pattern is stable and of long duration, and its onset can be traced back at least to adolescence or early adulthood.

E. The enduring pattern is not better explained as a manifestation or consequence of another mental disorder.

F. The enduring pattern is not attributable to the physiological effects of a substance or another medical condition (p. 646)".

Furthermore, Borderline PD is defined as: "A pervasive pattern of instability of interpersonal relationships, self-image, and affects and marked impulsivity (...) Indicated by five (or more) of the following:

1. Frantic efforts to avoid real or imagined abandonment.

2. A pattern of unstable and intense interpersonal relationships characterized by alternating between extremes of idealization and devaluation.

3. Identity disturbance: markedly and persistently unstable self-image or sense of self.

4. Impulsivity in at least two areas that are potentially self-damaging.

5. Recurrent suicidal behaviour, gestures, or threats, or self-mutilating behaviour.

6. Affective instability due to a marked reactivity of mood.

7. Chronic feelings of emptiness.

8. Inappropriate, intense, anger or difficulty controlling anger.

9. Transient, stress-related paranoid ideation or severe dissociative symptoms (APA, 2013 p. 663)".

Diagnosis of SUD

In DSM-V, SUD belongs to the diagnostic group of "substance-related and addictive disorders" which includes the misuse of 10 separate classes of substances including alcohol. The essential feature of SUD is a cluster of cognitive, behavioural and physiological symptoms indicating continued use in spite of severe substance-related problems. The diagnosis of SUD is based on 11 criteria that can be grouped into four categories: impaired control, social impairment, risky use and pharmacological criteria. Severity of the DSM-V SUD is based on the number of criteria and are defined in three categories: mild disorder (2-3 criteria), moderate disorder (4-5 criteria), and severe disorder (6 or more criteria). The eleven criteria are:

"Impaired control

1) The individual may take the substance in larger amounts or over a longer period than was originally intended.

2) The individual may express a persistent desire to cut down or regulate substance use and may report multiple unsuccessful efforts to discontinue use.

3) The individual may spend a great deal of time obtaining the substance, using the substance, or recovering from its effects.

4) Craving is manifested by an intense desire or urge for the drug that may occur at any time but is more likely when in environment where drug was previously obtained.

Social impairment

5) Recurrent substance use may result in a failure to fulfil major role obligations at work, school or home.

6) The individual may continue substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the substance.

7) Important social, occupational or recreational activities may be given up or reduced because of substance use.

Risky use

8) Recurrent substance use in situations in which it is physically hazardous.

9) The individual may continue use despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance use.

Pharmacological criteria

10) Tolerance signalled by requiring a markedly increased dose of the substance to achieve the desired effect.

11) Withdrawal is a syndrome that occurs when blood or tissue concentrations of substance decline in an individual who had maintained prolonged use of the substance (APA,2013, p.483)"

Co-occurrence of PD/SUD

A multitude of studies demonstrate that there is a high co-occurrence between PD and SUD. The national epidemiologic studies on alcohol and related conditions (NESARC) from the USA (Hasin & Kilcoyne, 2012; Trull, Jahng, Tomko, Wood, & Sher, 2010) are national cross-sectional survey studies over three waves of data collection in the general US population, with the final (third) wave containing as many as 36,309 noninstitutionalised civilians. NESARC has convincingly demonstrated how SUD are related to PDs. Some of their findings are:

1) given any PD, the lifetime probability of having SUD is over 12 times higher than without the presence of PD (Trull et al., 2010);

2) For alcohol use disorders, the comorbidities with PDs were most prevalent for antisocial PD (49-52%), histrionic PD (50%) and borderline PD (47%) and for drug use disorders the comorbidities with PDs were highest for histrionic (30%), dependent (27%) and antisocial PD (23-27%) (Trull et al., 2010);

3) Antisocial, schizotypal and borderline PD predict the persistence over time for the presence of SUDs and no axis I disorder predicts the persistence of SUDs (Fenton et al., 2012; Hasin et al., 2011; Hasin & Kilcoyne, 2012);

4) When controlling for general PD criteria, cluster B emerges as a significant predictor for SUD (Jahng et al., 2011);

5) In one study, functional impairment was used as an additional criterion for receiving a PD diagnosis, and they found that overall the lifetime prevalence between alcohol

use disorder and PD was 42%, while lifetime prevalence between SUD and PD was 19% (Trull et al., 2010).

Accordingly, in the general population SUD co-varies with PD. In patient samples this covariance is even higher. One review including studies with both general population, psychiatric samples and treated SUD patients found that in both psychiatric samples and treated SUD patients the prevalence of PD was four times higher than in the general population (median 60% and 57% compared to 14%) (Verheul, 2001). Other studies among psychiatric patient samples have also demonstrated high co-occurrence between these two diagnoses. Among PD patients, the prevalence of SUD has been reported at 14% in a sample of 1783 PD patients even when SUD was an exclusion criterion for entering treatment (Karterud, Arefjord, Andresen, & Pedersen, 2009). Another study with 137 BPD inpatients found a SUD prevalence of 67% (Dulit, Fyer, Haas, Sullivan, & Frances, 1990). In a Danish study, data from 463,003 psychiatric patients were included, and among those with PD 46% had SUD (Toftdahl, Nordentoft, & Hjorthøj, 2016). Thus, among samples of PD patients, SUD occurs frequently as a comorbidity. Paradoxically many treatment centres with programmes for PD exclude patients with SUD (Bosch & Verheul, 2007).

Among SUD patients, one review found that the comorbidity of PD ranged from 25% to 75% (Cacciola, Alterman, McKay, & Rutherford, 2001). Other studies with SUD patients found that the prevalence for PD was 46% (Langås, Malt, & Opjordsmoen, 2012), 50% (Thomas, Melchert, & Banken, 1999), 54% (Ross, Dermatis, Levounis, & Galanter, 2003) 57% (Verheul et al., 2000), and 60% (Kokkevi, Stefanis, Anastasopoulou, & Kostogianni, 1998). Cluster B PDs most frequently occur among SUD patients, and antisocial PD together with BPD appear to be most common (Kokkevi et al., 1998; Langås et al., 2012; Mackesy-Amiti, Donenberg, & Ouellet, 2012; Ross et al., 2003). To summarise, among SUD patients PD is a frequently co-occurring disorder, and cluster B PDs are more frequent than cluster A's

or C's. In samples of SUD patients, around half can be expected to have a PD. These studies indicate that in-depth knowledge of PD and dual focus treatments are warranted in SUD clinics.

Consequences of the comorbidity PD/SUD

       Studies indicate that the comorbidity adds more complications than either disorder alone.

       Mental health problems

       Compared to both PD and SUD patients alone, these dual diagnosis patients appear to have more mental health problems. In one study their Global Assessment of Functioning (GAF) scores were lower; they had more prior treatment and more psychotic episodes when compared to PD patients alone (Karterud et al., 2009). Another study on 100 psychiatric inpatients also found similar complications; PD/SUD patients compared to SUD without PD had greater symptom distress and psychiatric severity (Ross et al., 2003). Furthermore, another study with 1205 SUD patients, found that BPD/SUD compared to SUD alone had more comorbidity of diagnosis like ADHD, bipolar disorder and depression (Wapp et al., 2015). Similarly, SUD/PD patients compared to SUD alone are more prone to have axis I comorbidity, lower GAF scores, and higher symptomatic distress (Langås et al., 2012). BPD/SUD patients often suffer from "complex comorbidity", where the comorbidity often involves both an affective disorder together with an impulsive disorder (Zanarini et al., 1998). BPD/SUD patients also suffer from heightened emotional dysregulation compared to SUD alone (Bornovalova et al., 2008; Gratz, Tull, Baruch, Bornovalova, & Lejuez, 2008). Furthermore BPD/SUD patients have been found to have more suicide attempts then BPD alone; this has also been found in patients with antisocial PD and SUD, but when controlling for BPD this relationship disappears (Darke, Williamson, Ross, Teesson, & Lynskey, 2004;

Yen et al., 2003). One study found that the clinical characteristics of their BPD diagnoses (e.g., impulsivity, affective lability, affective intensity, externalizing behaviours, and self-harming/suicidal tendencies) do not appear to be more severe with the presence of SUD, compared to BPD alone (Lee, Bagge, Schumacher, & Coffey, 2010). In conclusion the co-occurrence of PD/SUD adds suffering and severity to both diagnoses, and much research exists on the high risk group of BPD/SUD. These dual diagnosis patients appear to be among the most challenged patients.

Substance use

In addition to more severe mental health problems, their substance use problems are also more complicated than for patients with SUD alone. For instance, PD/SUD patients are more likely to use illicit drugs than alcohol, their SUDs have an earlier onset and longer duration, they demonstrate more polysubstance use and more hazardous behaviour like needle sharing, and their SUDs are more severe (Darke et al., 2004; Langås et al., 2012; Ross et al., 2003; Vélez-Moreno et al., 2016; Wapp et al., 2015). Thus, both SUD and mental health are more challenged when these two diagnoses co-occur.

Socio-contextual factors

These patients appear to be younger than SUD patients without PD, less likely to be employed, and more likely to have severe childhood trauma which includes psychical, emotional abuse and neglect (Gratz et al., 2008; Langås et al., 2012; Wapp et al., 2015). They also display more violence towards both self and others (Karterud et al., 2009). Of importance is also these dual diagnoses patients' risk for early death. SUD is a potentially deadly disorder, and some PDs are also related to early death. One Swedish study followed a cohort of 561 SUD inpatients for 30 years. At follow-up, 36% of these patients had died. The average age of persons with substance related death was 36 years, and for non-substance related death, the average age was 48 years; PD was not a predictor for increased risk of early

24

death, but substance dependency was clearly so (Nyhlen, Fridell, Backstrom, Hesse, &

Krantz, 2011). In another sample of 125 admitted SUD patients where 84% had PD, their

psychiatric status at 5-year follow-up predicted the mortality rate at 15-year follow-up. By

that point in time, 24% of the patients had died. The authors underline that perhaps for SUD

patients, psychotherapy is more lifesaving than drug-abuse services (Fridell & Hesse, 2006).

Thus, for PD/SUD patients, one of the potential risks is premature death, but the presence of

PD might not exacerbate the risk of early death for these patients. Addressing their

psychological impairment therapeutically is recommended.

Thus, in summary, the co-occurrence of these two disorders pose challenges in

treatment and cause individuals to suffer exponentially. PD/SUD appear to be more impaired

on several parameters compared to both diagnoses alone. The implications of these studies are

that both SUD treatment facilities and specialised programmes for PDs need to give special

attention to these patients, as they appear to have increased vulnerabilities.

Etiological models of PD and SUD

A high co-occurrence between PD and SUD suggests that there are some causal

pathways between the two disorders (Verheul, 2001; Verheul & van den Brink, 2005). In a

27-year follow-up study of former inpatients diagnosed with BPD the presence of SUD

diminishes parallel to the BPD diagnosis (Paris & Zweig-Frank, 2001) suggesting that the

relationship between these diagnoses also follows a natural trajectory as interconnected. There

are multiple etiological models of SUD, and they are hard to either prove or disapprove. In

addition, the models are often in conflict with one another (Alexander, 2010). Thus, what

SUD is for one individual, is not the same for another. In addition, multiple models can have

explanatory values for individual cases: "For example a borderline patient may use stimulants

to reduce feelings of boredom and use alcohol to regulate affective instability (affect-

regulation model). After a while, the patient becomes addicted to both substances which in turn aggravate the impulsivity and set the conditions for aggressive suicide attempts (neuro-pharmacological model). Simultaneously, the patient may become entangled with a deviant peer group, leading to both increased antisocial behaviour (social learning model) and additional substance abuse (developmental behaviour genetic model) (Verheul & van den Brink, 2005, p.133)". It seems that to understand SUD in PD, one needs to add many bricks to the puzzle.

Historically models of SUD have varied; in classical models PD was seen as a primary etiological factor (the moral and symptomatic model) but later models (pharmacological and disease) have not recognised PD (Verheul, 2001). In the moral model, PD and SUD were seen as the same diagnosis: "sociopathic personality disorder". The disease model conceptualises SUD as a chronic biological disorder, the view on prognosis is negative and it can potentially lead to stigma and victimhood (Cihan, Winstead, Laulis, & Feit, 2014). There are negative consequences of both understanding SUD as part of PD, and seeing SUD as a purely biological disorder. One pitfall with connecting PD and SUD can be that some psychotherapy schools do not recognise that SUD is a primary and independent disorder which needs to be treated on its own terms, and instead they treat SUD as a symptom of an underlying problem (Zweben & Clark, 1990). On the other hand, to treat SUD as a chronic biological disease could lead to interventions where support and maintenance of health are focal, while neglecting obvious personality problems.

Today we conceptualise addictions as a bio-behavioural diathesis-stress model. In this model, both the onset and the course of SUD are a result of reciprocal processes between inherited vulnerabilities and psychosocial contexts. In the dual diagnosis of PD/SUD three pathways are suggested: 1) Behavioural disinhibition pathway (antisocial and some of BPD), 2) stress reductions pathway (avoidant, dependent, schizotypal and BPD), and 3) reward

sensitivity pathway (histrionic and narcissistic) (Verheul, 2001). The behavioural disinhibition pathway predicts that individuals with high scores on antisociality and impulsivity have lower thresholds for deviant behaviours such as substance use. The stress reduction pathway predicts that individuals prone to traits like stress reactivity, anxiety sensitivity and neuroticism are vulnerable to experience stressful life events, which in turn can lead to self-medication for perceived stress. The reward sensitivity pathway predicts that individuals with traits like novelty seeking, reward seeking, extraversion and gregariousness will use substances due to their positive reinforcement.

On a more superordinate level, explanatory models exist; the perspective on attachment and emotional regulation is of importance when trying to understand PD/SUD. One possible way of understanding individual's use of illegal substances and alcohol is by regarding it as a self-soothing or emotional regulating behaviour (Khantzian, 1997, 2012). This is especially relevant for BPD. BPD is a disorder with three main problem areas: social dysfunction, emotional dysregulation and impulsivity (Bateman & Fonagy, 2016). The theoretical link between SUD and BPD, is that during moments of emotional dysregulation and reduced mentalizing (i.e., activation of the attachment system) substance use and alcohol function as a regulator that calms the individual down and re-establishes a subjective experience of emotional stability (Philips, Kahn, & Bateman, 2012). This proposed stress reduction pathway is a model where PD is seen as primary to SUD (Verheul & van den Brink, 2005). Regulating negative emotions and impulsivity have been found to be central causal agents in the substance use problems found in the BPD group (Bornovalova, Lejuez, Daughters, Rosenthal, & Lynch, 2005; Verdejo-García, Bechara, Recknor, & Pérez-García, 2007). These studies support the notion that emotional dysregulation is related to SUD.

A related perspective is the attachment perspective on SUD (Flores, 2004). Substance use utilises the same reward systems in the brain as attachment, and hence rewards

individuals potently; it might even block the need for attachment to others (Insel, 2003).

Understanding SUD as an attachment disorder is one of the proposed models of substance use

(Cihan et al., 2014; Flores, 2004; Thorberg & Lyvers, 2010), and substance use has been

convincingly demonstrated to co-vary with childhood trauma (Dube, Anda, Felitti, Edwards,

& Croft, 2002; Dube et al., 2003; Felitti et al., 1998). Understanding SUD as an attachment

disorder gives a clinical picture of patients where self-regulation problems, alexithymia, an

incoherent self, inability to engage in healthy relationships and inability to regulate behaviour

and self-care, are proposed as key problem areas (Khantzian, 2012). In order to understand

PD and especially BPD, one cannot avoid the importance of the attachment perspective.

Within the mentalization-based understanding of PD, the primary etiological model is that the

developmental pathway and experiences gained in early attachment relationships have

contributed to the development of interpersonal issues and difficulties with emotional

regulation (Fonagy, 2001). Thus, theoretically SUD and BPD represent overlapping problem-

areas. These problem areas, especially if SUD replaces the need for attachment to others, pose

challenges in psychotherapeutic approaches to this patient group. Better mentalizing abilities

have been suggested as a central treatment target for the BPD/SUD group (Olesek et al.,

2016; Outcalt et al., 2016).

Mentalization-based treatment

MBT was developed by Anthony Bateman and Peter Fonagy in London, working with

severely disordered PD patients. MBT has its roots in attachment theory, psychoanalytic

theory, evolutionary psychology and cognitive psychology and originally, the main target

population for this treatment was patients with BPD. Mentalization is defined as: "the ability

to understand actions by both other people and oneself in terms of intentional mental states

such as thoughts, feelings, wished and desires" and is supposedly a key problem area for

people suffering from PD (Bateman & Fonagy, 2016, p.3). All psychotherapies do improve mentalization but MBT differs in that it targets mentalization specifically, and the aim is to increase patients' capacity for mentalizing, especially in attachment relationships. Classical MBT is a combined treatment with a course of initial assessment and participating in a psychoeducational group, then weekly individual and group therapy for up to 3 years. In addition, therapists have weekly video-based supervision. MBT are defined by manuals where how to conduct group, individual and how to run the psychoeducational group are defined (Bateman & Fonagy, 2016; Karterud, 2011, 2012; Karterud & Bateman, 2010).

Main interventions are the not-knowing stance, focus on the mind and mind states, focus on relationships and emotions, and addressing the relationship between therapist and patient. The therapist has an important role in the psychoeducation about the mind and how the mind works, by being transparent about their own thought processes and feeling states while being in a relationship with the patient. The latter is named working in the transference or mentalizing the relationship.

The main mechanism of change in MBT is thought to be increasing patients' mentalizing capacity in the midst of an attachment relationship with therapists and fellow group members. This is done by carefully monitoring patient's mentalizing level during sessions and addressing their manner of thinking or feeling whenever they demonstrate diminished mentalizing capacity. Or better said in the words of the authors: "the core of MBT is to rekindle mentalizing when it is lost, to maintain it when it is present, and to increase the resilience of the individuals' capacity to keep it going when it would otherwise be lost" (Bateman & Fonagy, 2016, p. vi).

A recent study indicated that by increasing PD patients' mentalizing capacity in treatment, their symptomatic distress improves (De Meulemeester, Vansteelandt, Luyten, & Lowyck, 2017). This strengthens the notion that mentalizing is an important mechanism of

change. Mentalizing level at pre-treatment has also been found to relate to difficulties with forming an alliance for patients with chronic depression (Taubner, Kessler, Buchheim, Kächele, & Staun, 2011). Another study has underlined that mentalizing level before treatment will relate to more positive outcomes in some formats of treatment but not others (Gullestad, Johansen, Høglend, Karterud, & Wilberg, 2013). In this study patients with low mentalizing (reflective functioning) responded better to treatment in one format (outpatient individual psychotherapy) but not to another (step-down day hospital treatment) in terms of psychosocial functioning outcomes. This suggests that for the most vulnerable patients content of treatment will matter and that mentalizing is a potential mediator of change. A third study with severely disordered BPD/SUD patients demonstrated that MBT adherence and quality of the therapeutic interventions correlated positively with patients' mentalizing capacity in the same session (Möller, Karlgren, Sandell, Falkenström, & Philips, 2016). This study demonstrates a direct link between MBT adherent interventions and increased mentalizing. These studies together tentatively point towards mentalizing as an important mechanism of change for PD patients and PD/SUD patients, and that content in therapy can positively influence outcomes for patients with low pre-treatment mentalizing levels.

For patients with dual diagnosis PD/SUD, no study on the efficacy of MBT has been published. Some of the studies on MBT have included patients with SUD and thus a minority of these samples had concurrent PD/SUD (see for instance Bales et al., 2012). These studies show that MBT are favourable in the treatment of PD. Indirectly this could imply that MBT has some potential in the treatment of these dual diagnosis patients.

For MBT, several studies, both RCT's and naturalistic cohort studies, demonstrate that MBT is an effective treatment for BPD (Bales et al., 2015; Bales et al., 2012; Bateman & Fonagy, 1999, 2001, 2008, 2009; Jørgensen et al., 2014; Jørgensen et al., 2013; Kvarstein et

al., 2015). MBT has also been shown to be superior when clinical severity is taken into account (Bateman & Fonagy, 2013).

Psychotherapy for dual diagnosis BPD/SUD

Three therapy models have been tested with BPD/SUD patients (Lee, Cameron, & Jenner, 2015). These include dynamic deconstructive psychotherapy (DDP), dialectical behaviour therapy (DBT) and dual focus schema therapy (DFST). In total 10 controlled trials have been published. So far results are slightly favouring DBT, but drop-out from these studies have been quite substantial. There is an agreement in the field that more knowledge on specialised treatment for dual diagnosis patients is warranted.

Many have advocated the need for targeted treatments, where both the PD and SUD are focused on simultaneously. The studies that have been published on psychotherapy with dual diagnosis patients underline the following therapeutic strategies: The DBT approach underlines use of drug-specific behavioural targets for treatment of problem drug use, attachment strategies for fostering a strong therapeutic alliance, and dialectical abstinence where strategies for promoting change and strategies for promoting acceptance are utilized for gaining substance use abstinence (Dimeff & Linehan, 2008). In DBT four studies on BPD/SUD have been performed with beneficial results in favour of DBT (Harned et al., 2008; Linehan et al., 2002; Linehan et al., 1999; van den Bosch, Verheul, Schippers, & van den Brink, 2002).

DDP is a tailored approach for BPD patients who are difficult to engage in therapy, for instance those with comorbid SUD or antisocial PD. In DDP therapeutic strategies are: activate neurocognitive impaired functions by verbalising affects and elaboration of interpersonal experiences, integrating polarised attributions towards self and other, and working with moment-by-moment affective responses in order to enhance self-other

differentiation. DDP has published three controlled trials on the efficacy with BPD/SUD demonstrating the potential of DDP compared to treatment as usual (TAU) (Gregory et al., 2008; Gregory, DeLucia-Deranja, & Mogle, 2010; Gregory, Remen, Soderberg, & Ploutz-Snyder, 2009).

DFST is a cognitive-behavioural therapy that focuses on maladaptive cognitive schema and coping styles. The SUD DFST utilises traditional relapse prevention techniques for interpersonal, affective and craving factors. DFST has been tested in three clinical trials and has demonstrated reduction in substance use (Ball, 2007; Ball, Cobb-Richardson, Connolly, Bujosa, & O'Neall, 2005; Ball, Maccarelli, LaPaglia, & Ostrowski, 2011).

In MBT the hypothesised mechanism of change for PD/SUD patients is supposed to be improving mentalizing in situations that would trigger substance use. In MBT for PD/SUD the following elements have been suggested as important: stabilisation both socially and medically, promoting alliance to avoid situations that could trigger relapse, psychoeducation about mentalizing in connection to relapse vulnerability, establishing a therapeutic relationship, focusing on feelings and experiences in relation to SUD, exploring relapses, mobilizing abilities to reflect on current mental states and target regulation of emotions (Philips et al., 2012). To date there is only one unpublished study from Stockholm on MBT for BPD/SUD. In this RCT patients received 18 months of MBT or TAU within an outpatient addiction treatment clinic. Surprisingly the MBT patients (n = 24) did not differ from the control-group (n = 22) with respect to outcome. There was one near significant finding (Mann-Whitney p = 0.06) that demonstrated that the MBT group had no suicide attempts during treatment, vs four in the control group (Philips, 2016). However, we cannot know for sure that treatment in this study was MBT proper, since adherence was low (Karterud & Bateman, 2010; Möller et al., 2016; Philips, 2016).

Potential challenges and pitfalls in psychotherapy for PD/SUD

For patients with the dual diagnosis PD/SUD, there are several potential pitfalls in treatment. Their ability to form an alliance with therapists is more difficult than for SUD patients without PD (Olesek et al., 2016). Cluster B traits do evoke more distanced or disorganized feelings in their helpers, which in turn might lead to negative outcomes (Betan, Heim, Zittel Conklin, & Westen, 2005; Thylstrup & Hesse, 2008). The drop-out risk is higher (Ball, Carroll, Canning-Ball, & Rounsaville, 2006; Brorson, Arnevik, Rand-Hendriksen, & Duckert, 2013). The cluster B/SUD combination also leads to worse outcomes in therapy (Marlowe, Kirby, Festinger, Husband, & Platt, 1997), higher risk for suicide attempts (Yen et al., 2003), worse psychosocial functioning and higher attrition (Cacciola, Alterman, Rutherford, McKay, & Mulvaney, 2001). Thus, it seems that "ordinary" SUD treatment is not sufficient for the needs of these patients. Many have voiced the need for specialised treatments when dealing with dual diagnosis PD/SUD (Gratz et al., 2008; Ravndal, Vaglum, & Lauritzen, 2005; Stefánsson & Hesse, 2008; Toftdahl et al., 2016; Vélez-Moreno et al., 2016).

Patients with severe PD are known for being quite challenging in treatment, and they are vulnerable to iatrogenic damage. This is especially true for patients with BPD (Fonagy & Bateman, 2006). Therapists can "act out" on patients due to negative feelings about them, establish symptoms or narratives that do not belong to the patients because of pseudomentalizing, over activate the attachment system by becoming overwhelmed and utilise inpatient treatment or supportive interventions in conflict with patients' agency. One way of avoiding iatrogenic damage is to ensure that these patients get specialised treatments where some common factors are included. Bateman and colleagues have summarised these common factors for working with BPD (Bateman, Gunderson, & Mulder, 2015):

- Structured (manual directed) approaches to prototypic BPD problems

- Patients are encouraged to take control of themselves (i.e., sense of agency)

- Therapists help connect feelings to events and actions

- Therapists are active, responsive and validating

- Therapists discuss cases, including personal reactions, with others

Another article compared MBT, DBT, TFT and general psychiatric management (GPM) concluding that although these treatment approaches are different they share two main factors. These are therapists that provide a stable holding frame and second focus on patients' inner motives together with taking patients' concerns seriously (Hopwood, Swenson, Bateman, Yeomans, & Gunderson, 2014). The National Institute for Health and Clinical Excellence (NICE) guidelines were developed in Britain with the purpose of advising on treatment and management of health issues (NICE, 2009). Their summary of effective psychotherapy treatment for BPD concludes that the following criteria should be followed in treatment with this patient group: an explicit and integrated theoretical approach which is used by both the treatment team and is shared with the patient, structured care in accordance with the NICE guidelines, therapist supervision, twice weekly sessions, avoid brief psychological interventions (<3 months), for reducing self-harm DBT should be considered. Furthermore, with a review of the treatment evidence the NICE guidelines conclude that the overall evidence for efficacious treatments are poor, and that some preliminary evidence exists for psychological therapy programmes, especially DBT and MBT with partial hospitalisation. It seems that structured treatment therapy programmes with a clear treatment rationale are recommended for BPD and that only preliminary evidence exists for treatment efficacy. When it comes to PD/SUD the field is in an exploratory phase and the evidence base is still poor.

For SUD patients no agreement on preferred psychotherapy exists. In the guidelines for drug dependence "Drug misuse and dependence: UK guidelines on clinical management" the following is said about treatment for patients with SUD and co-occurring mental health problems (Department of health: London, Independent Expert Working Group, 2017): "Evidence-based guidelines exist for the treatment of many of these mental health problems and, in general, the co-existence of a drug problem should not be a reason for denying a service user access to the recommended treatment usually provided by mental health services (p.73)". Furthermore, specifically for PD/SUD their recommendations are that "the use of standard interventions for the treatment and management of personality disorders in line with current authoritative guidelines should be recommended to patients where appropriate (p.75)". A review also supports this perspective and the authors suggests that clinical guidelines for PD can be followed when working with PD/SUD. In addition to the recommended guidelines for PD they suggest that one adds these ingredients to the treatment programmes when dealing with dual diagnoses (Bosch & Verheul, 2007):

- Risk assessment
- Particular emphasis on motivational interviewing and validation
- Long-term treatment programme with structure and safety together with intensified individual counselling for preserving the working alliance
- Supervision for therapists
- Specialised therapists with skills in psychotherapy, psychopathology, PD and SUD
- Interventions targeted on motivational, interpersonal and perception problems
- Participation in an appropriate aftercare programme.

Diagnosing PD in SUD is recommended and SUD clinics have potential for improvement, both in the discovery of PD and in the treatment of PD/SUD (Darke et al., 2004; Karterud et al., 2009). In the mental health field, the improvement potential lies in including dual diagnoses patients in the specialised programmes and adding the necessary ingredients to the programmes.

Research questions

The primary aim for this project was to investigate the feasibility of MBT treatment for female patients with PD and SUD. We investigated these issues thoroughly through three methodologically different papers: one in-depth single case study, one qualitative interview study and one feasibility pilot study looking at relevant outcome measures and criteria for implementation of the study protocol.

The research questions were as follows:

Paper 1: What are the effects of disorganised attachment upon personality functioning and substance abuse, and how is it transformed through MBT? What are the central mechanisms of change?

Paper 2: How do female patients with clinically significant borderline traits and comorbid SUD experience their own central change processes after participating in a MBT programme? When these patients experience change in psychotherapy, what central change processes do they highlight? Do they experience changes in their ability to mentalize when looking back at the therapy process?

Paper 3: What is the feasibility of MBT with female patients with severe PD and SUD? Does MBT have any positive effect on BPD/SUD patients' substance use and personality structure (primary outcome)? Does MBT have any positive effect on symptom distress, interpersonal and social functioning (secondary outcome)?

Methodology

In this dissertation quantitative, qualitative and mixed approaches were utilised for the different papers. When performing research in a field where little prior research has been done, methodological plurality is recommended (Blatt, Corveleyn, & Luyten, 2006). A single case study is especially relevant for generating hypotheses about psychotherapy processes, exploring patients' experiences qualitatively is appropriate to generate knowledge on how psychotherapy works, while quantitative outcome analyses are the best approach for investigating the possible efficacy of the treatment. Furthermore, exploring these different aspects of MBT with PD/SUD patients within a pilot study opens up the possibility of making assumptions on the feasibility of implementing a larger RCT study with the same patient population.

The pilot project

This study was performed as a pilot study. Pilot studies are recommended before initiating a costly RCT or a multicentre trial, and they are routinely performed within many clinical areas (Thabane et al., 2010). Pilot studies can be conducted with both qualitative and quantitative data (Thabane et al., 2010). Pilot studies are useful for investigating different feasibility aspects of a treatment study and can thus inform on potential changes that are needed in order to be able to perform the larger main study and equally inform on the necessary criteria of successfully running the larger study. Pilot studies are a less described method in health research and are often not given sufficient attention in method books, thus

they are often misrepresented (Thabane et al., 2010). The main aim of a pilot study is to examine the feasibility of an approach that is intended to be investigated in a larger scale study, for instance the RCT (Leon, Davis, & Kraemer, 2011). This is in part due to economic reasons; you do not want to embark on a RCT study which will fail due to some failure with the protocol or assessment procedures. But the feasibility of the larger study is important to investigate also for other reasons than economic. Thus, investigating all aspects of the RCT in a smaller scale study is economically reasonable and ensures safety for participants, optimises personnel and data management issues and ensures that unforeseen hindrances are avoided (Thabane et al., 2010). The following elements can be evaluated in a pilot study: feasibility of recruitment, randomisation, retention, assessment procedures and implementation of the novel intervention (Leon et al., 2011). A pilot study is not good for hypothesis testing as the small samples size is often too small which makes statistical analyses problematic due to low power. When you do hypothesis testing, results should be treated as preliminary and interpreted with caution as formal power calculations have not been performed (Lancaster, Dodd, & Williamson, 2004). In this particular study, we aimed to evaluate the following elements: preliminary data on changes in several outcome measures, retention rate, testing of data collection forms, recruitment and consent to participate and acceptability of intervention. The primary aim of the pilot study was to investigate if MBT with PD/SUD patients would warrant further investigation in a RCT study. When concluding on pilot studies the outcome can be one of the following four conclusions: 1) main study not feasible, 2) feasible with modifications, 3) feasible with close monitoring and 4) feasible as is (Thabane et al., 2010).

Quantitative methodology

Quantitative approaches in psychotherapy research are best suited for asking questions about efficacy of the treatment. We utilised a quantitative methodology in paper 3, where

different outcome measures were analysed with linear mixed model statistical analyses (Singer & Willett, 2003). In paper 1, we utilised HSCED which involves both quantitative and qualitative data analyses (Elliott, 2002). Here we followed a singular patient's outcome data descriptively in order to reflect on whether her individual changes could inform us on psychotherapy processes.

Linear mixed models

In article 3, linear mixed models (LMM) were utilised for the statistical analysis. We performed an intention to treat analysis where all patients' data were included in the analysis (Gueorguieva & Krystal, 2004). It can be argued that LMM, because of using data from all participants, provide less biased treatment effects compared to the classic methods like ANOVA (Feingold, 2009). LMM is especially well suited for psychotherapy research as they are designed for measuring the process of change over time (Singer & Willett, 2003). LMM have a number of names like hierarchical linear models, mixed-effects models, multilevel models, random regression models and growth curve modelling for longitudinal data analysis (Tasca & Gallop, 2009). One of the primary reasons to utilise LMM is the simple fact that data often is positioned in multiple levels (Luke, 2004). In psychotherapy datasets the data typically are on different time points during therapy (level 1) and occurring within each individual patient (level 2) (Tasca & Gallop, 2009). Furthermore, data could potentially have even more levels, for example within different treatment centres (level 3) as in multicentre trials or with different therapists. LMM have built-in assumptions which enable dealing with missing data, which is common in naturalistic psychotherapy studies. LMM deal better with unbalanced datasets than traditional analytic methods like ANOVA as no assumption of sphericity is integrated in the model (Gueorguieva & Krystal, 2004). In ANOVA, means are calculated for each time point for the participants, their individual variances are calculated and differences between means relative to their pooled variances are analysed for statistical

significance. The integrated assumption of sphericity in ANOVA entails that error variances across time are the same and correlations between two time points are equal. This is an untenable assumption in psychotherapy datasets, as the error variances will be expected to be different at for instance end of treatment compared to start of treatment (Gallop & Tasca, 2009; Tasca & Gallop, 2009). The underlying assumption in LMM is that missing data is missing at random (MAR). MAR is defined that the missing data is independent of the value of the outcome variable, but can depend on some other observed variable in the study (Gallop & Tasca, 2009). In LMM missing data points for a given subject will be replaced by adjustment to the grand mean, and individuals with more measurements will have a higher weight than individuals with few (Tasca & Gallop, 2009). We decided that due to the possible relationship between primary outcome variables at baseline and missing data that we needed to use a method for replacing the missing data and reduce the possible inflation of effect sizes. We imputed 20 datasets, using the R package "mitml" (Grund, Robitzsch, & Luedtke, 2017). We used the default inverse-Wishart priors, this provides the minimum degrees of freedom with the largest dispersion. In addition, we used 50 000 burn ins, 10 000 iterations apart. We aggregated estimates and standard errors across the multiple imputed data sets (Barnard & Rubin, 1999), and by that adjusted for smaller sample sizes using 28 degrees of freedom.

For the secondary outcome measures we modelled a time metric of 6-month intervals which resulted in 12-time points from start of treatment to the follow-up assessment. On average the participants had a mean of 4 assessments (range 2-6). For the primary outcome measures we had only 2 time points in the analyses, start of treatment (N = 18) and follow-up (N = 13).

We performed exploratory visual analyses of the dataset prior to applying the LMM analysis as recommended when using this method (Singer & Willett, 2003). The descriptive visual analyses included both individual changes over time, and change at group level over

time. The visual descriptive analyses revealed that a model of linear change could be a good fit and that the outcome variables followed a normal distribution. Analyses were performed with IBM SPSS statistics 23 and R version 3.4.2 (The R foundation for Statistical Computing, 2017).

First, we used a spaghetti plot for visualising the mean pattern of the different outcome variables as a function of time on the group level. This was done to check that the data support the analysis of a linear change over time. Second, we used lattice plots in SPSS for visualising the variation in patterns of change across time with one graph per subject. The lattice plots allow us to identify and perform a visual inspection of linearity. Third we examined individual ordinary least squares plots to evaluate if the linear model was appropriate for the data as recommended by Singer and Willett (2003). Fourth, we performed an analysis with a random intercept fixed slope model as described in the following equation:

$$\gamma ij = \beta oj + \beta 1ij + e$$
$$\beta oj = \beta o + Uoj$$

Due to a small sample size, this model of LMM (the random intercept/fixed slope) was the best analysis we could perform; in this model we assume that the covariance structure is variable at the intercept level (start of treatment) but that the slope of change during treatment is the same (Gallop & Tasca, 2009). Due to the complexities of the LMM, large sample sizes are required, and even with just a few predictors large samples are necessary. Unequal sample sizes at different levels pose no problems to the analyses (Tabachnik & Fidell, 2013). We could not investigate non-linear change trajectories due to the sample size, and we kept the predictors to a number of one (time). The rule of thumb in LMM is that you need at least 20 observations on level 1 and 30 observations on level 2 (Bickel, 2007). Others argue that

sufficient power for cross-level effects is obtained when sample size at the first level is not too small and n is 20 or larger at level 2 (Tabachnik & Fidell, 2013). In our study we have an n of 12 at level 1 (timepoints) and n of 18 at level 2 (patients) for the secondary outcome measures. For the primary outcome measures we had an n of 2 at level 1 and 18 at level 2. We chose to perform LMM on the primary outcome measures instead of ANOVA in order to include all data in the analyses. When LMM is performed with only two n's at level 1 it functions more like complex ANOVA analyses than an LMM, but the analyses can be performed. We evaluated the sample size to be sufficient for this pilot study, because we used one predictor and kept the slopes fixed and only allowed the intercept to be random. There is some support for this notion in Monte Carlo simulations which have concluded that when the sample size is under 20 the estimates are biased upwards, but that the simplest models with only a random intercept are the best-case scenario for small sample sizes (Stegmueller, 2013). Our goal with this basic analysis was to substantiate that changes occurred from start of treatment to follow-up and that we would find a linear increase on the primary and secondary outcome variables. Effect size was calculated by first calculating pseudo R^2 using the bivariate correlation between predicated scores and observed scores and then using the following equation to transform it into Cohen's d for interpretative purposes.

$$d = 2r/\sqrt{(1-r^2)}$$

Outcome measures

SUD diagnosis

Patients were interviewed with the Mini-International Neuropsychiatric Interview-Plus (M.I.N.I-plus) before treatment, and at follow-up (Sheehan et al., 1998). M.I.N.I-plus is a structured diagnostic interview covering the most prevalent axis I disorders within both DSM-IV and ICD-10.

PD diagnoses

Patients were diagnosed with PD by clinical interviews before treatment and at follow-up according to the Structured Clinical Interview for DSM-IV (SCID II) (Gibbon, Spitzer, & First, 1997). Following the Longitudinal Expert All Data (LEAD) principle some of the diagnoses were revised after further clinical observation during the treatment period (Spitzer, 1983). The SCID II is a semi-structured 94 item clinical interview that investigates the presence of PD according to the criteria from DSM-IV. Questions are answered with yes or no, and then further investigated through probing for examples. The interviewer decides if a patient fulfils criteria on SCID II based on all available clinical information.

SCL-90 –R symptom distress

Symptoms were measured with SCL-90-R (Derogatis, 1977). General severity index (GSI) is a well-known symptom distress measure and it is widely used within psychotherapy research. GSI gives a broad picture of the patients' symptom distress. It is an average score of the 90 total items. The clinical/non-clinical cut-off level is set at GSI = 0.8 for women based on a Norwegian patient sample (Pedersen & Karterud, 2004). Cronbach's alpha at baseline for SCL-90-R was 0.89.

Interpersonal functioning

Interpersonal functioning was measured as the Circumplex of Interpersonal problems (CIP) (Pedersen, 2002), which is a Norwegian short version of the IIP-C (Horowitz, Rosenberg, Baer, Ureño, & Villaseñor, 1988). The mean sum score (CIP) correlates highly (r = 0.99) with the original IIP-C sum score (Pedersen, 2002). The clinical cut-off score of CIP is 0.8, i.e., one standard deviation above mean IIP sum scores (mean = 0.53) in a non-clinical Norwegian population (Kvarstein et al., 2015; Pedersen, 2002). CIP has 48 items with a five-point scale where subjects rate the degree of interpersonal problems. The CIP sum score is an indicator of the general level of experienced interpersonal problems, and are based on a mean

average of all 48 items. Cronbach's alpha at baseline = 0.56. This low score is due to a few items on CIP, but we chose to leave it as is.

Global assessment of functioning

The Global Assessment of Functioning scale (Hall, 1995) is a widely used rating scale, ranging from 0 to 100, where 100 represents maximal global functioning (Pedersen & Karterud, 2012). GAF has shown high reliability between experienced judges and GAF is a quick and easy instrument that can be used for measuring an individual patient's need for treatment and which level of health care (Pedersen, Hagtvet & Karterud, 2007). A score of 60 indicates mild symptoms or impairment and is considered a good cut-off indicator for functional impairment in studies with treatment of PD (Kvarstein & Karterud, 2012).

Self-esteem

The Rosenberg self-esteem scale (RSES) is a ten item self-report questionnaire (Rosenberg, 1986). The ten items are rated on a four-point scale from "strongly disagree" (1) to "strongly agree" (4). Cut-off for "normal" self-esteem lies at 3 (+- 0.4). According to one study across 53 nations, RSES has good internal consistency with a mean Cronbach's alpha coefficient reported of 0.81 (Schmitt & Allik, 2005). In the current study Cronbach's alpha at baseline was 0.89.

Work and social functioning scale

The work and social functioning scale (WSAS) is a five-item self-report questionnaire (Mundt, Marks, Shear, & Greist, 2002). The five items are rated on an eight-point scale from "not impaired at all" to "severely impaired" and is based upon the last four weeks of functioning. Scoring ranges from 0 to 40, where a score above 20 represents severe psychopathology and functional impairment, a score between 10 and 20 represents functional impairment but less severe clinical symptomology. The cut-off score between clinical and non-clinical populations lies at 10. Cronbach's alpha at baseline = 0.85.

Treatment retention

In this study we defined drop-out as terminating prior to 6 months of treatment, following the definition by Kvarstein et al. (2015).

Qualitative methodology

Psychology has been dominated by positivistic and post-positivistic perspectives, and thus has been somewhat limited in advancing the field of qualitative inquiry (Ponterotto, 2005). Clinical psychology and psychotherapy have always been preoccupied with idiographic and first-person perspectives, but has perhaps not focused that much on the scientifically approaches that are tailored for exploring idiographic perspectives. In contrast to natural scientific approaches which strive to explain or categorise human phenomena, humanistic and qualitative approaches look for the meaning of human phenomena and to understand the lived experiences of humans (Van Manen, 1997).

We utilised qualitative methodology in paper 1 and paper 2. The qualitative approaches were hermeneutic single case efficacy design (HSCED) (Elliott, 2002) and thematic analyses within a hermeneutical phenomenological epistemology (Binder, Holgersen, & Moltu, 2012; Braun & Clarke, 2006). In paper 2 we performed semi-structured qualitative interviews informed by the client change interview (Elliott, 1999).

Hermeneutic single case efficacy design

HSCED is an analytic method tailored for investigating treatment causality in therapy cases where N = 1, and it involves a mixture of quantitative and qualitative analytic tools (Elliott, 2002). As RCTs can be criticised for not encompassing the complexity of psychotherapy processes, N = 1 designs are tailored for investigating complexity and ambiguity. N = 1 can be a good design for inferring causality in psychotherapy processes. In short, HSCED constructs evidence networks of both quantitative and qualitative data,

demonstrates possible causal links between therapy process and outcome, and finally

investigates non-therapeutic factors that might explain the change. This method is quite

complex and it might shed light on the ambiguities of the psychotherapy process. It could be

argued that it fits better than RCT designs for investigating causality in such complex

processes as psychotherapy. In article 1, we selected a singular case that we referred to as

Eva, a patient with schizotypal PD who underwent three years of MBT in our pilot project.

The materials used for the analyses were longitudinal test scores like GSI (Derogatis, 1977)

and GAF (Jones, Thornicroft, Coffey, & Dunn, 1995), transcripts of videotapes of individual

therapy sessions throughout the whole therapy, and her medical journal. Eva was pleased to

be able to participate in a study that could possible help therapists with meeting patients like

her, humanely and effectively.

Thematic analysis

In paper 2 we interviewed 13 patients on their experiences of change processes in

MBT. Thematic analyses within a hermeneutical-phenomenological epistemology were the

approach chosen for the analyses of the qualitative data (Binder et al., 2012; Braun & Clarke,

2006). Thematic analyses can be viewed as a foundational method in qualitative analyses and

should be considered a method in its own right. Thematic analyses can be utilised within

epistemologically different paradigms. Thus, researchers need to make their assumptions

transparent (Braun & Clarke, 2006). Braun and Clark do not tie thematic analysis to any

particular epistemological approach, but point out that it "is compatible with both essentialist

and constructionist paradigms within psychology (p.78)". Because of this, they also argue that

it is very important that researchers make explicit their epistemological assumptions. The

epistemological framework we chose stems from the philosophical directions of

phenomenology (Husserl, 1970) and hermeneutical phenomenology (Heidegger, 1996).

Thematic analyses can be described as a method for "Identifying, analysing and reporting

patterns (themes) within data. It minimally organizes and describes your data set in (rich) detail (Braun & Clarke, 2006 p. 79)".

The six stages of thematic analyses are:

1. Familiarising yourself with the data

2. Generating initial codes

3. Searching for themes

4. Reviewing themes

5. Defining and naming themes

6. Producing the report

Reflexivity

In a thematic analysis, making decisions in the analysis transparent is important, all the underlying assumptions about, for example, the nature of data should be recognised as decisions and explicitly described so that (Braun & Clarke, 2006):

1) the qualitative study can be evaluated by others, and

2) the study can be compared to other studies on the same subject.

Researcher's pre-assumptions can possibly influence findings. In this study the goal was not to get rid of pre-assumptions, but rather to reflect on how and in what manner pre-assumptions influence the findings of this particular dissertation. We have tried to handle this by utilising reflexivity as a tool. Reflexivity can be understood as "a process of continually reflecting upon our interpretations of both our experience and the phenomenon being studied so as to move beyond the partially of our previous understandings (Finlay & Gough, 2003, p. 108)". Furthermore, researcher reflexivity is utilised in qualitative inquiries as part of the strategies utilised to be transparent on one's own perspectives and to ensure credibility for the qualitative studies. Reflexivity entails that we can attempt to understand how our experiences and pre-understandings affect the research process (Morrow, 2005). In this study three

strategies were utilised in order to ensure that we had a reflection on researcher subjectivity and bias:

1) The first author had a permanent focus on pre-assumptions;

2) All findings were a result of research team discussions and consensus; and

3) The co-authors, one with both feet thoroughly planted in the field of quantitative research and one with an external position from the pilot project and positioned as a hermeneutical-phenomenological researcher, had interchangeably the role as the devil's advocate.

Three of the authors of this study were involved in the pilot project and theoretically have interests in the field of MBT. One of the authors was more externally positioned and had expertise in qualitative methodology. All authors were working clinically with patients, and three of us exclusively with PD. As for the pre-assumptions, we did believe that MBT would be a good treatment method for severe PD and SUD, but we were also open to a poor outcome. In the analyses of the transcripts of interviews with the patients, we were especially conscious of this expectation, so that it would not channel our view in a direction where only positive feedback from the participants would be included in the themes. The role of the second author, who had a more external position in terms of not being involved in the clinical pilot project, was then important. Having the theoretical framework from MBT in mind with so many rich descriptions of psychopathology and psychotherapy processes; it required time to reach participants' experiences on a more phenomenological level. This part of the analyses required time and concentration.

Qualitative interviews

To explore patients' experiences of change processes in MBT we chose the qualitative interview as the method for gathering data. An interview within the hermeneutical-phenomenological approach involves more than just gathering data. The multi-layered relationship between interviewer and participant involves an interpretative process from both

parties on each other's intentions and mental states. There is a need for reflexivity on this relational process (Binder et al., 2012).

A semi-structured interview can be defined as "an interview whose purpose is to obtain descriptions of the life world of the interviewee with respect to interpreting the meaning of the described phenomena (Kvale, 1996 p.5)". Furthermore, there is a potential benefit from doing interviews retrospectively. Patients have processed more of what they have been through and have a clearer mind in remembering important aspects of the therapy process. Validity is retained because emotions felt in the recall of an event mirrors the actual emotion felt during the event (Morse, 2011). We chose a semi-structured interview format influenced by the client change interview protocol (Elliott, 1999) (see Appendix 1 for interview protocol). The questions we chose for the interview guide were related to our research question on how female PD/SUD patients experienced MBT and their own change processes. Three interviewers (authors 1, 2 and 3 of paper 2) performed the qualitative interviews.

Epistemological assumptions

Being transparent about the philosophical assumptions is part of the recommended guidelines for qualitative research and can be named as "owning one's perspective" (Elliott, Fischer, & Rennie, 1999). When it comes to epistemology (the nature of what can be known about reality), our study is positioned in a hermeneutical-phenomenological framework. Phenomenological research maintains that we need methodological approaches that both consider the phenomenon studied, and that consider the relationship between researcher and what is being researched (Finlay, 2012). In pure phenomenological research the assumption is that through "bracketing" one can achieve transcendence of one's own assumptions. Hermeneutic phenomenology holds the position that we can never rid ourselves of all assumptions and must therefore instead reflect upon them and their role in the analyses. It can

be argued that bracketing of one's researcher bias in any real way is impossible and epistemologically this dissertation is more at home in the hermeneutical-phenomenological perspective than in the phenomenological perspective alone. The interpretation of meaning (hermeneutics) is a central approach to the qualitative data in this dissertation. Hermeneutical phenomenology is also occupied with the lived experiences of the participants and aim for insightful descriptions of experience as it appears (Finlay, 2012). The life-world has in phenomenological philosophy a particular meaning, as it refers to a structural whole shared by humans but that is apprehended by individuals through their different points of view (Wertz, 2005). Lived experience can only be approached retrospectively, because when we reflect on experience it has already passed (Van Manen, 1997). To approach participant's experiences of therapy with a hermeneutical-phenomenological framework was important, as we wanted to understand the distinctive characteristics and the first-person experiences of this kind of therapy.

Data analyses

In the thematic analyses, our main focus was to find repeated patterns of meaning in the dataset. In phenomenology we are concerned with the meaningful experience of the phenomenon and we aim to find the essence of meaning as it appears through interpretation (Van Manen, 1997, 2016). The repeated patterns of meaning consist of participants' experiences in light of our research questions, and then our interpretation of the meaning of these experiences. Our interpretations are the hermeneutical aspect of the analyses.

We followed the structure of performing hermeneutical-phenomenological thematic analyses as described by Binder, Holgersen and Moltu (2012). Transparency of the self-reflective processes and the dialogue between researcher and the researched participant (on all levels) is easiest when following a clear structure in the analytic process. This is a team based analysis and the following steps were followed (Binder et al., 2012):

1. The qualitative interviews

The interviewers noted their immediate impressions and responses after their dialogues with the participants. Discussions between interviewers to establish a sense about the heterogeneity and homogeneity of the participants' experiences, plus increase researcher reflexivity, were performed. Our discussions around alcoholics anonymous (AA) and one participant illustrate how we worked to gain a sense of researcher reflexivity: One of the interviewers, after interviewing the patient, had focused a lot on the patient's experiences with AA. The first author was at first worried. This worry was stemming from own ideas on AA as an approach to addiction. In AA the view on SUD follows a disease model of addiction, and total abstinence is the recommended approach to SUD. AA's model of SUD is different from the first author's preferred model, thus some negativity appeared within the mind of the first author. This patient was one of three participants who mentioned AA in the interviews. Later when analysing the transcribed interviews, this discussion led to having an extra eye on whether she and the others were influenced by their AA experience when describing MBT. We found a differentiated view on both the beneficial aspects and the more problematic aspects of both MBT and AA. What was important was to reflect on whether one's own negative pre-assumptions about AA would influence the interpretations of these participants' experiences as a patient receiving MBT.

2. All researchers read and became familiar with the transcribed material

In order to familiarise with the data, the first author transcribed all the qualitative interviews and started the process of making notes and thinking about themes and recurrent patterns. All researchers read all of the transcribed material to obtain a basic sense of the participant's experiences and a gradual recognition of one's own pre-assumptions were part of this phase.

3. By being guided by the research question, the first author identified separate content units that represent different aspects of the participant's experiences.

4. The first author developed meaning codes from the now categorised transcribed material

The content units were categorised in "meaning codes" with the help of computer software Nvivo (Bazeley & Jackson, 2013). Meaning codes can be defined as concepts or keywords attached to a text segment in order to permit later retrieval (Kvale & Brinkmann, 2009). With the research question in mind, all authors read through the transcripts and the first and second authors generated initial codes which were as close as possible to the participants' actual descriptions and experiences. In this phase of the analyses, the attitude of curiosity and to strive to put oneself into the situation of the participants are crucial (Wertz, 2005). This part of the analyses amounted to a 500-page text with categorised units, and this laid the ground to start summing up the categories into themes. One example of this process from content units to meaning codes is illustrated in Table 1, and is gathered from an early phase of the analyses.

Table 1. From content units to meaning codes in the thematic analyses

Content units	Meaning codes
• Stress influence thinking • Do not like my looks • A magnet on problems • Unstable emotions • Impulsivity • Feelings of guilt • Thinks in black • Cannot distinguish feelings from one another • Inner chaos • Feelings control behaviour • Self-contempt • Desire to die • Intense emotions • Avoid emotions • Cannot recognise emotion • One track thinking • Difficulties with having an opinion • To be overwhelmed by feelings	Difficulties with self-functioning prior to treatment

5. The first author interpreted and summarised the meaning within the preliminary categories into meaning patterns and themes. These themes reflect large segments of data and their implicit meaning.

The themes aimed to be phenomenological and it was thus natural to put them into "I am, I feel, I experience" jargon. This part of the analysis involves emphatic listening to the voices in the text, and then extracting their overall meaning or "essence". Van Manen has pointed out that to do phenomenological research, posing a question or research question is not enough; the researcher needs to fully devote him or herself to finding the nature of the phenomenon (1997). Thus, this process involves going back and forth between the voices of the data and the descriptions of a theme until the theme has the quality of something that feels real and is close to the participant's experiences but lifts their quotes into a more universal level of description. Themes that are "empty", for example that all participants really liked the social counsellor (without nuances) were discarded.

6. All researchers turned back to the overall text to check whether voices and points of view shall be added and develop further the themes suggested. Primary ideas on interpretations emerge in this phase.

7. Finally formulating the themes and landing on agreement in the whole research team.

Themes were created with the aim of being homogenous internally but heterogeneous in relation to each other. All authors agreed upon the themes and elaborated them if necessary. All authors also returned to the dataset to ensure that no themes were missed after the analyses and that all participants were heard. This procedure of analysis has been thoroughly described by Braun and Clarke (2006). This kind of analysis entails several circles of going back and forth between the whole and the part of the text, between the pre-assumptions of the researcher and the experience of the participant. Researcher pre-assumptions might not be immediately revealed, but may come to the fore at a conscious level as we go through these

circles of interpretation (Davidsen, 2013; Smith, 2007). Or in other words, by listening to the "otherness" carefully, the "me-ness" will become increasingly clearer (Binder et al., 2012).

Results

Summary of paper 1

HSCED (Elliott, 2002) was utilised for analysing the therapy process of one female patient (Eva) that struggled with schizotypal PD, cannabis dependency and harmful substance use (opiates, benzodiazepines and stimulants). She participated in the three-year pilot project of MBT. Eva was considered a "hard to reach" patient, and had undergone several out- and inpatient treatments prior to this pilot, without any lasting effect. She was judged to have a disorganised attachment pattern. She lacked any consistent strategy for handling closeness to others. Accordingly, in early treatment phases she was very distanced and sceptical towards her therapists and fellow group members.

We collected abundant data: video-recordings of all individual sessions throughout the therapy, extensive case records from earlier treatments, recollections of the weekly and monthly supervisions as recommended in the manual of MBT (Bateman & Fonagy, 2016), reflections within the author team on issues like countertransference, change, diagnostic status, quantitative measures such as GAF and SCL-90 (Derogatis, 1977; Jones et al., 1995; Pedersen & Karterud, 2012), and dialogues with Eva about change and her experience of change. We then analysed this rich case material with a focus on two factors: we questioned whether Eva had actually changed, and secondly we questioned which aspects of the therapy had most likely influenced her to change. Finally, we analysed nontherapeutic factors to see whether her change could be due to other factors.

In the paper we documented her disorganised attachment style as well as her change process with process descriptions and quotations. Video material was selected by reading

through her medical journal and then choosing individual therapy sessions that could highlight the process of treatment and recovery. These sessions were then transcribed and verbatim dialogues between patient and therapist shed light on the following themes: disorganised attachment, difficulties with mentalizing self and other, relational ruptures, psychic equivalence mode, transferential and countertransferential processes and the development of a more robust sense of self.

We concluded the following: 1) that Eva had changed in a clinically significant way, 2) that MBT was the main causative process for her change, 3) that the main mechanisms of change were reparations of ruptures in the alliance, handling countertransference and working in the transference through constant efforts at mentalizing the relationship, and 4) that treatment gains made it possible for her to maintain her mentalizing abilities even in close relationships that formerly would activate profound mental confusion.

Summary of paper 2

In paper 2 we used thematic analyses within a hermeneutical-phenomenological epistemology to investigate psychological change for 13 patients who had participated in the MBT pilot project approximately two years after completing treatment. All patients were interviewed with a qualitative semi-structured interview (see Appendix 1) on their experiences with MBT and their views on change and mechanisms of change. Our question to the data material was "How do female patients with clinical significant borderline traits and comorbid SUD experience their own central change processes after participating in a MBT programme? When these patients experience change in psychotherapy, what central change processes do they highlight? Do they experience changes in their ability to mentalize when looking back at the therapy process?" In order to reach patients' experiences within a hermeneutical-phenomenological perspective we followed the recipe of performing thematic analyses described by Braun and Clarke (2006) and elaborated within a hermeneutical-

phenomenological epistemology by Binder and colleagues (2012). In the analytic process researcher reflexivity has been emphasised (Finlay & Gough, 2003).

In summary we found that patients experienced meaningful psychological change after participating in MBT and that by gaining the ability to reflect on their own feelings and thinking processes, interpersonal encounters became more flexible and ultimately patients experienced an increased sense of an agentic self. The following model summarises the findings from paper 2.

Figure 1. Central change processes after participating in MBT
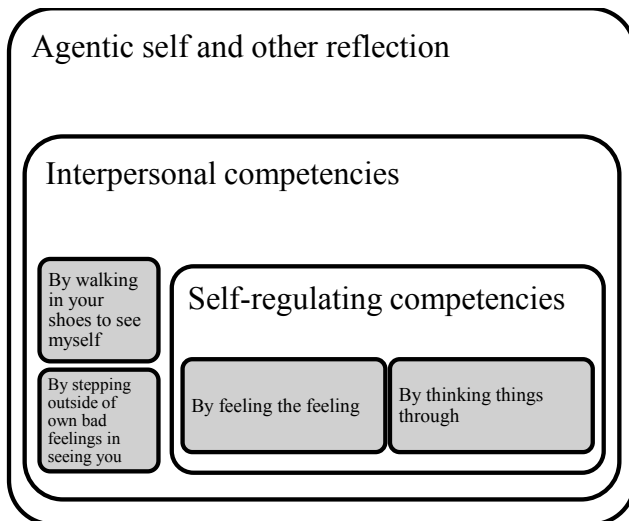
Summary of paper 3

In the third paper we evaluated the MBT treatment in a pilot study format. The main goal was to evaluate the feasibility of MBT with female patients diagnosed as severe PD/SUD. We aimed for evaluating the following criteria: preliminary data on change in several outcome measures, retention rate, testing of data collection forms, recruitment and consent to participate, acceptability of intervention. We analysed primary and secondary outcome measures that the patients (N = 18) had been assessed on from start of the treatment,

until follow-up assessment. Primary outcome measures were SUD and PD (Gibbon et al., 1997; Sheehan et al., 1998); secondary outcome measures were interpersonal functioning (CIP) (Pedersen, 2002), general functioning (GAF) (Hall, 1995), work and social functioning (WSAS), symptom severity (GSI) (Derogatis, 1977) and sense of self-esteem (RSES) (Rosenberg, 1986). The statistical analyses were performed using LMM (Singer & Willett, 2003), and the design was a random intercept fixed slope in a growth curve longitudinal model. Both primary and secondary outcome measures demonstrated significant change, with all but CIP reaching over the clinical cut-off in our estimated model at the time of follow-up two years after end of treatment. CIP was only significant with a one-tailed test. The results are quite encouraging on behalf of these patients' treatment potential.

Table 2. Results of primary outcome measures

	Predicted mean baseline	Predicted mean follow-up	t-value P-value	Effect Size Cohen's d
SUD diagnosis	1.8	0.16	$t\,(df\,28) = \text{-}6.26,$ $p < .001$	2.12
PD traits	17.7	7.9	$t\,(df\,28) = \text{-}\,3.71,$ $p = .001$	1.31
BPD traits	5.4	2.0	$t\,(df\,28) = \text{-}6.24$ $p < .001$	1.94

Table 3. Results of secondary outcome measures

	Baseline (intercept)(SE)	*Change-rate every 6 months (slope)(SE)*	*5.5-year effect size Cohens d*
Symptom distress (GSI)	1.25 (0.14)	–0.06 (0.02)	1.18

Interpersonal functioning (CIP)	1.28 (0.10)	–0.03 (0.02)	0.71
Self-esteem (RSES)	2.34 (0.15)	0.07 (0.02)	0.96
General functioning (GAF)	46.89 (2.15)	1.90 (0.41)	2.06
Work/social functioning (WSAS)	18.71 (1.74)	–1.36 (0.33)	1.87

Furthermore, in evaluating feasibility criteria in this pilot, we concluded the following:

1) Preliminary data on change of several outcome measures indicated that MBT treatment provided both clinically and statistically significant changes in primary and secondary outcome measures.

2) Retention rate seemed to be acceptable. The retention rates of the pilot are not higher than that of other studies with severe PD/SUD and a percentage of 22% drop-out from treatment is considered acceptable and expected for this patient group. In the follow-up assessment the retention rate increased to 28% which is more problematic. Many data are lost to analyses with such a high number, and could potentially confound the conclusions.

3) Testing of data collection forms indicated that patients had no trouble with filling out their forms or following the schedule of assessment. There were some gaps in data during the longitudinal assessment, mostly due to clinicians that did not follow the assessment schedule. We suggest here that more automated systems of assessment are adopted. One suggestion would be to use resources for employing a person who is in charge of punching and collecting assessment forms from clinicians, and who can provide clinicians with frequent reminders.

4) Recruitment and consent to participate; patients were easily recruited and consented to participate. No trouble was reported with the consent to collect data anonymously from them or to the format of MBT treatment. In the follow-up assessment some trouble was encountered with recruitment to participate. Out of 18 patients, 5 did not participate. In a larger study we suggest that monetary compensation for participating is maintained, but we have no further suggestions for how to increase the participation rate.

5) Acceptability of intervention: One patient who denied participating in the follow-up and threatened with suicide if we ever contacted her again, indicated discontentment with the treatment. No other data indicated that patients did not accept the treatment intervention. For this patient, more detailed case formulations would shed light on the negative experiences she had.

Overall, we concluded the following: Our study indicates that MBT might be a promising treatment modality for female patients with the comorbidity of PD/SUD. For the majority of patients both their drug and alcohol consumption and personality problems improved. However, the results for the cohort as a whole are uncertain, since 28% of the patients did not respond to follow-up. These favourable results indeed call for a larger randomised study. We conclude that the feasibility of performing a RCT with this patient group and with this study protocol is feasible with close monitoring. Adherence with assessment is needed.

Discussion

The main questions of interest were whether MBT would be feasible as a treatment approach and if a larger study on treatment efficacy with these dual diagnosis patients is warranted. Furthermore, we were interested in exploring how patients experienced MBT and

whether the patients themselves found it helpful. We investigated this question thoroughly through three methodologically different papers: one in-depth single case study, one qualitative interview study and one quantitative feasibility study looking at relevant outcome measures for these patients. The primary finding of this dissertation seems to be that MBT is a promising treatment for female patients struggling with PD/SUD. This assertion is supported by an in-depth exploration of one singular therapy process, patients' own descriptions of their change processes and analyses of the numerous assessments that patients went through during treatment and at follow-up. The majority of patients in this study did change and these papers together build a picture of how PD/SUD patients benefit from MBT.

Furthermore, the secondary finding is evaluating the feasibility aspects of the pilot study. We came to the following conclusions:

1) It is feasible to implement MBT in a general drug clinic;

2) Patients had failed in other treatments for their drug addiction but did well in this treatment, so they could be the target group for a further study;

3) Patients found the treatment acceptable;

4) Data can be collected routinely over time;

5) Efficacy of the treatment on primary (PD, SUD) and secondary (interpersonal functioning, symptomology, social and work functioning, self-esteem) outcome measures were promising.

Furthermore, there are different implications of the three papers. The following questions will be discussed: What are patients' experiences of change in MBT? What have we found on mechanisms of change in MBT? Is MBT a promising treatment for PD/SUD patients? In addition, I will give an overview of the limitations of the methodology of all papers. Finally, clinical implications and implications for further research will be discussed.

Patients' experiences of change

Asking the patients themselves about their experiences of change seems important in this field where we have little knowledge on these patients' potential in psychotherapy. Pessimistic perspectives on these patients' prognosis exists and the division found in many countries between drug treatment and psychiatric treatment reduce these patients' chances of receiving proper treatment on their dual diagnosis ailment (Toftdahl et al., 2016). Furthermore, PD patients with SUD are often excluded from axis II treatments (Bosch & Verheul, 2007). We asked the patients in methodologically different ways. In medical quantitative research we can capture diagnostic profiles, prognostic perspectives, treatment efficacy and factors related to treatment outcome and treatment processes. Patients' actual experiences, how it is to live with a disorder and its meaning for that person, are better captured by more interpretative-phenomenological methods (Van Manen, 2016). In paper 1, our verbatim transcriptions of individual therapy videos shed light on the patients' experience of change in an observatory indirect manner. Our qualitative investigations in paper 2, with interviews of patients were suited for capturing how they have experienced change in therapy. In paper 3, we analysed preliminary data on efficacy of MBT, where patients filled out our self-report assessment frequently throughout the treatment trajectory. These results also shed light on patients' experiences of change.

Thus, this dissertation involves methodologically different sets of data and analyses. Our quantitative data can possibly shed light on change according to outcome measures known in the field. This allows us to compare these patients' change with other patients' change. It also allows us to tentatively conclude whether the treatment was effective or not. Our qualitative data can shed light on these patients' lived experiences with MBT. These data capture the how and what questions in psychotherapy research (Binder et al., 2012). The qualitative data's potential lies in that we can add meaning to the numbers that we have in our

quantitative outcome data. We can answer questions of whether their change was experienced as positive and meaningful, and not only if change occurred.

From paper 3 we substantiated that patients changed statistically significantly as well as clinically. We used several quantitative tests and structured interviews which investigated patients' change through the treatment and until follow-up approximately two years after treatment. These assessments and their results are summarised in paper 3. Both our primary and secondary outcome measures displayed significant changes from baseline to follow-up and the effect sizes were moderate to high. In psychotherapy research, one important question is if the change is not only statistically significant, but also clinically significant. This is an especially important question when the sample size is small and the patient group is heterogeneous, as they typically are in naturalistic clinical settings. We included cut-off levels for clinical significant change on our longitudinal outcome measures. All measures but interpersonal functioning reached predicted non-clinical levels in a 5-year trajectory, including the confidence intervals (see figures 2-6 in article 3). We argued that their change could be attributed to being in treatment because of the following factors:

1) Most patients had had multiple attempts at prior treatments, without experiencing any lasting effects on their SUD or PD;

2) even though the natural trajectory of BPD/SUD is symptomatic improvement and sometimes remission of SUD, the majority had almost full remission of SUD and they also had improvements in interpersonal functioning which is rarer for BPD patients in therapy; and

3) Our descriptive data on the 5 patients who did not participate in the follow-up and had a lower mean time of treatment than follow-up attenders, indicated that these patients untreated, suffer serious consequences (suicidality, interpersonal dysfunction, serious physical harm). Not all these patients were defined as drop-outs, but they all had lower mean time of received MBT treatment except for one. This particular patient had a long duration of MBT treatment

and expressed over the telephone during follow-up recruitment that she had negative

experiences with MBT. Her experiences could possibly have shed light on potential negative

experiences of MBT but unfortunately we could not reach her for an interview. Thus, from

paper 3 to conclude that patients experienced both statistical and clinical change seems valid.

Furthermore, patients' description of qualitative change implies that their experiences

of change were substantial and involved both new strategies to deal with core themes of

PD/SUD and an increased sense of agency. As for the qualitative data, patients reported that

not only did they symptomatically change, which we already know from the quantitative data,

but also that the manner in which they dealt with themselves and others had significantly

changed. These changes were in line with our understanding of mentalizing as a concept, and

underscored the notion that mentalizing is an important change process in MBT. We found

similar change mechanisms when analysing a single therapy process in paper 1. For the

patient "Eva" increased mentalizing was an important part of the therapeutic change process

and even though she still experienced symptoms like unstable affect, she dealt with that

differently and experienced less existential pain. Thus, altogether our findings demonstrate

that our quantitative and qualitative data overlap, they both demonstrate that patients

experienced positive changes. Furthermore, the data gives indices on how the data overlap;

symptomological change occurs, but it is the agentic mental process for dealing with

symptoms and behaviour that is underlined by the patients when telling the stories of their

own change process.

Mechanisms of change

To investigate mechanisms of change in psychotherapy, mediator and moderator

analyses are best suited. Qualitative explorative approaches can generate hypotheses on

possible mechanisms of change. In paper 1 we suggested that both handling

countertransference and working in the transference were central mechanisms of change in

MBT. In MBT working in the transference means to work with the relationship between therapist and patient, here and now, in a mentalizing manner (Bateman & Fonagy, 2016) and should not be confused with classical ideas on transference work where genetic interpretations are performed. Handling countertransference feelings in the therapist is described as crucial in MBT. In addressing countertransference MBT recommends identifying one's own feelings first, and then talking about those explicitly with the patient. The therapists' feelings need to be marked and together with the patient there is a joint exploration on whether the patient contributed to that feeling or not. Therapists are advised to address their countertransference in supervision with colleagues who potentially have a cooler mind (Bateman & Fonagy, 2016). Acting out on countertransference feelings is generally considered damaging while addressing countertransference within a theoretical framework and a cool mind is recommended (Hayes, Gelso, & Hummel, 2011). The weekly team supervision is an important arena to handle and explore countertransference. No studies have been performed on the importance of dealing with countertransference in MBT, but in general strong therapeutic frames like team work and video supervision are recommended when working with PD. Moreover, alliance and managing countertransference have been convincingly demonstrated as an important ingredient in therapy across patient groups and treatment modalities (Hayes et al., 2011; Horvath, Del Re, Flückiger, & Symonds, 2011). In paper 1 we hypothesised that working in the transference was an important mechanism of change. Some studies support this notion. One study demonstrated that alliance is especially difficult for BPD/SUD patients (Olesek et al., 2016). Another study demonstrated that with severe PD, especially for females, working in the transference had a positive impact on outcome (Ulberg, Johansson, Marble, & Høglend, 2009).

From paper 2 we substantiated that patients changed and in what manner they changed. Mentalizing appeared to be an important mechanism of change, by changing their

experience of their core issues and symptomology. For instance, BPD patients are known for struggling with separation anxiety (Karterud et al., 2016), and this is considered a core theme for these patients. Our findings seem to demonstrate that this core theme does not necessarily change after therapy; patients are still sensitive to separation in relationships, but the manner in which they deal with this core theme is different. Through wilful reflection and focusing on the unpleasant affect, they seem to endure their core themes better. In a recent study on 207 PD patients in MBT treatment, mentalizing appeared as a mechanism of change as this study demonstrated that mentalizing improved in MBT treatment and furthermore symptomatic distress decreases via increased mentalizing (De Meulemeester et al., 2017). The findings from paper 2 support this study. It seems that mentalizing functions as a buffer between these patients' core issues of interpersonal problems and emotional dysregulation and how they act on these core issues. By gaining an increased sense of agency over their own difficulties, their symptomatic distress seems to get reduced. Another study has also demonstrated positive correlations between the quality of MBT interventions and an increase in patients' mentalizing, and this study was performed with PD/SUD patients (Möller et al., 2016). Together, these studies, including our own, indicate that the MBT therapeutic discourse promotes increased mentalizing among individuals in the borderline range and with SUD as an additional burden.

Paper 3 demonstrated that change occurred. Both their PD and SUD changed positively and in addition different measures on social functioning changed, symptomatic distress was reduced and self-esteem and interpersonal functioning increased. We did not investigate any moderators or mediators on those outcomes, and we recommend that when larger studies are performed, these proposed mechanism of change are also explored in statistical analyses and with quantitative data.

Is MBT a promising treatment for PD/SUD patients?

Several pitfalls and challenging aspects have been found when it comes to psychotherapy with dual diagnosis PD/SUD. With these patients it is challenging to achieve positive outcomes and change (Bosch & Verheul, 2007; Links, Heslegrave, Mitton, Van Reekum, & Patrick, 1995; Thomas et al., 1999), treatment attrition happens (Ball et al., 2006) and alliance problems frequently occur together with negative/disorganised countertransference (Betan et al., 2005; Olesek et al., 2016; Thylstrup & Hesse, 2008). It is also a problem that health systems are organised with a division between substance use problems and psychiatric health care so that patients risk only getting qualified help for one of their disorders at a time (Toftdahl et al., 2016). Therefore, many have called for specialised treatment for dual diagnosis (Bornovalova et al., 2008; Bosch & Verheul, 2007; Cacciola, Alterman, McKay, et al., 2001; Karterud et al., 2009),

We have investigated through three different papers the effects of MBT with PD/SUD patients. We have found that MBT seems especially suited to deal with countertransference issues and that this has a beneficial influence on alliance and treatment attrition (paper 1). Furthermore, we found that patients experience positive and meaningful change in their ability to handle dysregulated emotions and misinterpretations of others (core issues in PD) when in treatment (paper 2), and ultimately, we demonstrated that patients experience remission of both their diagnoses (SUD and PD) and that their symptomology also declines substantially during the treatment trajectory (paper 3). To summarise, there are multiple indications that point in the direction of concluding that MBT is a promising treatment for PD/SUD patients.

Limitations

To investigate whether patients actually have changed after participating in psychotherapy is an important question. How can we know that what we are doing has

beneficial effects, if we do not ask that question? Trusting our clinical observations alone would be naïve as we know that therapists overrate their own performance plus underestimate deteriorations of clients (Walfish, McAlister, O'Donnell, & Lambert, 2012). Even when performing research our allegiances to the treatment we investigate have positive influences on the findings, for example by giving larger effect sizes (Luborsky et al., 1999). Thus, striving to utilise some kind of systematic objective evaluation together with a reflexive position is of importance. Methodological plurality is also advised when investigating a phenomenon as complicated as psychotherapy (Blatt et al., 2006). RCT is the gold standard in measuring efficacy, but RCT is also a format that often is far away from naturalistic settings – in the clinics where we actually perform our jobs. The paradox is that the closer we get to our own clinical realities, the further away from scientific objective standards we get. In other words, when choosing to perform research on real clinical work, the consequence is reduced internal validity (Roth & Fonagy, 2013). All these dilemmas and possible pitfalls are important caveats to remember when analysing the implications of the studies performed in this dissertation.

We concluded that MBT with PD/SUD can and should be investigated in a larger RCT study. The main problems with the study were that the quantitative part had a small sample and the lack of a control group. Sample sizes of N = 18 are small, in particular for statistical analyses. On the positive side, LMM have the benefit of including all data in the analyses. This study was limited by the small number of participants and it only included women. Our findings are intriguing, but caution must be taken when it comes to generalizability.

A control group would have been helpful before implementing a larger RCT, and as it is now, we do not know which possible caveats exist when utilising a control group. Even though this was a pilot study the lack of control group is a limitation to the conclusions we can draw. In pilot studies, a control group is particularly illuminating so that the aspects of the

control group can also be tested for feasibility (Leon et al., 2011). Nevertheless, our study has shed light on feasibility aspects of an MBT study protocol with a challenging patient group.

When it comes to the preliminary conclusions on efficacy, the study can only draw tentative conclusions about the efficacy of MBT. But the results seem promising. The dissertation' main benefit is that it is naturalistically valid, that these patients represent "real" PD/SUD patients, and their treatment experiences occurred in an "ordinary" addiction clinic.

In qualitative research, adequacy of the data is normally not ensured by the sample size, but has more to do with the richness of the data in combination with the analytical skills of the researcher (Morrow, 2005). Data is rich if it contains paradoxical findings or different directions inside the same phenomenon. Triangulation with other sources of information will provide richness to the findings, and increase the adequacy or validity of the data. Since the first author was the individual therapist to six of the participants, and in addition part of the clinical team responsible for the treatment of all 13 participants, it was inevitable that our richer knowledge influences the interpretation of findings in the qualitative data. Thus, our findings must be viewed as embedded in our clinical experiences with these same participants. Even though our findings from our perspective have trustworthiness as to having extracted essential meaning of these participants' experiences with MBT, generalizing poses some challenges. We cannot say if MBT is a better method than others (Van Manen, 1997), but we can say that we are describing how MBT is experienced and how change, when participating in MBT, is experienced for these participants. There exist other rich descriptions that are equally valid but would be different because of the pre-assumptions of the researchers and their focus. Our findings demonstrate a possible human experience of participating in MBT, thus its universality or intersubjectivity stems from that it is one of several possible ways of experiencing MBT (Van Manen, 1997). We do not know if these conclusions are biased by our own expectations of positive change (self-assessment bias) (Walfish et al.,

2012), or by patients over-reporting positive change or by other factors. In addition, our in-depth analyses of a singular case from the pilot project could shed light on change for that particular patient. To generalize from a single-case study to a group level would be erroneous. However, it might be suited for producing hypotheses about psychotherapeutic processes (Roth & Fonagy, 2013).

Implications for further research

We need to investigate whether MBT is efficacious with PD/SUD in a larger randomised trial which includes a control group. To date the evidence for MBT with PD/SUD is very limited and points in both directions; one study indicates that there is no difference from the control group (Philips, 2016), while our pilot study indicates that there is potential for positive outcomes on several measures. Our pilot study has shown that it is possible to perform a study with this patient population and with MBT as a treatment intervention. Thus, the implementation of a larger study is a question of time, resources and funding.

Furthermore, we have found that working in the transference is a potent intervention in MBT with PD/SUD together with handling countertransference. Both quantitative moderator/mediator analyses would be interesting, and further qualitative studies on ingredients in MBT supervision which lead to good handling of countertransference would be interesting.

In addition, we found that mentalizing is an important mechanism of change. We do not know which interventions lead to improved mentalizing, although there is some evidence that adherence to the MBT manual leads to better mentalizing (Möller et al., 2016). Process studies which investigate the interventions of MBT could shed light on this complex process, and qualitative studies with a focus on which elements patients themselves find helpful would also be of importance. We also recommend performing studies with male PD/SUD patients and their experiences of MBT.

Implications for clinical practice

The main implication this study has for clinical practice is advisory. Our findings indicate that patients with PD/SUD can benefit potently from specialised treatment (MBT) tailored to address both PD and SUD. If so, there is perhaps less need for prognostic pessimism in the SUD clinics and psychiatric treatment centres. We need more research on the matter. We suggest that clinical institutions attempt to build systematic and evidence based treatment approaches for these patients and ideally these same clinics would also attempt to systemise their experiences in a scientific manner so that we can get more knowledge on if and how treatment works for dual diagnosis patients.

Additionally, there are some factors that have emerged as important in the work with PD/SUD. First, it seems that it is important to have a plan for how to handle countertransference and in addition work in the transference with the patients. Supervision for therapists, working in teams around patients and "owning" that patient together, address the relationship with patients all seem to make a difference for effective treatment with this group. Second, mentalizing or metacognition or the ability to have a reflexive stance on one's own mental states seems to be an important mechanism of change in psychotherapy for PD/SUD. There are many ways to Rome, and we do not claim that MBT is the only way, but our findings indicate that achieve better mentalizing is one meaningful approach to deal with core themes in PD and SUD. Furthermore, increased mentalizing gives patients a heightened sense of agency. Agency has been suggested as a key ingredient when working with PD (Bateman et al., 2015). Finally, and most importantly, it seems clear that for the patients MBT is experienced as a meaningful approach to their difficulties, and for that reason together with the indications of efficacy, implementation of MBT in drug clinics seems like a reasonable intervention.

Conclusion

This dissertation has broadly investigated MBT with female PD/SUD patients and has explored how patients experience change in treatment, the possible important mechanisms of change, the preliminary results on efficacy, and to what degree the pilot study was feasible and warranted a larger RCT study. These questions were investigated in three methodologically different papers: a single-case study using the analytic method of HSCED (Elliott, 2002), a qualitative interview study with the analytic method of thematic analysis within a hermeneutical-phenomenological epistemology (Binder et al., 2012; Braun & Clarke, 2006) and a quantitative efficacy study where longitudinal primary and secondary outcome data were analysed with a LMM (Singer & Willett, 2003). Mentalizing was found as an important ingredient in patients' experiences of change and that they experienced increased agency and better symptomatic control. Furthermore, working in the transference and handling countertransference seemed to be important mechanisms of change. In addition, findings indicated promising improvement on PD, SUD and general measures on functioning and symptomology for these patients at time of follow-up, two years after terminating MBT. And finally, the conclusion is that a larger RCT study with this treatment protocol and this patient group is recommended.

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Appendix

Appendix 1 - Interview Protocol

Treatment experience prior to MBT and differences/similarities to MBT:

- Did you receive any treatment before MBT? When compared to MBT, what is similar/ different?

The participants' experience of psychological difficulties prior to MBT:

- Could you describe the difficulties that led you to enter MBT?

Changes overall:

- What kind of changes, if any, have you experienced since starting MBT?

- Do you think there is a connection between MBT and whether your troubles have gotten worse/better?

Changes in the ability to mentalize:

- Mentalizing failure is what you have been addressing in this therapy. Mentalizing is the ability to think and feel conjointly, in a nuanced manner, about what is going on in you, in others and between people. This ability can be very dependent on context. Sometimes it is fine and other times you are just "lost". By that, we mean episodes where the extreme version is "to breakdown", "stop thinking", "go black", "fall into the basement", "cannot deal anymore", "need to get away", "need to overeat", "get suicidal thoughts", "need to get high" etc. Milder versions are "difficult to concentrate", "difficult to focus", "feeling overwhelmed", "having trouble with thinking clearly", "think more in black and white", "to feel very unsure", "to be very suspicious" etc. In your case this could be situations that lead to substance use, but that doesn't have to be the case.

- Do you recognise yourself in this?

- Has this (use participants' own words) changed during treatment?

Evaluation of conjoint treatment format and how the participants experienced group therapy:

- How was the experience of participation in both individual and group therapy?

- How did you experience the social counsellor and her role?

Their experience of working in the transference:

- Did you notice that you and the therapists talked about the relationship that you had with them?

- How useful was it to address the relationship?

Experience of the therapy as a whole:

- When you look back at the therapy as a whole—what is your experience?

- Is there something that was not good about the therapy? Is there a situation that highlights why it was not good or useful?

- What has been helpful about the treatment? Is there a situation that was very helpful?

- Do you have any suggestions on how we can improve the treatment?

III

Mentalization-based treatment for female patients with comorbid personality disorder and substance use disorder: A pilot study

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Our pilot study indicates that mentalization-based treatment may be a promising treatment modality for female patients with comorbid substance use disorder and borderline personality disorder, write Katharina T. E. Morken and colleagues.

BY: Katharina T. E. Morken, Per-Einar Binder, Helge Molde, Nina Arefjord and Sigmund Karterud

One possible way of understanding substance use is by seeing it as one of several self-soothing strategies utilized by patients who struggle with personality problems (e.g., emotional dysregulation and social deficiencies) (Philips, Kahn, & Bateman, 2012). Substance use disorder (SUD) and personality disorder (PD) are frequently co-occurring but clinically their comorbidity is often ignored or treated separately; in some institutions, SUD is even considered an exclusion criterion in treatment programs for PD.

There is no doubt that the comorbidity between personality disorder and substance use disorder overall is high. Numerous studies have demonstrated the frequent covariance between these two disorders (Cacciola, Alterman, Rutherford, McKay, & Mulvaney, 2001; Fenton et al., 2012; Hasin & Kilcoyne, 2012; McGlashan et al., 2000; Thomas, Melchert, & Banken, 1999; Trull, Jahng, Tomko, Wood, & Sher, 2010; Verheul, 2001). It has been debated whether it is PD in general or Cluster B specifically that drives the covariation. It has also been discussed if the covariance can be explained by overlapping criteria (e.g., impulsivity in borderline personality disorder (BPD) and antisocial PD).

For example, in one study of opiate use disorders in the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), 50% of respondents had a PD. When controlling for the general criteria for PD, borderline personality disorder became a clear predictor for SUD (Jahng et al., 2011). It has been suggested that the covariation between BPD and SUD are linked via impulsivity (Jahng et al., 2011; McGlashan et al., 2000). Among SUD patients, a median of 57% (range 35%–73%) had concurrent PD (Verheul, 2001), and among PD in the general population, the prevalence of comorbid SUD was 42% for alcohol and 19% for substance use (Trull et al., 2010).

In Scandinavian samples, the co-occurrence of SUD in PD in a population-based study was 46% (Toftdahl, Nordentoft, & Hjorthøj, 2016). For female patients with SUD, BPD is the most common personality disorder (Landheim, Bakken, & Vaglum, 2003). Cluster B personality traits have been found to be independent risk factors for developing SUD (Cohen, Chen, Crawford, Brook, & Gordon, 2007; Walter et al., 2009). BPD has been found as a significant risk factor for the persistence of SUD (Fenton et al., 2012), but remission of SUD in BPD in a 10-year study was also common (Zanarini et al., 2011). Treatment of patients with BPD/SUD has been described as difficult due to high dropout rates and to relational problems that make the process of establishing a therapeutic alliance challenging (Karterud, Arefjord, Andresen, & Pedersen, 2009).

For instance, Cluster B traits present a barrier in forming a therapeutic alliance with SUD patients and Cluster B traits have been found to provoke distanced and overwhelmed/disorganized countertransference in helpers (Betan, Heim, Conklin, & Westen, 2005; Olesek et al., 2016; Thylstrup & Hesse, 2008). Concurrent PD/SUD results in a more serious substance use disorder and more substance use–related problems (Vélez-Moreno et al., 2016). Risk for suicide attempts is higher for BPD patients with comorbid SUD compared to BPD or SUD patients alone (Darke, Williamson, Ross, Teesson, & Lynskey, 2004; Yen et al., 2003), although one study found no correlation between suicide attempts and baseline PD (Bakken & Vaglum, 2007). Risk for treatment attrition is higher for PD/SUD compared to SUD alone (Ball, Carroll, Canning-Ball, & Rounsaville, 2006; Brorson, Arnevik, Rand-Hendriksen, & Duckert, 2013; Cacciola et al., 2001). In addition, Cluster B traits and a PD diagnosis have been found to influence outcome negatively for SUD patients (Marlowe, Kirby, Festinger, Husband, & Platt, 1997; Thomas et al., 1999), although in one study PD had no influence on the outcome of SUD at a six-year follow-up (Landheim, Bakken, & Vaglum, 2006).

Thus, when BPD and SUD co-occur, the patients seem to be struggling even more than when each of these serious disorders occurs alone, and therapeutically there are many pitfalls. Patients with dual diagnoses are marginalized, often excluded from psychiatric treatments, and most likely need additional support (Toftdahl, Nordentoft, & Hjorthøj, 2016). Many have voiced the need for targeted treatments for this group of patients (Hesse & Fridell, 2009; Ravndal, Vaglum, & Lauritzen, 2005; Vélez-Moreno et al., 2016).

Concerning evidence for efficacy of psychotherapy for BPD/SUD, the latest review found 10 controlled studies on BPD/SUD patients (Lee, Cameron, & Jenner, 2015). The studies included four studies with dialectical behavioral therapy (DBT), three with dual focused schema therapy (DFST), and three with dynamic deconstructive psychotherapy (DDP). DBT and DDP showed some reduction in symptoms and substance use while DFST had minimal effect on outcome. The authors conclude that the evidence base for treatment of co-occurring BPD/SUD needs more research and that some preliminary evidence exists to date in benefit of DBT and DDP.

Mentalization-based treatment has shown great promise with BPD patients in various RCTs and naturalistic cohort studies, both within the original environment (Bateman & Fonagy, 2001, 2009; Rossouw & Fonagy, 2012) and from other independent institutions (Bales et al., 2014; Bales et al., 2012; Jørgensen et al., 2014; Kvarstein et al., 2015). In some studies (Bateman & Fonagy, 2009; Jørgensen et al., 2013), the difference between the control condition (structured clinical management, supportive group psychotherapy) and MBT has not been that large regarding outcome. However, the superiority of MBT has been demonstrated when the severity of PD is taken into consideration (Bateman & Fonagy, 2013).

To date, there is only one unpublished study from Stockholm on MBT for BPD/SUD. In this RCT, patients received 18 months of MBT or treatment as usual (TAU) within an outpatient addiction treatment clinic. Surprisingly, the MBT patients (*N*=24) did not differ from the control group (*N* = 22) with respect to outcome. There was one near significant finding (Mann-Whitney *p* = 0.06) that demonstrated the MBT group had no suicide attempts during treatment, versus four in the control group (Philips, 2016). However, we cannot know for sure that treatment in this study was MBT proper since adherence was low (Karterud & Bateman, 2010; Möller, Karlgren, Sandell, Falkenström, & Philips, 2016; Philips, 2016). Another study on MBT with severely impaired young BPD patients involved 79% with comorbid SUD. In this study, MBT showed improvement on several outcome measures, and effect sizes were large (Bales et al., 2012).

Thus, to date, we still do not know whether MBT is an efficient approach for BPD/SUD patients. It could be that the presence of SUD has some consequences for treatment that we still do not fully understand. We have tentative knowledge that BPD/SUD patients seem to improve after MBT, but we also have knowledge of the opposite: no improvement at all. Many have advocated the importance of tailoring treatments to these patients who are so severely disordered. Still, we have only preliminary evidence that

specialized treatment (e.g., DBT) for this patient group is beneficial (Lee et al., 2015). Against this backdrop, we aimed to investigate in a pilot project if MBT, a specialized tailored treatment for BPD, is promising in the treatment of a group of severely disordered dual diagnosis patients with BPD/SUD. Furthermore, we strove to investigate the feasibility aspects of implementation, delivery by clinicians, and acceptability for patients in order to clarify whether a larger study could be recommended on this population and within this context.

Research questions

Does mentalization-based treatment have any positive effect on BPD/SUD patients' substance use and personality disorder (primary outcome)? Does mentalization-based treatment have any positive effect on symptom distress and/or interpersonal and social functioning (secondary outcome)? Is MBT feasible as a treatment and for investigation in a larger study format in a general drug clinic on female patients with dual PD/SUD?

Material and Methods

Subjects

Patients were recruited from the inpatient and outpatient facilities of the Bergen Clinic Foundation (BCF). Patients in the BCF consist of both inpatients and outpatients with SUD, the majority with alcohol use disorder (40%–45%) and then equally distributed SUD diagnosis among cannabis, benzodiazepines and amphetamine dependency as most frequent. Multiple substance use is common; most patients have more than one SUD diagnosis. Most patients are without occupation (78%) and supported by different economic welfare benefits (75%–80%). A minority of the patients are female (27%) (Skutle, 2017). Because the BCF has an explicit focus on gender-specific treatment where males and females are given separate treatments, this pilot was performed with female patients alone. We went out broadly in the clinic asking for participants who were "difficult to treat," female, and with a tentative diagnosis of BPD. Eighteen patients were included in the project. Inclusion criteria included being female and having a diagnosis of SUD together with a personality disorder with clinically significant borderline traits according to the SCID-II (Gibbon, Spitzer, & First, 1997). The full diagnosis of BPD was not necessary to enter the pilot. Exclusion criteria were diagnosis of schizophrenia and substitute opiate medication. See Table 2 for diagnostic profiles.

The patients were severely impaired, and all had histories of trauma. Seven of 18 had histories with rape, eight had been victims of violence in childhood, 10 had a history of neglect in childhood, and seven had experienced sexual trauma in childhood. Most patients

had problems with violence and aggression. Ten of 18 had been violent toward people, 14 of 18 had been violent to material objects, and seven of 18 had been reported to the police for violent offences. Six patients had a prior history of psychotic episodes but not a diagnosis of schizophrenia. Their history of prior treatment was quite substantial, with a mean of four (range 1–15) prior admissions to inpatient treatment and a mean of three (range 1–7) periods of outpatient treatment.

They had a mean of two (range 1–4) SUD diagnoses and a mean of four (range 1–7) Axis I diagnoses at baseline. (See Table 2 for diagnostic characteristics.) All patients had maladaptive traits within the BPD category (range 3–9 traits). As for PD traits according to SCID-II, they had a mean of 18 (range 9–42) PD traits. The distribution of PDs can be seen in Table 3. Nine patients had more than one PD (range 2–5 PDs).

Clinical vignettes on one patient are hereby included to demonstrate a typical patient in this project:

Patient 1
Female patient, 28 years old, antisocial PD/BPD, polysubstance use disorder, and ADHD. History of neglect and conduct disorder in childhood. Before treatment, she uses amphetamine daily intravenously and in addition opiates and benzodiazepines. During assessment, she gets an ADHD diagnosis and starts on appropriate medication. Her level of functioning is very low, with a GAF score of 37. She has frequent impulsive, aggressive outbursts with people around her, both strangers and close relations. She gets easily agitated and sometimes uses violence or threats of violence. She is unemployed and receives welfare benefits. She finished two years of MBT. At follow-up she describes being abstinent from all drugs for the last four years. She has much fewer conflicts with others because she is able to see situations from the other's perspective. She has started a part-time job and deals with the relational aspect of working by thinking things through instead of acting out on colleagues. She is very grateful for the treatment that helped her.
Patients were assessed prior to treatment, every six months during treatment, and at follow-up. The number of measurement points per patient varied with a mean of four (range 2–6). All patients were invited via post to participate in a follow-up assessment. They received a gift certificate of 500 NOK (60 Euro / 60 U.S. dollars) for participation. Thirteen patients participated. Five patients did not participate in the follow-up. Some descriptive data and length of treatment are included below. Their reasons for not participating in the follow-up were: 1) One patient threatened suicide if we ever contacted her again (13 months MBT); 2) one patient was of

unknown whereabouts in another continent, and her family had no idea where and when she would be back (10 months MBT); 3) one patient angrily said no and hung up the telephone (six months MBT); 4) one patient agreed to come to follow-up but never showed up, and she never answered our requests again (one month MBT); 5) one patient was severely ill after a drug-related incident and was chronically hospitalized and unable to perform assessment (seven months MBT). Thus, compared to follow-up attenders, the mean duration of treatment was lower (seven vs. 22 months).

Follow-up assessments were performed at a mean of 22 (SD = 18) months after termination of MBT. In the follow-up, the pre-treatment battery was repeated together with qualitative interviews.

FIGURE 1: Patient flow in 36 months of MBT and follow-up at 22 months post-treatment.
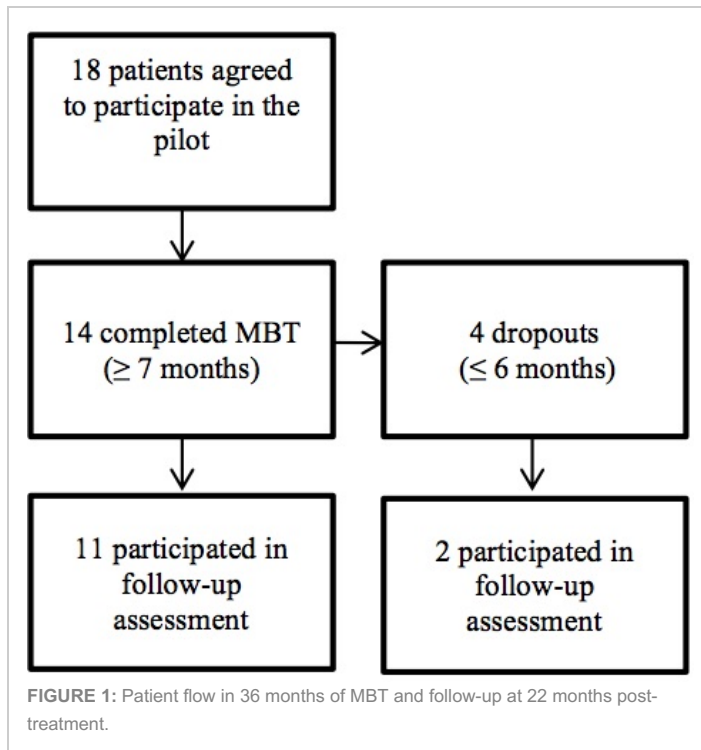
TABLE 1: Demographic characteristics of patients at baseline (N = 18).

Characteristics	Mean / SD	N / %
Age	30 (8)	
Less than or up to 6 months of work/study last year		14 (78%)
Years of education after junior secondary school	3 (2)	
Living with partner/ children/ other		6 (33%)
Living alone/ with parents		12 (67%)
On disability/social welfare		13 (72%)
Civil status:		
Single		14 (78%)
Cohabitated		2 (11%)
Divorced/ separated		2 (11%)
Living with:		
Parents		5 (28%)
Children		4 (22%)
Alone		7 (39%)
Partner/ Other		2 (11%)
Mean submissions to inpatient psychiatric hospitals	4 (4)	

TABLE 2: Clinical characteristics of patients at baseline (N = 18).

Axis I disorders	Mean / SD	N / %
Harmful use/dependency alcohol		12 (67%)
Harmful use/dependency benzodiazepines		5 (28%)
Harmful use/dependency opiates		5 (28%)
Harmful use/dependency cannabinoids		5 (28%)
Harmful use/dependency amphetamine		5 (28%)
Mood/anxiety disorders		14 (78%)
Any eating disorder		3 (17%)
Attention deficit hyperactivity disorder		1 (6%)
Post-traumatic stress disorder		3 (17%)
Obsessive-compulsive disorder		2 (11%)
Mean number PD diagnosis	2 (1)	
SCID-II PD criteria	18 (9)	
Borderline personality disorder criteria	5 (2)	
Axis I disorders, mean number	4 (2)	
Axis I substance use disorders, mean number	2 (1)	

TABLE 3: Personality disorders at baseline (*N* = 18).

Personality disorders at baseline	N
Borderline personality disorder	11 (61%)
Antisocial personality disorder	3 (17%)
Avoidant personality disorder	5 (28%)
Dependent personality disorder	1 (6%)
Schizotypal personality disorder	2 (11%)
Paranoid personality disorder	2 (11%)
Obsessive compulsive personality disorder	3 (17%)
Histrionic personality disorder	2 (11%)
Narcissistic personality disorder	1 (6%)
Schizoid personality disorder	0 (0%)
PD NOS	3 (17%)

Dual focus mentalization-based treatment

Training in MBT consisted of a three-day introductory course and a one-year specialization course (eight days). In addition, therapists received weekly video supervision with an expert in MBT and monthly video supervision with an external supervisor, also expert in MBT. Treatment was performed according to group and individual manuals (Karterud, 2011, 2012; Karterud & Bateman, 2010). Adherence was not measured, but weekly video supervision was conducted according to the manuals. Patients started out with 12 sessions of MBT psychoeducation and then continued with the group (MBT-G) and individual therapy (MBT-I). Maximal treatment duration was three years and involved weekly individual and group sessions throughout the entire period. Mean months in treatment were 22 (*SD* = 15). In dual focus MBT, focus on the mental function of SUD is of importance. Incidents of substance use are considered important and the focus is on exploring the mentalizing failure and interpersonal context prior to intake. All patients had access to a social counselor who was trained in MBT and who attended the supervisory sessions. The task of the social counselor was to offer help with social functioning in addition to increasing mentalization both there and then subsequently in encounters with the social welfare system, child protective services, and the like. The social counselor also did a thorough mapping of the patients' social, economic, and work status and offered help with attaining their goals in social and work functioning.

Diagnostics

All therapists were trained in GAF and SCID-II assessments from a supervisor from the Norwegian Network of Personality-Focused Treatment Programs, and the assessment procedures were equal to those used by this network. (See for instance Kvarstein et al., 2015). Diagnostic reliability was not measured, but therapists were specially trained in the diagnostics of PD, and diagnoses were discussed thoroughly within the team and with the supervisor. In addition, according to the LEAD principle, diagnoses were open for adjustments during the clinical trajectory (Spitzer, 1983). At follow-up, diagnostics were performed by the first and fourth authors, who together evaluated SCID, GAF, and MINI diagnosis of all patients. Both also performed the diagnostic interviews.

Outcome measures

Axis I SUD diagnosis

Patients were interviewed with the Mini-International Neuropsychiatric Interview-Plus (M.I.N.I-Plus) before treatment and

at follow-up (<u>Sheehan et al., 1998</u>). M.I.N.I-Plus is a structured diagnostic interview covering the most prevalent Axis I disorders within both DSM-IV and ICD-10.

Axis II disorders
Patients were diagnosed on Axis II by clinical interviews before treatment and at follow-up according to the Structured Clinical Interview for DSM-IV (SCID-II) (<u>Gibbon et al., 1997</u>). Following the LEAD principle, some of the diagnoses were revised after further clinical observation during the treatment period (<u>Spitzer, 1983</u>). The SCID-II is a semi-structured 94-item clinical interview that investigates the presence of PD according to the criteria from DSM-IV. Questions are answered with a yes or no and then further investigated through probing for examples. The interviewer decides if a patient fulfills criteria on SCID-II based on all available clinical information in addition to answers given during the interview.

SCL-90-R symptom distress
Symptoms were measured with SCL-90-R (<u>Derogatis, 1977</u>). The General Severity Index (GSI) is a well-known symptom distress measure and is widely used within clinical psychotherapy research. GSI gives a broad picture of a patient's symptom distress in general. It is an average score of the total 90 items. The clinical/non-clinical cutoff level is set at GSI = 0.8 for women based on a Norwegian patient sample (<u>Pedersen & Karterud, 2004</u>). Cronbach's alpha at baseline = 0.89.

Interpersonal functioning
Interpersonal functioning was measured as the Circumplex of Interpersonal Problems (CIP) (<u>Pedersen, 2002</u>), which is a Norwegian short version of the IIP-C (<u>Horowitz, Rosenberg, Baer, Ureño, & Villaseñor, 1988</u>). The mean sum score (CIP) correlates highly (r = 0.99) with the original IIP-C sum score (<u>Pedersen, 2002</u>). The clinical cutoff score of CIP is 0.8 (i.e., one standard deviation above mean IIP sum scores (M = 0.53) in a non-clinical Norwegian population) (<u>Kvarstein et al., 2015</u>; <u>Pedersen, 2002</u>). CIP has 48 items with a five-point scale, where subjects rate the degree of interpersonal problems. The CIP sum score is an indicator of the general level of experienced interpersonal problems and is based on a mean average of all 48 items. Cronbach's alpha at baseline = 0.56.

Global assessment of functioning
The Global Assessment of Functioning (GAF) scale (<u>Hall, 1995</u>) is a widely used rating scale, ranging from 0 to 100, where 100 represents maximal global functioning (<u>Pedersen & Karterud, 2012</u>). GAF has shown high reliability between experienced judges and is a quick and easy instrument that can be used for measuring an

individual patient's need for treatment and at which level of health care (Pedersen, Hagtvet, & Karterud, 2007). A score of 60 indicates mild symptoms or impairment and is considered a good cutoff indicator for functional impairment in studies with treatment of PD (Kvarstein & Karterud, 2012).

Self-esteem
The Rosenberg Self-Esteem Scale (RSES) is a 10-item self-report questionnaire (Rosenberg, 1986). The 10 items are rated on a four-point scale from "strongly disagree" (1) to "strongly agree" (4). Cutoff for "normal" self-esteem lies at 3 (+/– 0.4). According to one study across 53 nations, RSES has good internal consistency with a mean Cronbach's alpha coefficient reported of 0.81 (Schmitt & Allik, 2005). In the current study, Cronbach's alpha at baseline was 0.89.

Work and social functioning scale
The Work and Social Adjustment Scale (WSAS) is a five-item self-report questionnaire (Mundt, Marks, Shear, & Greist, 2002). The five items are rated on an eight-point scale from "not impaired at all" to "severely impaired," the responses to which are based on the last four weeks of functioning. The scoring range goes from 0 to 40, where a score above 20 represents severe psychopathology and functional impairment while a score between 10 and 20 represents functional impairment but less severe clinical symptomology. The cutoff score between clinical and non-clinical populations lies at 10. Cronbach's alpha at baseline = 0.85.

Treatment retention
In this study, we defined dropout as less than or equal to six months of treatment, following the definition by Kvarstein and colleagues (2015) and the definition of "early dropouts" by Bateman & Fonagy (2009). In a study where the treatment duration is up to 36 months, we considered greater than six months to be a reasonable measure of dropout. Different MBT studies have varied in how they operationalize dropout from greater than three months (Laurenssen et al., 2013) to greater than two years (Jørgensen et al., 2013).

Statistical procedures
Linear mixed models (LMMs) were used for statistical analysis of the longitudinal data (Singer & Willett, 2003). For psychotherapy research, traditional data analytic techniques like Anova contain restrictive assumptions of sphericity (equal error variance across time points). They also utilize group means and variances and thus have several problems with handling missing data. Missing data have to be expected to some degree in naturalistic clinical settings, and if therapy is assumed to be efficient, larger variability at the start of the treatment is expected compared to the follow-up assessment (Tasca & Gallop, 2009). Thus, LMMs are tailored for psychotherapy

research data in naturalistic settings, because doing so does not require data to meet the sphericity assumption. At the same time, it allows individuals to have different waves of data. The primary outcome data were measured at start of treatment and at follow-up (two timepoints); those were number of SCID-II PD traits, number of SCID-II borderline traits, and number of SUD diagnoses. The longitudinal secondary outcome data with 12 timepoints consisted of CIP, GAF, WSAS, GSI, and RSES. We performed a visual inspection of the data to determine whether a linear or nonlinear model best fitted the data and found that a linear model was a good fit. Time was modeled as a continuous variable with 6-month intervals and with baseline as time zero. Due to a low number of N, we allowed only random effects at baseline and kept the change over time as a fixed effect. Random effects at baseline imply that we allow the intercept to vary across individuals, and by keeping the slope as a fixed effect, we estimate the mean change over time across individuals. Due to a large amount of missing data across patients and measurement occasions, we imputed 20 data sets using the R package "mitml," or "Tools for Multiple Imputation in Multilevel Modeling" (Grund, Robitzsch, & Lüdtke, 2017). We used the default inverse-Wishart priors, which give the minimum degrees of freedom with the largest dispersion. Furthermore, we used 50,000 burn-ins, 10,000 iterations apart. Estimates and standard errors were aggregated across the multiple imputed data sets (Barnard & Rubin, 1999), adjusting for smaller sample sizes using 28 degrees of freedom.

We calculated effect sizes' pseudo R^2 using the bivariate correlation between predicated scores and observed scores. We then transformed R^2 to Cohen's d through the formula $d = 2r/\sqrt{(1 - r^2)}$ for pedagogical interpretative purposes. Analyses were performed with IBM 2015 SPSS statistics 23 and the R version 3.4.2 (2017, The R Foundation for Statistical Computing).

Patient consent
All patients received written information that explained the purpose of the study and allowed them to withdraw at any time. All the participants gave their written consent. The study was approved by the Regional Ethical Committee West (REK vest) for medical research in Norway.

Results

Primary outcome: Substance use and personality disorder
Axis I SUD diagnosis
At baseline, patients (N = 18) had a predicted mean of 1.78 (SE = 0.20) SUD diagnoses, and at follow-up, they had a predicted mean of 0.16 (SE = 0.19) SUD diagnoses. The change from pre-treatment

to follow-up on SUD diagnosis was highly significant at the two-tailed level ($t(28)$ = -6.26, p < .001). The effect size was very large (d = 2.12).

SCID-II personality traits
Prior to MBT, patients had a predicted mean of 17.72 (SE = 1.97) PD traits. At follow-up PD traits had declined to a predicted mean of 7.89 (SE = 1.83). The difference was highly significant at the two-tailed level ($t(28)$ = -3.71, p = .001). The effect size was large (d = 1.31).

Borderline traits
At start of treatment, patients (N = 18) had a predicted mean of 5.39 (SE = 0.45) borderline traits according to the SCID-II interview. At follow-up the patients' predicted mean of borderline traits had declined to 2.00 (SE = 0.43). The change from baseline to follow-up was highly significant at the two-tailed level ($t(28)$ = -6.24, p < .001). The effect size was very large (d = 1.94). Only two out of 13 patients still fulfilled the criteria for BPD (five and six traits) at follow-up.

Secondary outcome measures
Symptom distress
At baseline, patients had a predicted mean GSI of 1.25 (SE = 0.14). Their GSI declined to a predicted mean of 0.57 (SE = 0.07) at follow-up. Change over time for GSI was significant ($t(28)$ = -2.93, p = .028). The effect size was large (d = 1.18). The predicted mean change per six months was -0.06 (SE = 0.02). Nine out of 13 patients were below the clinical cutoff at follow-up assessment (GSI ≤ 0.8).

Interpersonal functioning
At baseline, the predicted mean of CIP was 1.28 (SE = 0.10). It decreased to a predicted mean of 0.90 (SE = 0.07) at follow-up. Effect size for change over time in CIP was moderate (d = 0.71) and change from baseline to follow-up was near significant ($t(28)$ = -2.26, p = .073). The predicted mean change per six months was -0.03 (SE = 0.02). Concerning the clinical cutoff (0.8), six out of 13 patients were below or equal to that at follow-up assessment (CIP ≤ 0.8).

Global assessment of functioning
At baseline, patients had a predicted mean of GAF at 46.89 (SE = 2.15). At follow-up, their predicted GAF score had increased to 67.81 (SE = 1.00). Change over time for GAF was significant ($t(28)$ = 4.64, p = .004) and the change rate per six months was 1.90 (SE = 0.41). The effect size was large (d = 2.06). Looking at the clinical cutoff with a GAF score above the level of 60, 10 out of 13 patients were assessed to be higher or equal to 60 at follow-up.
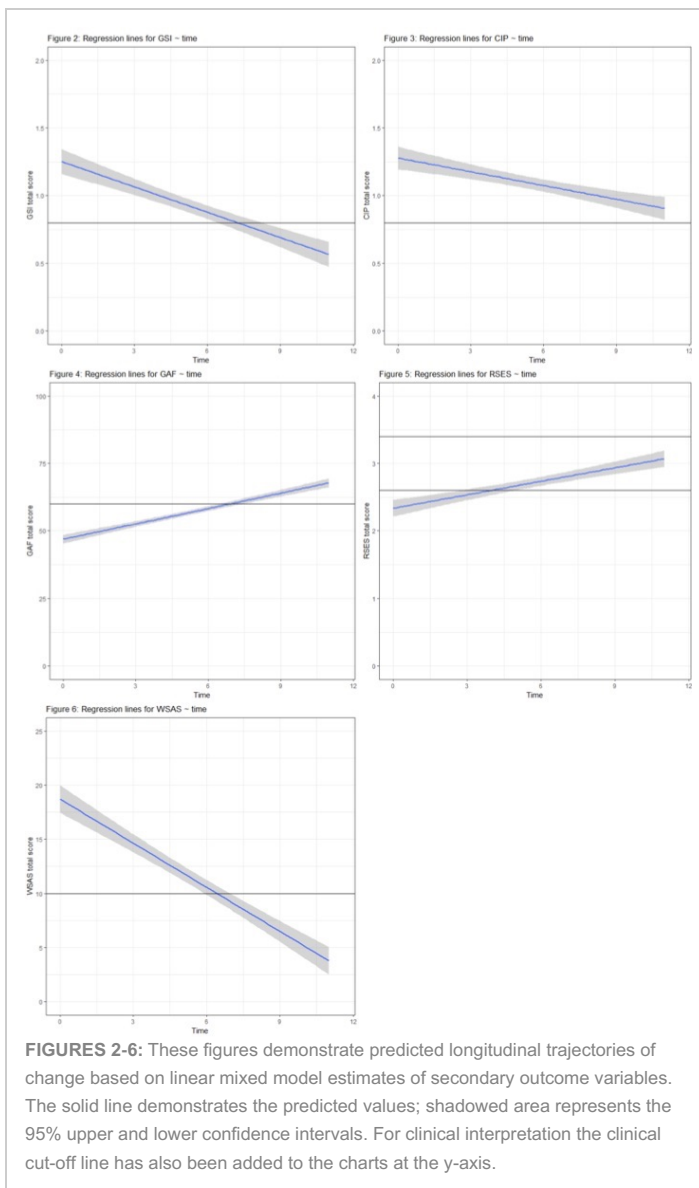
Self-esteem

RSES at start of treatment had a predicted mean of 2.34 (*SE* = 0.15). This figure increased to a predicted mean of 3.06 (*SE* = 0.10) at follow-up. Change over time for RSES was significant (*t*(28) = 3.34*, p* = .012) and the change rate per six months was 0.07 (*SE* = 0.02). The effect size for change until follow-up was large (*d* = 0.96). Looking at the clinical cutoff, defined as ranging from 2.6 to 3.4, only three patients were within the range of normal self-esteem at follow-up. Eight patients scored lower than the lower cutoff of 2.6, and two patients scored higher than the upper cutoff of 3.4.

Work functioning

WSAS at start of treatment had a predicted mean of 18.71 (*SE* = 1.74), and at follow-up the predicted mean of WSAS had dropped to 3.79 (*SE* = 0.73). For WSAS, the change over 5.5 years was also highly significant (*t*(28) = -4.13, *p* =.006) and the change rate per six months was -1.36 (*SE* = 0.33). The effect size for change until follow-up was large (*d* = 1.87). In WSAS, the cutoff score between clinical and non-clinical populations lies at 10, and nine out of 13 patients were equal to or below that cutoff score. The remaining four patients were all within the range of 10–20, suggesting functional impairment but less severe clinical symptomology.

TABLE 4: Longitudinal outcomes baseline to follow-up.

	Linear mixed model estimates		
	Baseline (intercept)(SE)	Change-rate every 6 months (slope)(SE)	5.5-year effect size Cohens d
Symptom distress (GSI)	1.25 (0.14)	−0.06 (0.02)	1.18
Interpersonal functioning (CIP)	1.28 (0.10)	−0.03 (0.02)	0.71
Self-esteem (RSES)	2.34 (0.15)	0.07 (0.02)	0.96
General functioning (GAF)	46.89 (2.15)	1.90 (0.41)	2.06
Work/social functioning (WSAS)	18.71 (1.74)	−1.36 (0.33)	1.87

FIGURES 2-6: These figures demonstrate predicted longitudinal trajectories of change based on linear mixed model estimates of secondary outcome variables. The solid line demonstrates the predicted values; shadowed area represents the 95% upper and lower confidence intervals. For clinical interpretation the clinical cut-off line has also been added to the charts at the y-axis.

Treatment retention

Four out of 18 patients (22%) were defined as dropouts (≤ six months in therapy). Five patients did not attend to the follow-up assessment for various reasons, which included saying no, being unavailable, discontentment with therapists, avoiding the appointments, serious injured to one patient after a drug-related accident.

Discussion

The aim of the present study was to investigate whether patients with BPD/SUD could benefit from participating in a specialized treatment, MBT, developed for patients with BPD. Our research questions were: 1) did participants improve on substance use

disorder and 2) did they enter a positive trajectory regarding their BPD? Furthermore, we wanted to investigate participants' improvements on secondary outcome measures: interpersonal functioning, global functioning, social functioning, and symptom severity. The main findings of our study were that patients with BPD/SUD showed significant improvement on both primary and secondary outcome measures. Effect sizes ranged from moderate to very large, with most being large.

Substance use decline

This MBT pilot was tailored to deal with the comorbidity of BPD/SUD since the trial happened within a specialized clinic for substance use disorders and all therapists were trained in the treatment of substance use disorder and personality disorder. Thus, a dual focus on both core issues of PD together with a continuous focus on substance use and how to reduce it were imminent during the whole treatment trajectory. Therapists probably also tolerated better (dealt with their countertransference), because of their experience and training, the hardcore realities of patients living in the peripheral life situations of drug and alcohol addiction.

The use of an MBT-oriented social counselor and the focus both psycho-pedagogically and therapeutically on substance use and its relation to mentalizing are somewhat different from how MBT is delivered in other settings. For example, the specific focus on exploring mentalizing failure prior to substance intake is an intervention that needs to be utilized when working with BPD/SUD patients. Our pilot also offered 36 months of treatment as opposed to the original authors who suggest 18 to 24 months (Bateman & Fonagy, 2016). The present study is performed as a pilot, and we had no randomization or control group. Conclusions must be taken with great care. Still, we found our results regarding SUD intriguing.

To our surprise, many of the patients achieved full remission of their SUD. Several of them had long histories with outpatient and inpatient treatment in our own institution and thus were in danger of being viewed upon as chronic patients. We believe that the model of primacy of PD in the etiology of PD/SUD is of interest (Vélez-Moreno et al., 2016; Verheul & van den Brink, 2005). In this pilot, the focus was on increasing patients' ability to mentalize (an issue related to their PD symptomology), especially during moments of emotional activation and attachment-related arousal. In MBT, this focus is systematic and continues throughout the whole clinical trajectory.

It seems that by targeting BPD-related problems, there is an effect on SUD for these patients. Other inpatient and outpatient treatments had not achieved these results before. In some studies on Nordic

SUD patients (with high prevalence of PD), the remission of SUD at five- and six-year follow-up after treatment is not that encouraging, with relapse rates at 70% (Landheim et al., 2006) and 54% (Fridell & Hesse, 2006). We performed a two-year follow-up and thus cannot directly compare our findings to the studies above. In another longitudinal study, disappearance of BPD coincided with the disappearance of SUD (Paris & Zweig-Frank, 2001). This tendency converges with our findings where SUD and BPD both demonstrated substantial decline from baseline to follow-up. It also supports the notion that by focusing on BPD-related difficulties through increasing the ability of mentalizing (Philips et al., 2012), there is a possible effect on SUD as well (Outcalt et al., 2016). But there are some who have advocated that SUD must be seen as a chronic disorder and that treatment needs to shift focus from curing the disorder to symptom relief (McLellan, 2002). Our findings contradict this perspective and give a tentatively more positive view on SUD (and comorbid PD). There is perhaps a possibility of treating both disorders, given targeted treatments.

Reduction of borderline symptomology

MBT is a tailored treatment for BPD (Bateman & Fonagy, 2016), and assessing whether patients still have BPD after completion of treatment is thus important. In our study, both the number of personality disorder criteria declined, and the diagnosis of BPD disappeared at follow-up. This is quite encouraging with respect to the efficiency of MBT with this dual diagnosis patient group, and it supports the notion that MBT is increasingly efficient in line with the severity of the patient group pathology (Bateman & Fonagy, 2013). Two patients still fulfilled the criteria for BPD at follow-up. These patients deserve detailed case studies. The decline in both borderline personality disorder and substance use disorder during the same clinical trajectory supports the notion that PD and SUD are connected and causally connected to each other in some way. Three models have been proposed on the interconnectedness of PD/SUD, and most support lies with the model where PD is primary to SUD (Verheul & van den Brink, 2005).

Improvement in social functioning, self-esteem, and symptomatic distress

Overall the results on our secondary outcome measures demonstrate improvement. For all our outcome measures except for interpersonal functioning, the predicted trajectories lie within the non-clinical domain at follow-up. On self-esteem, symptom distress, general functioning, and work and social functioning, patients reach non-clinical levels. These results are quite encouraging. Interpersonal functioning does significantly change from baseline to follow-up but does not at any point reach non-clinical levels. Treating

dual diagnosis patients with comorbid personality disorder is challenging. We are just getting started in gaining enough knowledge on what these patients need for positive change trajectories. Many of our patients in this pilot reached symptomatic improvement and remission of SUD and PD. Further follow-up studies need to be performed to investigate if these changes endure in the longitudinal trajectory of MBT patients.

Do BPD/SUD patients have unique trajectories regarding GSI and CIP?

Do they get worse before they get better? Our sample of dual diagnosis patients reported lower symptom distress on the GSI at baseline than patients with BPD alone; see for instance Bateman & Fonagy (2009), Kvarstein et al. (2015), and Laurenssen et al. (2013). GSI in these studies were respectively 2.0, 2.1, and 2.2 versus our sample who reported predicted baseline levels of GSI to be 1.3. The one MBT study that had a sample of BPD patients where 79% had comorbid SUD also demonstrated their baseline symptom distress scores to be somewhat lower than the studies above, at 1.7 (Bales et al., 2012).

The patients in our sample also had lower CIP sum scores on baseline (1.3) than other studies with borderline personality disorder (2.0, 1.7) (Bateman & Fonagy, 2009; Kvarstein et al., 2015). We think this tendency demonstrates how SUD intervenes with the subjective experience of interpersonal problems and symptom distress. Substance use has been suggested to function as a regulator of emotional activation, particularly during moments of an activated attachment system (Philips et al., 2012). This hypothesis converges with theories in the field where substance use has been suggested to potently interfere with attachment needs (Cihan, Winstead, Laulis, & Feit, 2014; Insel, 2003). This gives indices that the psychotherapeutic trajectory for BPD/SUD patients could possibly involve a worsening of the subjective experience of symptom severity and interpersonal functioning when and if their substance use declines. These nonlinear change trajectories were not possible to model in this study due to a low number of *n*.

The reasons for these discrepancies between BPD/SUD patients and BPD alone are unknown and require further empirical investigation. We speculate the following: 1) substance use has an effect on the subjective experience of symptom distress and interpersonal functioning and 2) BPD/SUD patients have unique trajectories during psychotherapy on symptom distress and interpersonal functioning.

Further studies are needed to investigate these hypotheses on the uniqueness of BPD/SUD trajectories of change in psychotherapy.

Treatment retention

Dropout in the treatment of BPD/SUD group of patients is a common problem (Ball et al., 2006; Brorson et al., 2013). Therapeutic alliance can be a challenge for SUD patients with Cluster B traits (Olesek et al., 2016). Defining dropout as equal to or less than six months of treatment, we had in our study four out of 18 patients dropping out (22%). Our dropout rate is lower than numbers reported from other studies with dual diagnosis patients. In dual diagnosis DBT studies, the dropout rates have ranged from 36% to 55% (Axelrod, Perepletchikova, Holtzman, & Sinha, 2011; Linehan et al., 2002; Linehan et al., 1999). In MBT studies with BPD alone, the dropout rate has varied from 5% to 43% (Jørgensen et al., 2013; Kvarstein et al., 2015).

The problem is that the respective studies above do not define dropout equally. Our dropout definition is equivalent to Kvarstein and colleagues (2015) (5%), and it seems that compared with them, our dropout rate is too high. Nevertheless, a dropout rate of 22% is acceptable with a patient group known for problems with alliance and treatment retention. We suggest, however, that further empirical investigations would shed light on the reasons for dropout in this patient group, so that we could better tailor our treatment programs.

Strength and limitations

There are several problems with this study, which implies that the conclusions should be taken with great care. First, the study did not involve any control group or randomization. Thus, we cannot conclude that the changes these patients underwent were caused by the actual treatment. In the natural trajectory of BPD patients, symptomatic and personality distress does improve with the passage of time (Gunderson et al., 2011; Zanarini, Frankenburg, Hennen, & Silk, 2003). However, these patients' social functioning is less amenable to improvement and the prognosis is worse when combined with SUD (Fridell & Hesse, 2006; Walter et al., 2009).

Second, the number of patients was very small, as is often a problem in treatment studies of BPD/SUD patients. The statistical analyses were limited by the small *n*, and the only analyses we could perform were to substantiate that changes had occurred. Nonlinear change trajectories could not be investigated, and comparisons between different subgroups in the sample were not possible (e.g., dropouts vs. treated patients).

Third, we did not have any endpoint data on five patients. A full data set might have influenced the results in a negative manner. The response of some participants to our request might indicate that they still have significant personality problems. The duration of their treatments was also lower than our follow-up completers. We would

also like to mention that supervisors and trainers from the Norwegian Institute of Mentalizing were involved, which could generate a positive bias. However, the most obvious contribution of these trainers and supervisors was to secure adherence to and the quality of the treatment that was delivered.

Finally, the diagnostics of the primary outcome measures and GAF at follow-up was performed by the first and fourth author together. The lack of blinding and investment in the study could bias the results.

A considerable strength of the study was its ecological validity (i.e., that it was conducted in a clinical naturalistic setting). It is also noteworthy that all patients had multiple experiences with former treatments, both inpatient and outpatient treatments, and most of them from the same clinic where this pilot was performed. Earlier treatment had not had any lasting effect on their personality disorder or SUD.

Conclusion

Patients suffering from both severe personality disorder of the borderline type and substance abuse are known to be difficult to treat and have a very poor prognosis. Our study indicates that MBT might be a promising treatment modality for this comorbid condition. We found that for the majority of the patients, their drug and alcohol consumption and personality problems improved considerably. However, the results for the cohort as a whole are somewhat uncertain since 28% of the patients did not respond to follow-up. Furthermore, because this was a feasibility study, our findings indicate that MBT is implementable in a drug clinic, that clinicians and patients find the treatment protocol acceptable, and that data can be routinely collected. These favorable results indeed call for a larger randomized study.

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Citation

Abstract

Mentalization-based treatment for female patients with comorbid personality disorder and substance use

disorder: A pilot study

Objectives: In this study, we investigated the feasibility of mentalization-based treatment (MBT) for patients with comorbid substance use disorder (SUD) and borderline personality disorder (BPD). No published study has ever specifically looked at MBT for these patients. Such individuals are known to have a very poor prognosis and harbor much pain and misery. Moreover, few randomized controlled trials exist on psychotherapy efficiency for patients with comorbid substance use disorder and borderline personality disorder. There is an urgent need for more knowledge on treatment for this patient group.

Design: A pilot project within a naturalistic clinical setting with longitudinal data collection during treatment and at follow-up. Eighteen female patients attended a pilot project and participated in up to 36 months of treatment, according to the manuals. Patients were measured on primary (pre/post) and secondary (longitudinal) outcome measures before treatment, every six months during treatment, at the end of treatment, and at follow-up approximately two years after treatment.

Methods: Statistical analyses of repeated outcome measures (GSI, CIP, GAF, WSAS, and RSES) and of pre/post measures (Axis I and II diagnosis) were performed with linear mixed models, and Cohens d was calculated.

Results: Significant improvements on primary and secondary outcome measures were demonstrated, with effect sizes ranging from moderate to large. With respect to primary outcome, these SUD/PD patients were almost fully recovered from their SUD at follow-up (a predicted score of 0.2 Axis I SUD diagnosis at follow-up in comparison with a score of 1.8 at baseline).

Conclusion: MBT as performed in this pilot project indicates promising results for patients with (mostly borderline) PDs and comorbid SUDs. Performing RCT studies is warranted.

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	Laumann, Karin, Dr. psychol.	Restorative and stress-reducing effects of natural environments: Experiencal, behavioural and cardiovascular indices.
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2005 V	Hetland, Hilde, Dr. psychol.	Leading to the extraordinary? Antecedents and outcomes of transformational leadership.
	Iversen, Anette Christine, Dr. philos.	Social differences in health behaviour: the motivational role of perceived control and coping.
2005 H	Mathisen, Gro Ellen, PhD	Climates for creativity and innovation: Definitions, measurement, predictors and consequences.
	Sævi, Tone, Dr. philos.	Seeing disability pedagogically – The lived experience of disability in the pedagogical encounter.
	Wiium, Nora, PhD	Intrapersonal factors, family and school norms: combined and interactive influence on adolescent smoking behaviour.
	Kanagaratnam, Pushpa, PhD	Subjective and objective correlates of Posttraumatic Stress in immigrants/refugees exposed to political violence.
	Larsen, Torill M. B. , PhD	Evaluating principals` and teachers` implementation of Second Step. A case study of four Norwegian primary schools.
	Bancila, Delia, PhD	Psychosocial stress and distress among Romanian adolescents and adults.
2006 V	Hillestad, Torgeir Martin, Dr. philos.	Normalitet og avvik. Forutsetninger for et objektivt psykopatologisk avviksbegrep. En psykologisk, sosial, erkjennelsesteoretisk og teorihistorisk framstilling.

	Nordanger, Dag Øystein, Dr. psychol.	Psychosocial discourses and responses to political violence in post-war Tigray, Ethiopia.
	Rimol, Lars Morten, PhD	Behavioral and fMRI studies of auditory laterality and speech sound processing.
	Krumsvik, Rune Johan, Dr. philos.	ICT in the school. ICT-initiated school development in lower secondary school.
	Norman, Elisabeth, Dr. psychol.	Gut feelings and unconscious thought: An exploration of fringe consiousness in implicit cognition.
	Israel, K Pravin, Dr. psychol.	Parent involvement in the mental health care of children and adolescents. Emperical studies from clinical care setting.
	Glasø, Lars, PhD	Affects and emotional regulation in leader-subordinate relationships.
	Knutsen, Ketil, Dr. philos.	HISTORIER UNGDOM LEVER – En studie av hvordan ungdommer bruker historie for å gjøre livet meningsfullt.
	Matthiesen, Stig Berge, PhD	Bullying at work. Antecedents and outcomes.
2006 H	Gramstad, Arne, PhD	Neuropsychological assessment of cognitive and emotional functioning in patients with epilepsy.
	Bendixen, Mons, PhD	Antisocial behaviour in early adolescence: Methodological and substantive issues.
	Mrumbi, Khalifa Maulid, PhD	Parental illness and loss to HIV/AIDS as experienced by AIDS orphans aged between 12-17 years from Temeke District, Dar es Salaam, Tanzania: A study of the children's psychosocial health and coping responses.
	Hetland, Jørn, Dr. psychol.	The nature of subjective health complaints in adolescence: Dimensionality, stability, and psychosocial predictors
	Kakoko, Deodatus Conatus Vitalis, PhD	Voluntary HIV counselling and testing service uptake among primary school teachers in Mwanza, Tanzania: assessment of socio-demographic, psychosocial and socio-cognitive aspects
	Mykletun, Arnstein, Dr. psychol.	Mortality and work-related disability as long-term consequences of anxiety and depression: Historical cohort designs based on the HUNT-2 study
	Sivertsen, Børge, PhD	Insomnia in older adults. Consequences, assessment and treatment.
2007 V	Singhammer, John, Dr. philos.	Social conditions from before birth to early adulthood – the influence on health and health behaviour
	Janvin, Carmen Ani Cristea, PhD	Cognitive impairment in patients with Parkinson's disease: profiles and implications for prognosis
	Braarud, Hanne Cecilie, Dr.psychol.	Infant regulation of distress: A longitudinal study of transactions between mothers and infants
	Tveito, Torill Helene, PhD	Sick Leave and Subjective Health Complaints

	Magnussen, Liv Heide, PhD	Returning disability pensioners with back pain to work
	Thuen, Elin Marie, Dr.philos.	Learning environment, students' coping styles and emotional and behavioural problems. A study of Norwegian secondary school students.
	Solberg, Ole Asbjørn, PhD	Peacekeeping warriors – A longitudinal study of Norwegian peacekeepers in Kosovo
2007 H	Søreide, Gunn Elisabeth, Dr.philos.	Narrative construction of teacher identity
	Svensen, Erling, PhD	WORK & HEALTH. Cognitive Activation Theory of Stress applied in an organisational setting.
	Øverland, Simon Nygaard, PhD	Mental health and impairment in disability benefits. Studies applying linkages between health surveys and administrative registries.
	Eichele, Tom, PhD	Electrophysiological and Hemodynamic Correlates of Expectancy in Target Processing
	Børhaug, Kjetil, Dr.philos.	Oppseding til demokrati. Ein studie av politisk oppseding i norsk skule.
	Eikeland, Thorleif, Dr.philos.	Om å vokse opp på barnehjem og på sykehus. En undersøkelse av barnehjemsbarns opplevelser på barnehjem sammenholdt med sanatoriebarns beskrivelse av langvarige sykehusopphold – og et forsøk på forklaring.
	Wadel, Carl Cato, Dr.philos.	Medarbeidersamhandling og medarbeiderledelse i en lagbasert organisasjon
	Vinje, Hege Forbech, PhD	Thriving despite adversity: Job engagement and self-care among community nurses
	Noort, Maurits van den, PhD	Working memory capacity and foreign language acquisition
2008 V	Breivik, Kyrre, Dr.psychol.	The Adjustment of Children and Adolescents in Different Post-Divorce Family Structures. A Norwegian Study of Risks and Mechanisms.
	Johnsen, Grethe E., PhD	Memory impairment in patients with posttraumatic stress disorder
	Sætrevik, Bjørn, PhD	Cognitive Control in Auditory Processing
	Carvalhosa, Susana Fonseca, PhD	Prevention of bullying in schools: an ecological model
2008 H	Brønnick, Kolbjørn Selvåg	Attentional dysfunction in dementia associated with Parkinson's disease.
	Posserud, Maj-Britt Rocio	Epidemiology of autism spectrum disorders
	Haug, Ellen	Multilevel correlates of physical activity in the school setting
	Skjerve, Arvid	Assessing mild dementia – a study of brief cognitive tests.

	Kjønniksen, Lise	The association between adolescent experiences in physical activity and leisure time physical activity in adulthood: a ten year longitudinal study
	Gundersen, Hilde	The effects of alcohol and expectancy on brain function
	Omvik, Siri	Insomnia – a night and day problem
2009 V	Molde, Helge	Pathological gambling: prevalence, mechanisms and treatment outcome.
	Foss, Else	Den omsorgsfulle væremåte. En studie av voksnes væremåte i forhold til barn i barnehagen.
	Westrheim, Kariane	Education in a Political Context: A study of Konwledge Processes and Learning Sites in the PKK.
	Wehling, Eike	Cognitive and olfactory changes in aging
	Wangberg, Silje C.	Internet based interventions to support health behaviours: The role of self-efficacy.
	Nielsen, Morten B.	Methodological issues in research on workplace bullying. Operationalisations, measurements and samples.
	Sandu, Anca Larisa	MRI measures of brain volume and cortical complexity in clinical groups and during development.
	Guribye, Eugene	Refugees and mental health interventions
	Sørensen, Lin	Emotional problems in inattentive children – effects on cognitive control functions.
	Tjomsland, Hege E.	Health promotion with teachers. Evaluation of the Norwegian Network of Health Promoting Schools: Quantitative and qualitative analyses of predisposing, reinforcing and enabling conditions related to teacher participation and program sustainability.
	Helleve, Ingrid	Productive interactions in ICT supported communities of learners
2009 H	Skorpen, Aina Øye, Christine	Dagliglivet i en psykiatrisk institusjon: En analyse av miljøterapeutiske praksiser
	Andreassen, Cecilie Schou	WORKAHOLISM – Antecedents and Outcomes
	Stang, Ingun	Being in the same boat: An empowerment intervention in breast cancer self-help groups
	Sequeira, Sarah Dorothee Dos Santos	The effects of background noise on asymmetrical speech perception
	Kleiven, Jo, dr.philos.	The Lillehammer scales: Measuring common motives for vacation and leisure behavior
	Jónsdóttir, Guðrún	Dubito ergo sum? Ni jenter møter naturfaglig kunnskap.
	Hove, Oddbjørn	Mental health disorders in adults with intellectual disabilities - Methods of assessment and prevalence of mental health disorders and problem behaviour
	Wageningen, Heidi Karin van	The role of glutamate on brain function

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	Bjørkvik, Jofrid	God nok? Selvaktelse og interpersonlig fungering hos pasienter innen psykisk helsevern: Forholdet til diagnoser, symptomer og behandlingsutbytte
	Andersson, Martin	A study of attention control in children and elderly using a forced-attention dichotic listening paradigm
	Almås, Aslaug Grov	Teachers in the Digital Network Society: Visions and Realities. A study of teachers' experiences with the use of ICT in teaching and learning.
	Ulvik, Marit	Lærerutdanning som danning? Tre stemmer i diskusjonen
2010 V	Skår, Randi	Læringsprosesser i sykepleieres profesjonsutøvelse. En studie av sykepleieres læringserfaringer.
	Roald, Knut	Kvalitetsvurdering som organisasjonslæring mellom skole og skoleeigar
	Lunde, Linn-Heidi	Chronic pain in older adults. Consequences, assessment and treatment.
	Danielsen, Anne Grete	Perceived psychosocial support, students' self-reported academic initiative and perceived life satisfaction
	Hysing, Mari	Mental health in children with chronic illness
	Olsen, Olav Kjellevold	Are good leaders moral leaders? The relationship between effective military operational leadership and morals
	Riese, Hanne	Friendship and learning. Entrepreneurship education through mini-enterprises.
	Holthe, Asle	Evaluating the implementation of the Norwegian guidelines for healthy school meals: A case study involving three secondary schools
H	Hauge, Lars Johan	Environmental antecedents of workplace bullying: A multi-design approach
	Bjørkelo, Brita	Whistleblowing at work: Antecedents and consequences
	Reme, Silje Endresen	Common Complaints – Common Cure? Psychiatric comorbidity and predictors of treatment outcome in low back pain and irritable bowel syndrome
	Helland, Wenche Andersen	Communication difficulties in children identified with psychiatric problems
	Beneventi, Harald	Neuronal correlates of working memory in dyslexia
	Thygesen, Elin	Subjective health and coping in care-dependent old persons living at home
	Aanes, Mette Marthinussen	Poor social relationships as a threat to belongingness needs. Interpersonal stress and subjective health complaints: Mediating and moderating factors.
	Anker, Morten Gustav	Client directed outcome informed couple therapy

	Bull, Torill	Combining employment and child care: The subjective well-being of single women in Scandinavia and in Southern Europe
	Viig, Nina Grieg	Tilrettelegging for læreres deltakelse i helsefremmende arbeid. En kvalitativ og kvantitativ analyse av sammenhengen mellom organisatoriske forhold og læreres deltakelse i utvikling og implementering av Europeisk Nettverk av Helsefremmende Skoler i Norge
	Wolff, Katharina	To know or not to know? Attitudes towards receiving genetic information among patients and the general public.
	Ogden, Terje, dr.philos.	Familiebasert behandling av alvorlige atferdsproblemer blant barn og ungdom. Evaluering og implementering av evidensbaserte behandlingsprogrammer i Norge.
	Solberg, Mona Elin	Self-reported bullying and victimisation at school: Prevalence, overlap and psychosocial adjustment.
2011 V	Bye, Hege Høivik	Self-presentation in job interviews. Individual and cultural differences in applicant self-presentation during job interviews and hiring managers' evaluation
	Notelaers, Guy	Workplace bullying. A risk control perspective.
	Moltu, Christian	Being a therapist in difficult therapeutic impasses. A hermeneutic phenomenological analysis of skilled psychotherapists' experiences, needs, and strategies in difficult therapies ending well.
	Myrseth, Helga	Pathological Gambling - Treatment and Personality Factors
	Schanche, Elisabeth	From self-criticism to self-compassion. An empirical investigation of hypothesized change prosesses in the Affect Phobia Treatment Model of short-term dynamic psychotherapy for patients with Cluster C personality disorders.
	Våpenstad, Eystein Victor, dr.philos.	Det tempererte nærvær. En teoretisk undersøkelse av psykoterapautens subjektivitet i psykoanalyse og psykoanalytisk psykoterapi.
	Haukebø, Kristin	Cognitive, behavioral and neural correlates of dental and intra-oral injection phobia. Results from one treatment and one fMRI study of randomized, controlled design.
	Harris, Anette	Adaptation and health in extreme and isolated environments. From 78°N to 75°S.
	Bjørknes, Ragnhild	Parent Management Training-Oregon Model: intervention effects on maternal practice and child behavior in ethnic minority families
	Mamen, Asgeir	Aspects of using physical training in patients with substance dependence and additional mental distress
	Espevik, Roar	Expert teams: Do shared mental models of team members make a difference
	Haara, Frode Olav	Unveiling teachers' reasons for choosing practical activities in mathematics teaching

2011 H	Hauge, Hans Abraham	How can employee empowerment be made conducive to both employee health and organisation performance? An empirical investigation of a tailor-made approach to organisation learning in a municipal public service organisation.
	Melkevik, Ole Rogstad	Screen-based sedentary behaviours: pastimes for the poor, inactive and overweight? A cross-national survey of children and adolescents in 39 countries.
	Vøllestad, Jon	Mindfulness-based treatment for anxiety disorders. A quantitative review of the evidence, results from a randomized controlled trial, and a qualitative exploration of patient experiences.
	Tolo, Astrid	Hvordan blir lærerkompetanse konstruert? En kvalitativ studie av PPU-studenters kunnskapsutvikling.
	Saus, Evelyn-Rose	Training effectiveness: Situation awareness training in simulators
	Nordgreen, Tine	Internet-based self-help for social anxiety disorder and panic disorder. Factors associated with effect and use of self-help.
	Munkvold, Linda Helen	Oppositional Defiant Disorder: Informant discrepancies, gender differences, co-occuring mental health problems and neurocognitive function.
	Christiansen, Øivin	Når barn plasseres utenfor hjemmet: beslutninger, forløp og relasjoner. Under barnevernets (ved)tak.
	Brunborg, Geir Scott	Conditionability and Reinforcement Sensitivity in Gambling Behaviour
	Hystad, Sigurd William	Measuring Psychological Resiliency: Validation of an Adapted Norwegian Hardiness Scale
2012 V	Roness, Dag	Hvorfor bli lærer? Motivasjon for utdanning og utøving.
	Fjermestad, Krister Westlye	The therapeutic alliance in cognitive behavioural therapy for youth anxiety disorders
	Jenssen, Eirik Sørnes	Tilpasset opplæring i norsk skole: politikeres, skoleledere og læreres handlingsvalg
	Saksvik-Lehouillier, Ingvild	Shift work tolerance and adaptation to shift work among offshore workers and nurses
	Johansen, Venke Frederike	Når det intime blir offentlig. Om kvinners åpenhet om brystkreft og om markedsføring av brystkreftsaken.
	Herheim, Rune	Pupils collaborating in pairs at a computer in mathematics learning: investigating verbal communication patterns and qualities
	Vie, Tina Løkke	Cognitive appraisal, emotions and subjective health complaints among victims of workplace bullying: A stress-theoretical approach
	Jones, Lise Øen	Effects of reading skills, spelling skills and accompanying efficacy beliefs on participation in education. A study in Norwegian prisons.

2012 H	Danielsen, Yngvild Sørebø	Childhood obesity – characteristics and treatment. Psychological perspectives.
	Horverak, Jøri Gytre	Sense or sensibility in hiring processes. Interviewee and interviewer characteristics as antecedents of immigrant applicants' employment probabilities. An experimental approach.
	Jøsendal, Ola	Development and evaluation of BE smokeFREE, a school-based smoking prevention program
	Osnes, Berge	Temporal and Posterior Frontal Involvement in Auditory Speech Perception
	Drageset, Sigrunn	Psychological distress, coping and social support in the diagnostic and preoperative phase of breast cancer
	Aasland, Merethe Schanke	Destructive leadership: Conceptualization, measurement, prevalence and outcomes
	Bakibinga, Pauline	The experience of job engagement and self-care among Ugandan nurses and midwives
	Skogen, Jens Christoffer	Foetal and early origins of old age health. Linkage between birth records and the old age cohort of the Hordaland Health Study (HUSK)
	Leversen, Ingrid	Adolescents' leisure activity participation and their life satisfaction: The role of demographic characteristics and psychological processes
	Hanss, Daniel	Explaining sustainable consumption: Findings from cross-sectional and intervention approaches
	Rød, Per Arne	Barn i klem mellom foreldrekonflikter og samfunnsmessig beskyttelse
2013 V	Mentzoni, Rune Aune	Structural Characteristics in Gambling
	Knudsen, Ann Kristin	Long-term sickness absence and disability pension award as consequences of common mental disorders. Epidemiological studies using a population-based health survey and official ill health benefit registries.
	Strand, Mari	Emotional information processing in recurrent MDD
	Veseth, Marius	Recovery in bipolar disorder. A reflexive-collaborative exploration of the lived experiences of healing and growth when battling a severe mental illness
	Mæland, Silje	Sick leave for patients with severe subjective health complaints. Challenges in general practice.
	Mjaaland, Thera	At the frontiers of change? Women and girls' pursuit of education in north-western Tigray, Ethiopia
	Odéen, Magnus	Coping at work. The role of knowledge and coping expectancies in health and sick leave.
	Hynninen, Kia Minna Johanna	Anxiety, depression and sleep disturbance in chronic obstructive pulmonary disease (COPD). Associations, prevalence and effect of psychological treatment.

	Nordahl, Kristin Berg	Early Father-Child Interaction in a Father-Friendly Context: Gender Differences, Child Outcomes, and Protective Factors related to Fathers' Parenting Behaviors with One-year-olds
2014 H	Sandvik, Asle Makoto	Psychopathy – the heterogenety of the construct
	Skotheim, Siv	Maternal emotional distress and early mother-infant interaction: Psychological, social and nutritional contributions
	Halleland, Helene Barone	Executive Functioning in adult Attention Deficit Hyperactivity Disorder (ADHD). From basic mechanisms to functional outcome.
	Halvorsen, Kirsti Vindal	Partnerskap i lærerutdanning, sett fra et økologisk perspektiv
	Solbue, Vibeke	Dialogen som visker ut kategorier. En studie av hvilke erfaringer innvandrerungdommer og norskfødte med innvandrerforeldre har med videregående skole. Hva forteller ungdommenes erfaringer om videregående skoles håndtering av etniske ulikheter?
	Kvalevaag, Anne Lise	Fathers' mental health and child development. The predictive value of fathers' psychological distress during pregnancy for the social, emotional and behavioural development of their children
	Sandal, Ann Karin	Ungdom og utdanningsval. Om elevar sine opplevingar av val og overgangsprosessar.
	Haug, Thomas	Predictors and moderators of treatment outcome from high- and low-intensity cognitive behavioral therapy for anxiety disorders. Association between patient and process factors, and the outcome from guided self-help, stepped care, and face-to-face cognitive behavioral therapy.
	Sjølie, Hege	Experiences of Members of a Crisis Resolution Home Treatment Team. Personal history, professional role and emotional support in a CRHT team.
	Falkenberg, Liv Eggset	Neuronal underpinnings of healthy and dysfunctional cognitive control
	Mrdalj, Jelena	The early life condition. Importance for sleep, circadian rhythmicity, behaviour and response to later life challenges
	Hesjedal, Elisabeth	Tverrprofesjonelt samarbeid mellom skule og barnevern: Kva kan støtte utsette barn og unge?
2015 V	Hauken, May Aasebø	*«The cancer treatment was only half the work!»* A Mixed-Method Study of Rehabilitation among Young Adult Cancer Survivors
	Ryland, Hilde Katrin	Social functioning and mental health in children: the influence of chronic illness and intellectual function
	Rønsen, Anne Kristin	Vurdering som profesjonskompetanse. Refleksjonsbasert utvikling av læreres kompetanse i formativ vurdering

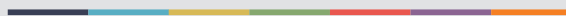|		
	Hoff, Helge Andreas	Thinking about Symptoms of Psychopathy in Norway: Content Validation of the Comprehensive Assessment of Psychopathic Personality (CAPP) Model in a Norwegian Setting
	Schmid, Marit Therese	Executive Functioning in recurrent- and first episode Major Depressive Disorder. Longitudinal studies
	Sand, Liv	Body Image Distortion and Eating Disturbances in Children and Adolescents
	Matanda, Dennis Juma	Child physical growth and care practices in Kenya: Evidence from Demographic and Health Surveys
	Amugsi, Dickson Abanimi	Child care practices, resources for care, and nutritional outcomes in Ghana: Findings from Demographic and Health Surveys
	Jakobsen, Hilde	The good beating: Social norms supporting men's partner violence in Tanzania
	Sagoe, Dominic	Nonmedical anabolic-androgenic steroid use: Prevalence, attitudes, and social perception
	Eide, Helene Marie Kjærgård	Narrating the relationship between leadership and learning outcomes. A study of public narratives in the Norwegian educational sector.
2015 H	Wubs, Annegreet Gera	Intimate partner violence among adolescents in South Africa and Tanzania
	Hjelmervik, Helene Susanne	Sex and sex-hormonal effects on brain organization of fronto-parietal networks
	Dahl, Berit Misund	The meaning of professional identity in public health nursing
	Røykenes, Kari	Testangst hos sykepleierstudenter: «Alternativ behandling»
	Bless, Josef Johann	The smartphone as a research tool in psychology. Assessment of language lateralization and training of auditory attention.
	Løvvik, Camilla Margrethe Sigvaldsen	Common mental disorders and work participation – the role of return-to-work expectations
	Lehmann, Stine	Mental Disorders in Foster Children: A Study of Prevalence, Comorbidity, and Risk Factors
	Knapstad, Marit	Psychological factors in long-term sickness absence: the role of shame and social support. Epidemiological studies based on the Health Assets Project.
2016 V	Kvestad, Ingrid	Biological risks and neurodevelopment in young North Indian children
	Sælør, Knut Tore	Hinderløyper, halmstrå og hengende snører. En kvalitativ studie av håp innenfor psykisk helse- og rusfeltet.
	Mellingen, Sonja	Alkoholbruk, partilfredshet og samlivsstatus. Før, inn i, og etter svangerskapet – korrelater eller konsekvenser?
	Thun, Eirunn	Shift work: negative consequences and protective factors

	Hilt, Line Torbjørnsen	The borderlands of educational inclusion. Analyses of inclusion and exclusion processes for minority language students
	Havnen, Audun	Treatment of obsessive-compulsive disorder and the importance of assessing clinical effectiveness
	Slåtten, Hilde	Gay-related name-calling among young adolescents. Exploring the importance of the context.
	Ree, Eline	Staying at work. The role of expectancies and beliefs in health and workplace interventions.
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2016 H	Løvoll, Helga Synnevåg	Inside the outdoor experience. On the distinction between pleasant and interesting feelings and their implication in the motivational process.
	Hjeltnes, Aslak	Facing social fears: An investigation of mindfulness-based stress reduction for young adults with social anxiety disorder
	Øyeflaten, Irene Larsen	Long-term sick leave and work rehabilitation. Prognostic factors for return to work.
	Henriksen, Roger Ekeberg	Social relationships, stress and infection risk in mother and child
	Johnsen, Iren	«Only a friend» - The bereavement process of young adults who have lost a friend to a traumatic death. A mixed methods study.
	Helle, Siri	Cannabis use in non-affective psychoses: Relationship to age at onset, cognitive functioning and social cognition
	Glambek, Mats	Workplace bullying and expulsion in working life. A representative study addressing prospective associations and explanatory conditions.
	Oanes, Camilla Jensen	Tilbakemelding i terapi. På hvilke måter opplever terapeuter at tilbakemeldingsprosedyrer kan virke inn på terapeutiske praksiser?
	Reknes, Iselin	Exposure to workplace bullying among nurses: Health outcomes and individual coping
	Chimhutu, Victor	Results-Based Financing (RBF) in the health sector of a low-income country. From agenda setting to implementation: The case of Tanzania
	Ness, Ingunn Johanne	The Room of Opportunity. Understanding how knowledge and ideas are constructed in multidisciplinary groups working with developing innovative ideas.
	Hollekim, Ragnhild	Contemporary discourses on children and parenting in Norway. An empirical study based on two cases.
	Doran, Rouven	Eco-friendly travelling: The relevance of perceived norms and social comparison
2017 V	Katisi, Masego	The power of context in health partnerships: Exploring synergy and antagony between external and internal ideologies in implementing Safe Male Circumcision (SMC) for HIV prevention in Botswana

	Jamaludin, Nor Lelawati Binti	The "why" and "how" of International Students' Ambassadorship Roles in International Education
	Berthelsen, Mona	Effects of shift work and psychological and social work factors on mental distress. Studies of onshore/offshore workers and nurses in Norway.
	Krane, Vibeke	Lærer-elev-relasjoner, elevers psykiske helse og frafall i videregående skole – en eksplorerende studie om samarbeid og den store betydningen av de små ting
	Søvik, Margaret Ljosnes	Evaluating the implementation of the Empowering Coaching™ program in Norway
	Tonheim, Milfrid	A troublesome transition: Social reintegration of girl soldiers returning 'home'
	Senneseth, Mette	Improving social network support for partners facing spousal cancer while caring for minors. A randomized controlled trial.
	Urke, Helga Bjørnøy	Child health and child care of very young children in Bolivia, Colombia and Peru.
	Bakhturidze, George	Public Participation in Tobacco Control Policy-making in Georgia
	Fismen, Anne-Siri	Adolescent eating habits. Trends and socio-economic status.
2017 H	Hagatun, Susanne	Internet-based cognitive-behavioural therapy for insomnia. A randomised controlled trial in Norway.
	Eichele, Heike	Electrophysiological Correlates of Performance Monitoring in Children with Tourette Syndrome. A developmental perspective.
	Risan, Ulf Patrick	Accommodating trauma in police interviews. An exploration of rapport in investigative interviews of traumatized victims.
	Sandhåland, Hilde	Safety on board offshore vessels: A study of shipboard factors and situation awareness
	Blågestad, Tone Fidje	Less pain – better sleep and mood? Interrelatedness of pain, sleep and mood in total hip arthroplasty patients
	Kronstad, Morten	Frå skulebenk til deadlines. Korleis nettjournalistar og journaliststudentar lærer, og korleis dei utviklar journalistfagleg kunnskap
	Vedaa, Øystein	Shift work: The importance of sufficient time for rest between shifts.
	Steine, Iris Mulders	Predictors of symptoms outcomes among adult survivors of sexual abuse: The role of abuse characteristics, cumulative childhood maltreatment, genetic variants, and perceived social support.
	Høgheim, Sigve	Making math interesting: An experimental study of interventions to encourage interest in mathematics

2018 V	Brevik, Erlend Joramo	Adult Attention Deficit Hyperactivity Disorder. Beyond the Core Symptoms of the Diagnostic and Statistical Manual of Mental Disorders.
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	Hagen, Egon	Cognitive and psychological functioning in patients with substance use disorder; from initial assessment to one-year recovery
	Adólfsdóttir, Steinunn	Subcomponents of executive functions: Effects of age and brain maturations
	Brattabø, Ingfrid Vaksdal	Detection of child maltreatment, the role of dental health personnel – A national cross-sectional study among public dental health personnel in Norway
	Fylkesnes, Marte Knag	Frykt, forhandlinger og deltakelse. Ungdommer og foreldre med etnisk minoritetsbakgrunn i møte med den norske barnevernstjenesten.
	Stiegler, Jan Reidar	Processing emotions in emotion-focused therapy. Exploring the impact of the two-chair dialogue intervention.
	Egelandsdal, Kjetil	Clickers and Formative Feedback at University Lectures. Exploring students and teachers' reception and use of feedback from clicker interventions.
	Torjussen, Lars Petter Storm	Foreningen av visdom og veltalenhet – utkast til en universitetsdidaktikk gjennom en kritikk og videreføring av Skjervheims pedagogiske filosofi på bakgrunn av Arendt og Foucault. *Eller hvorfor menneskelivet er mer som å spille fløyte enn å bygge et hus.*
	Selvik, Sabreen	A childhood at refuges. Children with multiple relocations at refuges for abused women.

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