

Background: Since the release of DSM III-R, a lot of research has been conducted on co-occurring disorders. However, there is still a need for knowledge about specific combinations of disorders. In this article we first look into some research on co-occurring disorders in general. Next we explore the research on the relationship between borderline personality disorder and substance use disorder. Objective: this study looked at differences in clinical and demographic variables in BPD patients with or without substance abuse. Method: 714 subjects with diagnosed borderline personality disorder were sampled from a cross-sectional study of patients receiving care in Norwegian mental health care. These were divided into two groups, those who had a substance abuse (BPD+) and those who did not (BPD-). Results: 15,2% of the patients diagnosed with BPD, also had reported substance abuse. In sum, few differences were found between the BPD+ group and the BPD- group, both regarding demographic and clinical characteristics, and the treatment they were being offered. However, the patients in the BPD+ group consisted of significantly more men, and were significantly younger when seeking treatment, than the BPD- group. Discussion: the findings from this study will be discussed. Some future challenges for the research on BPD patients with substance abuse, and some directions for effective interventions for this group of patients, will be considered.

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1 Introduction

1.1 Co-occurring disorders

In the 1980s, clinicians and researchers began to identify a group of young persons with both severe mental illnesses and problems with substance use. By the mid-1980s they realized that rather than the substance use being a manifestation of their psychiatric disorders, they had separate substance disorders (Ridgely, Osher, Goldman & Talbott, 1987). In DSM III (American Psychiatric Association, 1980) there was a hierarchical division between different mental disorders in the DSM-system, and exclusion rules made sure that patients would not get more than one diagnosis. Based on observations of the young persons described above, with the revision of DSM III (DSM-III-R; American Psychiatric Association, 1987) the hierarchical exclusionary rules were revised, and patients could receive more diagnoses (Dolan-Sewell, Krueger & Shea, 2001). It soon became evident that “impure” symptom profiles appear to be the rule rather than the exception (Clark, Watson & Reynolds, 1995).

The name of this phenomenon has been discussed (Dolan-Sewell et al., 2001; Lilienfeld, Waldman & Israel, 1994). The term “comorbidity” is one of the terms that are being used to describe patients with more than one diagnosis. This term is defined as two “distinct” disorders, and there is an assumption in the use of “comorbid” that there is one index disorder and that the others are additional co-occurring disorders (Feinstein, 1970). This understanding has been argued to be better suited for medical use than for psychological disorders (Lilienfeld et al., 1994), and this term is therefore most often used in medical journals. Dual diagnosis or co-occurring disorders are terms more often used in psychological and social sciences because these terms do not have this kind of implicated models for understanding the co-occurrence of the disorders (Watkins, Lewellen & Barrett, 2001).

In mental health, the term dual diagnosis is often used to describe patients who fulfill the criteria both for a substance use disorder (SUD) and a severe mental illness. Severe mental illness refers to psychiatric disorders with a severe and persistent impact on a person's functioning, and typically includes disorders such as schizophrenia, bipolar disorder, major depression with psychotic symptoms and personality disorders such as borderline personality disorder. Substance use disorder is a term used to refer to people diagnosed with either substance abuse or substance dependence (Mueser, Noordsy, Drake & Fox, 2003). Co-occurring disorders (COD) is a term used more widely to describe patients that have any mental illness in addition to SUD (Flynn & Brown, 2008). Thus, in this term all mental illnesses can be included, and it is not limited to two disorders.

Two types of studies exist that document the high rate of co-occurrence of mental illness and SUD, namely epidemiological surveys and studies of clinical populations. In the American population it has been found that about three percent had co-occurring disorders in a study from 2001 (Watkins, Burnam, Kung & Paddock, 2001). The most extensive study to examine the prevalence of co-occurring disorders is the Epidemiologic Catchment Area (ECA) study (Regier et al., 1990). This study had over 20 000 respondents, which were recruited from the population in general and from institutional settings. There was an oversampling of persons living in institutional settings to ensure that there were sufficient psychiatric patients in the study for the authors to compare the clinical population to the general population. They found that psychiatric patients were much more likely to have a SUD than the population in general. For patients with mental disorders who were in treatment, 20 % had a current substance use disorder. High lifetime prevalence rates for SUD were found especially for schizophrenia (47 %) and bipolar disorder (56 %). Other large studies have found similar results (Kessler et al., 1997; Teesson, Hall, Lynskey &

Degenhardt, 2000). An additional finding has been that the more severe the mental disorder is, the more likely the patients are to develop SUD (Mueser, Drake, Turner & McGovern, 2006).

Even though some general conclusions could be drawn looking at all kinds of co-occurring disorders, knowledge about specific combinations is necessary. In this paper, we will explore demographic and clinical characteristics of, and treatment of, patients with a combination of borderline personality disorder and substance use disorder. However, before we look closer at this combination, we will go through some research on co-occurring disorders in general. In this context, we will firstly look at treatment models, then models to explain the co-occurrence and lastly research on the severity of CODs.

1.1.1 Treatment models

Sequential treatment

When discovering the group of patients with co-occurring disorders it was realized that they often did not receive help for the complexity of their problems. Through history there has been a division between mental health and substance abuse treatment. This division often resulted in that patients entering one of these systems only received help for that problem, and that the other was ignored. In some cases a person with two disorders could not enter treatment in any of these systems before the other problem was solved or stabilized. This could lead to a situation where no-one took responsibility for the client, and that they were excluded from all treatment (Ridgely, et al., 1987). The sequential treatment approach is described as being a common clinical justification for the exclusion of patients with several diagnoses from treatment, rather than an explicit treatment model. By offering sequential treatment to patients it has been claimed that one ignores the interactive and cyclical nature of dual disorders (Mueser, et al., 2003).

Parallel treatment

Parallel treatment targeting both disorders in the same time period is seen as a better way of treating patients with co-occurring disorders. However, this approach also poses some challenges (Mueser, et al., 2003). Because different treatments require different professionals to be involved, and these professionals sometimes work for different agencies, good communication between professionals is necessary. Research has shown that this is difficult to achieve in clinical settings (Kavanagh, et al., 2000).

Integrated treatment

Mueser et al. (2003) therefore suggests the use of integrated treatment, which overcome these difficulties by ensuring that the mental health and substance abuse services are available in the same setting. By using this approach the interventions may be selected, combined and modified for each patient, even though many professionals are involved in the treatment process. Integrated treatment has been found to be effective for patients with both severe mental illnesses and a SUD, and is today included in the recommended treatment guidelines for patients with dual diagnosis (Centre for addiction and mental health, 2001; Drake, Mueser, Clark & Wallach, 1996; The Norwegian Directorate of Health, 2011).

Matching clients to treatments

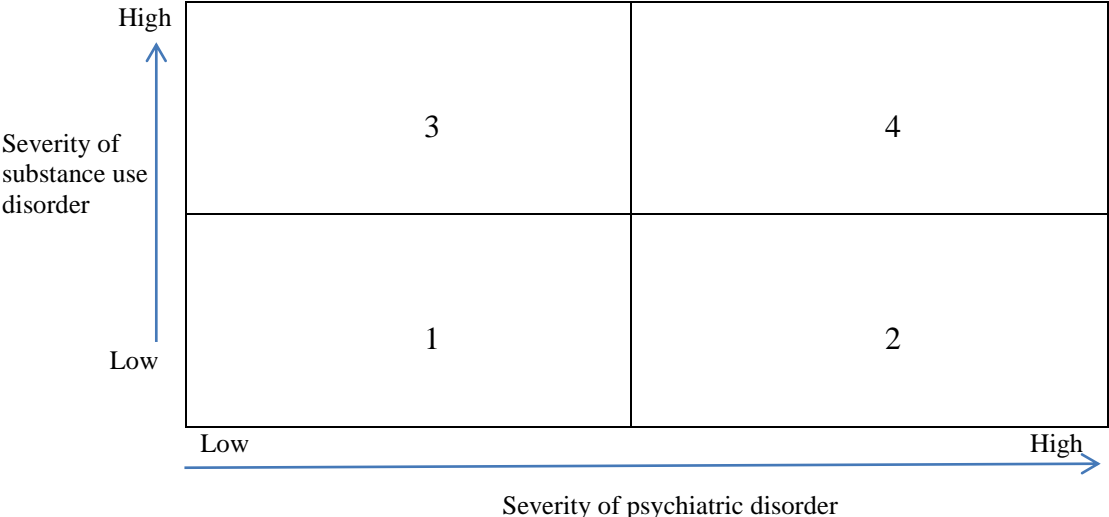
In the past decades there have been attempts to match patients to specific types of treatment. Two approaches that have received special attention from researchers, are matching based on individual characteristics, or based on severity of the problems at intake (McLelland, 2006).

Project MATCH (Project MATCH Research Group, 1997) was a very large research material, where the aim was to determine whether outcomes from different types of treatment

would have different impacts in relation to a range of client characteristics. Few consistent relationships between client characteristics, type of treatment and outcome were found. In general, it has been difficult to find consistent personal characteristics that predict what type of treatment will give the best results (McLelland, 2006; Roth & Fonagy, 2005).

One model that has been developed to differentiate between patients based on the severity of the problems, is the quadrant model (Substance Abuse and Mental Health Services Administration, 2002). According this model the severity of the mental disease and the substance abuse should lead to treatment in different settings. This is a conceptual model presented in a report to the American congress in 2002 from the Substance Abuse and Mental Health Services Administration. This model is based on the principle of optimate care, and the aim is to optimize outcomes at the lowest possible cost. Four different alternatives for treatment are postulated, according to the severity of the two problems. A simplified version (figure 1) has been developed (McGovern, Clark & Samnaliev, 2007).

Figure 1



In *quadrant one* are the patients with a low severity of both the mental disease and the substance abuse, and it is recommended that these patients should receive consultations in mental health settings. In *quadrant two* we find those patients who have a low severity of substance abuse, and a high severity of the mental disease. According to the model these patients should still be primarily be taken care of in a mental health setting, but also get help for their substance abuse either in a parallel or integrated manner. The patients belonging to the *third quadrant* are those with a high severity of their substance abuse, and low severity of their mental illness. According to the model patients in this group should get help in addiction treatment, but also receive help for their mental problems in the same way as the patients in quadrant two. In the *fourth quadrant* are those patients with both severe mental illness and severe drug addiction, and they are likely to be found in prisons, hospitals or emergency rooms. Patients in this group should according to the model receive help in either a mental health setting or in addiction treatment. For these patients integrated treatment is hypothesized to be especially efficient, and important (Mueser, et al., 2006). Although this model could have an intuitive appeal, it has been argued to be difficult to apply in clinical settings because patients seem to shift between the quadrants over time. For some time there was no research supporting this model, and it was claimed that the model would break down when applied to treatment settings (Mueser, et al., 2006). However, a study from 2007 found that the feasibility of this model was supported, and that it is utilized by community providers and policy makers in The United States (McGovern, et al., 2007). These authors found that above half of the patients (52,5%) belonged to quadrant four. They recommend more research to be performed on this model for the future.

1.1.2 Models to explain the origin of co-occurring disorders

To improve the interventions and prevention of these disorders, good models regarding the development of the disorders are necessary. A number of researchers have created models to explain why people develop both a mental illness and a substance use problem. These models may be divided into broad classes of explanations, namely secondary psychopathology models, secondary substance abuse models, common factor models and bidirectional models (Mueser, et al., 2006).

Secondary psychopathology models

According to secondary psychopathology models the occurrence of mental disorders is an effect of substance abuse, probably in vulnerable individuals. This is difficult to test because it is almost impossible to know which individuals that would have developed mental disease if they had not abused substances. The model can only be applied by linking specific substances to specific disorders, and an example of such a linkage has been proposed for the use of cannabis and the development of schizophrenia. This linkage has, however, received limited support from research, for example by the observation that while the use of cannabis have increased in certain countries, at the same time the rate of schizophrenia has decreased (Mueser, et al., 2006). Research has also more generally shown that the individuals that develop mental disease after abusing substances, are quite similar to patients with mental disease and no substance abuse (Mueser, et al., 2003). This could be regarded as supporting the assumption that these patients would have developed a mental disease regardless of their substance abuse.

Secondary substance abuse models

Secondary substance abuse models are a collection of models theorizing that mental disorders are causing substance use disorders. The self-medication hypothesis, the general dysphoria model, the super sensitivity model and secondary psychosocial effect model are all models within this class of explanations. These models contain different explanations of how the mental disorders cause substance use disorders. For an explanation of these models, and a review of the current research supporting these models, see Mueser, et al. (2003).

Common factor models

Common factor models postulates that underlying common variables could be the cause of both the mental disease and the substance use disorder. Such factors could be genetic, neurocognitive, familial, social or environmental. Research has supported the antisocial personality disorder (ASPD) as such a common factor that may precede other mental diseases and increase the rate of SUD (Mueser, et al., 2003).

Bidirectional models

According to bidirectional models different factors related to mental illness and substance abuse contribute to the onset and the maintenance of co-occurring disorders. It is difficult to test these models, and the best way to do it is to conduct longitudinal research. This has not been done for many disorders, one exception is Post Traumatic Stress Disorder (PTSD) where research has shown that this disorder and alcohol abuse often co-occur, and that when both are present they seem to make each other worse (Mueser, et al., 2006).

Other explanations of the co-occurrence

In addition to these models it has also been proposed that some co-occurring disorders are artificial, meaning that there are overlapping diagnostic criteria. Then there would not be two separate disorders but rather common symptoms of two disorders that make patients appear to have two disorders (Trull, Sher, Minks-Brown, Durbin & Burr, 2000). It is also possible that two disorders co-occur randomly, and that there are no common factors related to the disorders. This is called the “null hypothesis” model for co-variation (Lyons, Tyrer, Gunderson & Tohen, 1997).

1.1.3 Research on co-occurring disorders

Research concerning co-occurring mental illness and SUD has been conducted both by researchers focusing mainly on addiction and by researchers focusing on mental health. Whereas the addiction research literature typically include comparisons of patients with SUD and with or without mental disorder, the literature on mental illness, often compare patients with mental illness with and without SUD.

Research on co-occurring disorders from the addiction research literature

Research has shown that some of the important risk factors for the development of substance abuse are gender, age, education and marital status. More men than women seem to develop a substance abuse disorder, though it is important to keep in mind that also a significant number of women develop SUD. Being young is also a risk factor for SUD, especially regarding the abuse of illegal drugs. Patients with additional SUD tend to have lower education than clients with only severe mental illness, and they are more likely never to have married (Mueser, et al., 2003).

Between 50-70% of all patients in substance abuse programs have a co-occurring mental disorder (Sacks, Ries & Ziedonis, 2005). In comparison, a large study conducted by Regier et.al (1990) estimated that the lifetime prevalence rates in the U.S. population for any mental disorder was 22,5 %. Both of these studies refer to any mental disease and not only severe mental disease. They show that the rate of co-occurrence is much higher amongst those abusing substances compared to the rest of the population.

When adding severe mental illness to SUD, the risk of relapse after treatment seems to become higher than normal (Flynn & Brown, 2008). Providing integrated treatment to target both disorders is therefore regarded as important for the outcome of therapy. Studies have shown that substance abuse programs provide mental health treatment for 32 - 79 % of their clients, depending on their diagnosis (Harris & Edlund, 2005). For patients with severe mental illnesses, integrated treatment is regarded as especially important. Patients with low or moderate levels of mental disorder in addition to SUD seem to benefit more from traditional drug abuse programs only, in decreasing both their drug abuse and their psychiatric symptoms (Flynn & Brown, 2008).

Research on co-occurring disorders from the literature on mental illness

Epidemiological research has shown that patients with a severe mental illness have a higher risk of developing SUD than the general population (Regier, et al., 1990). Mental illness can be regarded as a risk factor for developing SUD (Mueser, et al., 2003). In a review of research from the 1970s until 2005 it was found that between 20 – 50 % of all patients in mental-health settings had co-occurring substance use disorders, which is a much larger percent than what is found in the general population (Sacks, et al., 2005). In comparison, the ECA-study (Regier, et al., 1990) showed that the lifetime prevalence of alcohol abuse in the population was 16,5 %, whereas the lifetime prevalence for drug use disorder was 6,1 % .

Another large population study from the United States found similar results (Kessler, et al., 1997).

Some research have pointed in the direction that having substance use disorders in addition to mental disease is connected to more treatment resistance, and more re-hospitalizations than for patients without SUDs (Drake, et al., 1996). This was recently also found to be the case in the Norwegian population (Pedersen, Sitter, Lilleeng & Bremnes, 2011). The detection of co-occurring SUD when present is therefore important. When present, it is also regarded as important to address the SUD specifically in treatment (Drake, Wallach & McGovern, 2005; RachBeisel, Scott & Dixon, 1999). In a review of the literature Drake and Mueser (2000) concluded that SUDs are still often undetected in psychiatric care settings. A study on Norwegian Community Mental Health Centers (CMCHs) focused on what different measures were appropriate in detecting SUD (Wusthoff, Waal, Ruud, Roislien, & Grawe, 2011). They concluded that combining approaches gives a prevalence of substance abuse that is closer to what we would expect in a patient population. This implicates that in clinical practice SUD should be carefully assessed in patients with severe mental illnesses.

Even for patients who do not satisfy the criteria for substance use disorder, it seems that interventions pointed directly towards the substance abuse may be important. In one study it was concluded that even use of small amounts of alcohol or other drugs are likely to be associated with negative outcomes in patients with severe mental illnesses, and the reports of recent use may indicate the need for treatment better than the diagnostic criteria (RachBeisel, et al., 1999).

Summary and treatment implications

In summary, literature from both addiction research literature and on mental illness show that having co-occurring disorders is associated with greater impairments than having one of the disorders. Integrated treatment targeting both disorders is recommended when these disorders co-occur. Nevertheless, many patients still do not receive this kind of help. In one population study it was found that 46 % of adults with a serious mental illness and a substance use disorder had not received any treatment during the preceding year (Harris & Edlund, 2005), and in another study 72% of the people with co-occurring disorders did not receive any mental health treatment or substance abuse treatment (Watkins, et al., 2001) . Less than one-third of patients with co-occurring mental health problems and a SUD who were receiving help in mental care, were also receiving help for their substance abuse, according to one study (Harris & Edlund, 2005). Another study found that only 8 % received both mental health treatment and substance abuse treatment (Watkins, et al., 2001).

Since the detection of co-occurring disorders about thirty years ago, a substantial amount of research has been conducted examining co-occurring disorders. However, the lack of specificity in the term co-occurring disorders, both with regard to diagnostic categories and severity of the disorders, makes research on specific combinations of diagnoses necessary (Flynn & Brown, 2008). Two disorders that often co-occur and where there is a need for more knowledge are borderline personality disorder (BPD) and SUD.

1.2 Borderline personality disorder and substance use disorder

The prevalence of BPD in the population is around 1 % (Lenzenweger, 2010). A study of prevalence in a clinical population found that 17 % of the patients were diagnosed with BPD (McGovern, Xie, Segal, Siembab & Drake, 2006). BPD and SUD often co-occur within the same person. For those having a diagnosis of BPD one of the most common comorbidities is SUD (Widiger & Trull, 1993), and BPD is also prevalent for patients diagnosed with SUD (Trull, et al., 2000).

1.2.1 Models to explain the co-occurrence of borderline personality disorder and substance use disorder

In their review, Trull et al. (2000) looked at the available research to explain the co-occurrence of BPD and SUD according to the models described earlier. One possible explanation for the high co-occurrence is that it is artificial. For BPD and SUD the high rate of co-occurrence could be caused by the fact that the impulsivity criterion in the diagnosis of BPD for example could be met by having substance use problems. This has, however, been recognized by researchers, and they have shown that the co-occurrence persists even when not considering substance use as a criterion for BPD (Dulit, Fyer, Haas, Sullivan & Frances, 1990; Grilo et al., 1997). Another way this co-occurrence may be artificial is that when these measurements are made the patients are often currently in treatment, and their SUD is either active or in an ending phase. It is therefore a possibility that substance use may contribute to some of the symptoms of BPD, like affective instability, aggression, self-harm, impulsivity and interpersonal problems. Researchers have tried to avoid this confounding by assessing mental health symptoms only in abstinent phase. However, the validity and reliability of this method has not been demonstrated (Trull, et al., 2000).

Regarding the secondary substance abuse or secondary psychopathology (BPD) models, there is scarce research supporting one hypothesis over the other. Findings showing that comorbid BPD and drug use increase the chronicity of each other (Trull, et al., 2000), could be taken as support for the bidirectional models.

Another possible explanation of the co-occurrence is that there are other common intervening explanatory variables for both disorders, thus a common factor model (Mueser, et al., 2003). For example, childhood trauma has been shown to be related to both BPD (Sabo, 1997) and SUDs (Brown & Anderson, 1991). The link between the trait of impulsivity and the stress-reducing properties of alcohol has also been shown in a number of studies (Trull, et al., 2000). Affective regulation has also been proposed as an underlying factor for both BPD and SUD. In BPD one of the features is affective instability, and substance use could be a way to cope with unwanted negative states (Kruegelbach, McCormick, Schulz & Grueneich, 1993).

1.2.2 Research on co-occurring borderline personality disorder and substance use disorder

Knowledge about co-occurring BPD and SUD can be found both in addiction research literature and in literature regarding personality disorders.

Borderline personality disorder findings within the addiction research literature

There has been done a substantial amount of research on the co-occurrence of personality disorders in substance abusers, and also on the consequences of this co-occurrence (van den Bosch & Verheul, 2007). Patients with a combination of SUD and any personality disorder have been found to have greater psychopathology, more occupational problems, more familial and social problems, bad social judgment, greater involvement with illegal drugs, higher risk for HIV infection, they were less satisfied with their lives, and were more

impulsive, isolated and depressed than subjects with SUD and no personality disorder (Nace, Davis & Gaspari, 1991; Rutherford, Cacciola & Alterman, 1994). In the early 1990s it was believed that having a personality disorder in addition to the substance use disorder was significantly related to poor response and outcome of treatment. A finding by Ross, Dermatis, Levounis and Galanter (2003) have moderated this view. They conclude that personality pathology is associated with pre-treatment and post-treatment problem severities in substance abuse treatment, but that it is not a robust predictor of the amount of improvement. Thus, patients with an additional personality disorder may have more severe problems both before and after treatment, but they seem to have the same amount of improvement during treatment as other patients. However, it seems like patients with both disorders have higher relapse-rates compared to patients with only SUD (Verheul, van den Bosch & Ball, 2005), which could be because these patients have more problems after the end of treatment, and therefore are more prone for relapse. The multifaceted nature of the combination of these problems is also stressed by some authors. They regard it as important to differentiate between patients with different severities of the problems. Personality disorders in addition to an alcohol use disorder are for example seen as less 'destructive' than the same disorders for patients with heroin or cocaine use disorders (van den Bosch & Verheul, 2007).

There has also been done more specific research on co-occurring SUD and BPD by addiction researchers. Borderline personality disorder has been found to predict risk behavior in heroin users and to be connected to an increased risk of suicide and psychopathology (Darke, Williamson, Ross, Teesson & Lynskey, 2004), and this risk remained higher also after treatment (Darke, Ross, Williamson & Teesson, 2005). In a literature summary by Feske, Tarter, Kirisci & Pilkonis (2006) it was concluded that the co-occurrence of SUD and BPD is associated with adverse outcomes such as increased risk taking behavior, frequency of

drug overdoses, suicide attempts, and more psychiatric, family and legal problems. It is also important that even though effective treatment of psychiatric symptoms may not lead to abstinence, it can still be life-saving because the mortality rate decreases (Fridell & Hesse, 2006).

Substance use disorder findings within the personality disorder literature

A meta-analysis of 17 studies showed that 57,4% of BPD patients also received a SUD diagnosis. Within the BPD patients 48,8 % met the criteria for alcohol use disorder and 38,0 % met the criteria for a drug use disorder (Trull, et al., 2000). Approximately 75 % of those diagnosed with BPD are women according to DSM IV (American Psychiatric Association, 1994). Prevalence studies in the general population have, however, showed that there are as many men as women who satisfy the criteria for BPD. The high female prevalence in clinical populations may reflect a lower threshold for seeking treatment, but it could also reflect that too many women receive this diagnosis (Lenzenweger, Lane, Loranger & Kessler, 2007). In a population of patients diagnosed with BPD, Zanarini et al. (1998) showed that more men than women had a substance use problem, but did also show that about half of the female borderline patients abused substances at some point in their lives. This is consistent with research showing that men generally more often receive the diagnosis of SUD (Mueser, et al., 2003).

The McLean Study of Adult Development (MSAD) has given us information about the course of SUD in BPD patients. In this study, assessments of BPD patients were done at baseline (Zanarini, et al., 1998), after six years (Zanarini, Frankenburg, Hennen, Reich & Silk, 2004), and after ten years (Zanarini et al., 2011). The results from this work showed that SUD was more common in BPD patients than for patients with other Axis II disorders (Zanarini, et al., 2011; Zanarini, et al., 1998). However, even in the group of patients with BPD and SUD,

remissions from the abuse/dependence seem to be both common and relatively stable. The researchers found that more than 90% of the patients that fulfilled the criteria for either alcohol or drug abuse/dependence at baseline, achieved remission within the follow-up period of ten years (Zanarini, et al., 2011). An additional finding was that failure to achieve remission from BPD was strongly related to current SUD (Zanarini, et al., 2004).

There has also been conducted research regarding demographical and clinical differences between BPD patients with and without SUD. In two studies it was found that patients with co-occurring BPD and SUD have worse school performance than patients with only BPD (Links, Heslegrave, Mitton, van Reekum & Patrick, 1995; Miller, Abrams, Dulit & Fyer, 1993), and in one of these studies the unemployment rates were also found to be higher among patients with BPD and SUD (Miller, et al., 1993). One study showed that patients with BPD and SUD had more borderline psychopathology than patients with only BPD (Links, et al., 1995), but this finding was contradicted in a more recent study (Lee, Bagge, Schumacher & Coffey, 2010). One study showed that a subgroup of BPD patients did not satisfy the criteria for the diagnosis of BPD when excluding substance abuse as a criterion for BPD, and they found that this group also had less BPD symptomatology (Dulit, et al., 1990). This finding was not supported in another study where a more robust relationship between the substance use disorder and BPD was documented, and the diagnosis of BPD persisted even after removing the substance abuse as a criterion (Skodol, Oldham & Gallaher, 1999).

While one study found no difference between the groups regarding suicide risk (Miller, et al., 1993), other studies have shown that co-occurring BPD and SUD may give a higher risk of suicide and suicide attempts (Links, et al., 1995; van den Bosch, Verheul & van den Brink, 2001). A recent study that looked at impulsivity, found no differences between BPD with and without SUD on a number of different measures of impulsivity (Coffey,

Schumacher, Baschnagel, Hawk & Holloman, 2011). However, subjects with BPD and SUD demonstrated poorer behavioral inhibition than subjects with BPD alone. Two studies revealed few differences between persons with BPD with and without SUD (Links, et al., 1995; van den Bosch, et al., 2001). One of these studies found that the groups did not differ with respect to social adaptation, affect, psychosis, interpersonal problems, and overall functioning (Links, et al., 1995). The other study found no differences in demographic characteristics, problem domains of the EuropASI (except from items regarding alcohol and drug problem severity), referral setting or in their history of traumatic events (van den Bosch, et al., 2001).

In summary, the research on BPD with and without SUD is sparse. It seems as if many of the BPD patients with SUD achieve remission, which gives hope for the treatment of SUD in BPD patients. The patients with and without SUD have been found to be similar in a number of respects, and there has been found few consistent differences. However, patients with BPD and SUD seem to have worse school performance. If so, this means that their problems sooner become evident for people around them, than for patients with only BPD, and this could make early intervention possible.

1.2.3 Research on effective interventions

The most relevant source of information about effective treatment for patients with both BPD and SUD, are found in treatment guidelines made specifically for this group. However, the treatment guidelines for this group are not that well defined. For clinicians working with these patients, knowledge about effective treatment for the two disorders separately is therefore necessary.

Treatment guidelines for substance use disorder

Studies concerning treatment for substance abuse often concentrate on specific kinds of substances. Three areas have received much attention in research, namely alcohol, cocaine and opiate abuse.

For patients with alcohol abuse, several interventions may be characterized as evidence based. These interventions are mainly 1) brief educational interventions (particularly for patients with a low severity of their problem and no co-occurring disorder), 2) 12-step approaches, 3) community reinforcement approaches, 4) cognitive behavioral treatment, and 5) motivational interviewing approaches (The Norwegian Directorate of Health, 2011).

In clinical settings it is likely that the patients receive a number of different interventions. Such packages of interventions are considered evidence-based when including a combination of some of the following interventions: social skills training, relapse prevention, cue exposure, coping skills training, contingency management, motivational interviewing and marital therapy (Roth & Fonagy, 2005). Recommended medication treatment for alcohol abusers is disulfiram (antabus), naltrexone or acamprosate. Research has shown that there are only equivocal efficacy research support for disulfiram, and that naltrexone and acamprosate seem to give benefit in reducing relapse when they are administered in addition to psychosocial treatment (Roth & Fonagy, 2005).

For cocaine abuse, contingency management and community reinforcement approaches have received most support, and may be regarded as evidence-based interventions for this group. 12-step approaches, cognitive behavioral therapy with a focus on relapse prevention, and behavioral marital therapy also have some support. Roth and Fonagy (2005) found that the patients have the best outcome when they keep the focus on management of the drug abuse.

There has been less research on psychosocial treatment of opiate abuse than for alcohol and cocaine abuse. Most of the research has been done on the effect of opiate substitution therapies. Methadone is a medication that could be administered to patients that have been addicted to opiates. There is some research suggesting that adding individual counseling gives an additional benefit to methadone, compared to methadone alone (Roth & Fonagy, 2005). There is also some research suggesting that family involvement may increase treatment compliance and prevent retention (Stanton & Shadish, 1997).

One limitation of the above mentioned research is that most patients struggling with substance abuse, often abuse several substances (polydrug abuse). For patients with personality disorders, polydrug use is seen as the rule rather than the exception (Nace, Saxon & Shore, 1983).

Miller and Carroll (2006) highlighted ten evidence based principles for the prevention and treatment of drug abuse based on available research. They emphasized that drug use is a chosen behavior, that the abuse is something that appears gradually, and that when the drug use has become problematic, this problem is self-sustaining. Regarding interventions, they say that motivation is central for both prevention and intervention, and that the relation between the therapist and the patient is an important and healing component. In these principles the broader context of a patient's life is also emphasized in that drug problems both is a part of a family context and a broader social context.

In summary, it seems as though several individual counseling techniques are effective for patients with SUD. In addition, community reinforcement approaches seem to be effective for people abusing alcohol or cocaine. One way to explain the effectiveness of community reinforcement approaches is that this approach also targets the broader context of the person's life, as highlighted by Miller and Carroll (2006). This could be challenging, because this

require mental health services and social care to co-operate. It may, nevertheless, be of big importance for this group.

Treatment guidelines for borderline personality disorder

In recent research psychodynamic psychotherapy and Dialectical Behavioral Therapy (DBT) have shown to be significantly more effective than treatment as usual or standard treatment (Koerner & Linehan, 2000). There has not been conducted any studies that have compared these two treatments to suggest which patients that would benefit the most from which type of treatment (American Psychiatric Association, 2001). There is also some research that support the use of cognitive behavioral therapy with borderline patients, but not enough for it to be considered evidence-based treatment (Roth & Fonagy, 2005). All of these interventions typically consist of weekly meetings with the therapist, one or more group sessions each week and consultation meetings for the therapists. Some empirical support also exists for individual treatment or group treatment used separately, but greater effect seems to be achieved when these two are implemented in combination (American Psychiatric Association, 2001).

In addition to knowledge of specific types of treatment, there seems to be some common factors in therapy that are useful across techniques (American Psychiatric Association, 2001). Maintaining a good therapeutic alliance and to validate the patients' suffering are seen as important factors. Other common goals are to help the patients monitor their self-destructive tendencies, reduce self-harming behavior, manage feelings, and help them take more responsibility for their own actions. For the therapists, having flexibility in the meeting with borderline patients is also regarded as crucial, but at the same time offer structure. Having patience with the time perspective is also traditionally regarded important, because most patients are not expected to show substantial progress until they have been in

therapy for at least one year (American Psychiatric Association, 2001). However, this view has recently been challenged by some authors that claim that the treatment should rather be given in shorter periods of time, and that the patients should have time to try out their new skills in their everyday life, before possibly returning for more interventions (Paris, 2010). DBT is also typically offered in a one year period (Linehan, 1993; Linehan, et al., 1999; Linehan, et al., 2002)

Pharmacological treatments are often prescribed based on specific target symptoms shown by the individual patient. Antidepressive drugs and mood stabilizers may be helpful for depressed and/or labile mood. Antipsychotic drugs can also be used when there are distortions in thinking (American Psychiatric Association, 2001; Siever & Koenigsberg, 2000).

Treatment guidelines for co-occurring BPD and SUD

There is limited research on the effect of interventions for people with co-occurring BPD and substance abuse. One reason for this is that patients with co-occurring disorders often are excluded from research trials (van den Bosch, et al., 2001). While a substantial amount of literature has been published regarding the impact of personality disorders on substance use treatment, less is known about the impact of substance abuse on treatment for personality disorders (van den Bosch & Verheul, 2007). Possibly as a result of this, the Norwegian Treatment Guidelines for patients with co-occurring BPD and SUD, recommend that this group should receive the same treatment as patients with BPD (The Norwegian Directorate of Health, 2011).

The treatment of patients with SUD and a co-occurring personality disorder has been described in the literature as being difficult. These patients are described as more rigid, difficult to trust and ambivalent to therapy (Marziali & Monroe-Blum, 1994). This makes the

working alliance more difficult to establish, and the retention rate is lower (Links, et al., 1995).

The number of studies focusing on pharmacotherapy for patients with personality disorders and substance use disorder is also sparse. In one study Gerra et al. (2006) found that for heroin-dependent patients with personality disorders, high doses of buprenorphine predicted less substance use (measured by positive urines), but did not affect retention. However, patients with BPD in this study appeared to be less responsive to this medication than other patients.

In the Canadian guidelines for co-occurring disorders (Centre for Addiction and Mental Health, 2001), integrated treatment of interventions towards this group is recommended. It is, however, important to notice that there is also some evidence showing that a sequential approach could be appropriate for this group, and that the recovery from substance use disorder could lead to remission from the personality disorder (Verheul et al., 2000). When the authors of the Canadian guidelines still recommended integrated treatment this was based on that several studies have shown that the presence of the two disorders makes the treatment prognosis poorer. They found that the treatment of both disorders therefore is critical. One study has so far showed that treatment of BPD and SUD at the same time can be effective (Linehan et al., 1999). More research is needed regarding integrated treatment for BPD and SUD patients.

Regarding specific types of treatment, an extended version of DBT targeting substance abuse (DBT-S) has been developed for patients with BPD and SUD (Linehan, et al., 1999). This therapy has been compared both to treatment as usual (Linehan, et al., 1999) and to a Comprehensive validation therapy with 12-step (Linehan et al., 2002). Compared to treatment as usual (TAU), DBT resulted in greater treatment retention, and both at the end of therapy

and at 16-months follow-up, and there was a significant reduction in substance abuse compared to TAU (Linehan, et al., 1999). Compared to the 12-step program with comprehensive validation, the therapies were equal in reducing opiate use and levels of psychopathology. DBT had lower retention rates, but did result in better maintenance of the reduction of drug use during treatment and at follow-up (Linehan, et al., 2002). Based on this research, the modified version of DBT is the recommended treatment for patients with BPD and SUD, according to the Canadian guidelines (Centre for Addiction and Mental Health, 2001). Both of these outcome-studies had only female participants.

Another psychotherapy developed for SUD in addition to a broad range of Axis II co-occurring disorders, is Schema focused Therapy (Young, Klosko & Weishaar, 2003). Future research could reveal if this therapy has effect for BPD and SUD patients.

In addition to studies on specific manuals, Trull et al. (2000) found three common factors that seem to be related to both SUD and BPD. These are a history of traumas, impulsivity and affective regulation. These common factors could give implications for treatment, and we will return to this issue in the discussion.

In summary, integrated treatment for both BPD and SUD is recommended. Some studies show that an adapted DBT is effective for patients with BPD and SUD, but more research is needed.

1.3 The aims of this study

While much research has been done on co-occurring disorders, a lot of this research is based on studies of patients with severe mental illnesses, i.e., most frequently diagnosis of schizophrenia or bipolar disorder in addition to SUD. Patients with BPD and substance abuse problems are often excluded from treatment trials and less is therefore known about this co-occurrence. The studies regarding demographic and clinical characteristics in patients with BPD with and without SUD are few, and they have come to somewhat different conclusions. There is a need for more knowledge about the demographic and clinical characteristics of patients with substance abuse in order to describe screening, assessment and treatment implications in clinical settings. There is also a need for comparing prevalence in different Scandinavian clinical samples with other international samples. Differences may reveal a need for more thorough identification and treatment initiatives. To the authors knowledge there has not yet been carried out this type of research on Scandinavian populations.

The aims of this study are 1) to describe the prevalence of substance abuse among patients with BPD in Norwegian mental health services 2) to describe the demographic and clinical characteristics of this group of patients 3) to describe the treatment they are being offered, and 4) to describe some challenges in treatment of this group, and consider some future directions for the matching of patients and treatment

2 Material and methods

This material has earlier been described in Lilleeng, et al. (2009). The data is from a cross-sectional study carried out at all Norwegian mental hospitals, Community Mental Health Centers (CMCHs) and private practitioners with an organizational agreement with Norwegian Health Trusts. The data was collected by SINTEF Technology and Society in 2008, and were commissioned by the Norwegian Directorate of Health as a National Patient Registration. In this paper only those receiving treatment in the CMCHs will be included. The responsible therapists or clinicians in charge recorded demographic, clinical and treatment data for all patients who received treatment in the CMCHs between the 14th and the 27th of April in 2008. Lilleeng et al. (2009) estimated that the study covered approximately 93% of all outpatients in Norway who were in contact with the CMCHs in the period of registration.

2.1 Sample

Patients with emotional unstable personality disorder (code F 60.3 in ICD-10; World Health Organization, 1993) were drawn from the main study data set. Patients with additional diagnosis of schizophrenia (F20-29, N=15) or bipolar disorder (F 30 and F 31, N=47) were excluded from the study. Because we wanted to look at differences between patients with and without addiction problems we also excluded those patients missing questionnaire data on substance use (N=68).

The sample consisted of 714 psychiatric outpatients, whereof 596 (83,5%) had a BPD diagnosis as their primary diagnosis. 592 patients (82,9%) were female, the average age was 34,24 (SD= 10,6, Min: 18, Max: 90), and 493 patients (69%) were living alone. In this sample

621 subjects (87%) had a lower degree of education, whereas 77 (10,8 %) had completed a higher degree of education.

Patients with substance use problems was operationalized as either receiving a diagnosis of substance use disorder (F 10-19), or a reported high substance abuse in the four weeks prior to measurement. Our two groups are therefore as following:

BPD -: BPD, but no diagnosis of SUD nor a high degree of substance abuse in the last four weeks prior to measurement (N= 605).

BPD+: BPD and either a diagnosis of SUD or a reported high degree of substance use during the last four weeks (N= 109).

According to these inclusion criteria the BPD+ group consisted of 51 patients with a diagnosis of substance use disorder and 84 patients who had a reported high level of substance abuse. Due to a partial overlap between these criteria (26 subjects had both a SUD diagnosis and a reported high degree of substance use), this gave us a total of 109 patients in the BPD+ group.

2.2 Assessment

Primary and secondary diagnoses were recorded for each of the patients by the therapist or clinician in charge according to ICD-10 (World Health Organization, 1993). The diagnoses were based on routine clinical assessments, and there were no structured clinical interview to systematically confirm the diagnosis. The abuse of drugs for each patient was also recorded on a four point scale (none, little, middle, high) in addition to the alternative “don’t know”.

2.3 Statistics

Numbers are presented as percentages (%) and frequencies (N). Independent-Sample T-test and 2x2 Chi-Square test were performed to determine whether there were significant differences between the non-addiction and the addiction group on demographic and treatment variables. In order to reduce the probability of random differences we adopted a $p < .01$ level of significance. In some of the tables, the significance levels are shown both with .01 and .001 for informational reasons. Analyses were conducted using SPSS 18.0

2.4 Ethics and consent issues

The Norwegian Regional Ethics Committee and the Norwegian Data Inspectorate approved the study.

3 Results

3.1 Prevalence of substance abuse

In our sample 7, 1 % of the patients diagnosed with BPD also had a reported diagnosis of SUD. By including patients with reported recent high drug abuse, the prevalence of patients in our BPD+ group was 15,2%.

3.2 Demographic and clinical characteristics

The demographic and clinical characteristics of the groups are presented in Table 1. Those who were not married, separated/divorced, or widowed/widower, were rated as living alone, whereas those who were married or cohabitant were rated as not living alone. Education was divided into those who had completed a higher degree of education (bachelor or master level) and those who had not (lower degree of education). Those subjects who had an income from own job or job found by the social services were rated as independent financially, whereas subjects receiving rehabilitation support, unemployment benefits, sick pay, rehabilitation benefit, disability pension, social benefit and other insurance were rated as dependent on social support. Those having student loans, other or no income were classified in the category “other”. Those who had reported suicidal threats or attempts were rated as suicidal patients, whereas those who had no such tendencies, self-mutilation or suicidal thoughts were rated as not suicidal. In the cases where the patient did not want an individual plan or this was not relevant, this was rated as no individual plan, whereas those who either had begun or finished their plan came in under “yes” in this category.

Table 1, demographic and clinical variables

	BPD- (N=605)	BPD+ (N = 109)	
Gender, female, N (%)	518 (85,6)	74 (67,9)	**
Age in years (Mean \pm SD)	34,68 \pm 10,8	31,83 \pm 9,4	*
Living alone, N (%) *	405 (66,9)	88 (80,7)	
Education:			
Lower education N (%)	520 (88)	101 (94,4)	
Higher education N (%)	71 (12)	6 (5,6)	
Finance and income:			
Independent financially, N (%)	96 (15,9)	10 (9,2)	
Dependent of social support, N (%)	456 (75,4)	188 (88,1)	
Other, N (%)	46 (7,6)	3 (2,8)	
Clinical variables:			
Length of treatment in months (mean \pm SD)	22 \pm 28,8	25 \pm 51,6	
Number of consultations (mean \pm SD)	58, 3 \pm 70,9	59,9 \pm 83,1	
Suicidal patients, N (%)	167 (27,9)	41 (37,6)	
Individual plan			
Yes	201 (33,9)	42 (40,0)	
No	369 (62,2)	57 (54,3)	
Unknown	23 (3,9)	29 (5,7)	

* $p < 0.01$, ** $p < 0.001$

As shown in Table 1 the patients in the BPD+ group were comparable with those in the BPD- group on most demographic variables except from gender and age, and the two groups were comparable on all clinical variables. Significantly more individuals in our BPD+ group were men ($\chi^2(1, 690) = 20.16, p < .001$) compared to the BPD- group. An Independent-samples T-test was conducted to compare the age in the two groups, and there was found a significant difference in age in the BPD- group ($M = 34.68, SD = 10.8$) and the BPD+ group ($M = 31.83, SD = 9.4; t(693) = -2.59, p = .010$, two tailed). Thus, the patients in the group BPD+ were significantly younger than the patients in group BPD-.

3.3 Previously offered treatment

The types of previously received treatment are presented in Table 2. There were 129 subjects (18,1 %) missing in the analyses for the last year and 117 subjects (16,4 %) missing for the last five years. In this table those who received mental care for children and adults or who were sentenced to mental health care were excluded because there were so few in each of these categories. Substance abuse treatment and mental health protection were two variables originally, but are presented together in this table.

Table 2, previously offered treatment

Treatment facilities:	Last year		Last five years	
	BPD- (N=605)	BPD+ (N=109)	BPD- (N=605)	BPD+ (N=109)
Primary health services, N (%)	246 (40,7)	50 (45,9)	258 (42,1)	50 (45,9)
Psychiatric outpatient treatment, N (%)	344 (56,9)	58 (53,2)	345 (57,0)	53 (48,6)
Private practicing psychologist or psychiatrist, N (%)	36 (6,0)	5 (4,6)	47 (7,8)	4 (3,7)
Inpatient mental health treatment, N (%)	188 (31,1)	45 (41,3)	231 (38,2)	44 (40,4)
Other treatment in mental health care, N (%)	23 (3,8)	5 (4,6)	26 (4,3)	2 (1,8)
Substance abuse treatment and mental health protection, N (%)	60 (9,9)	35 (32,1)**	76 (12,6)	35 (32,1)**
Family services, N (%)	10 (1,7)	1 (0,9)	12 (2,0)	2 (1,8)
No former treatment, N (%)	2 (3,1)	3 (2,8)	21 (3,5)	3 (2,8)
Unknown, N (%)	2 (0,3)	0 (0,0)	3 (0,5)	0 (0,0)
Other, N (%)	12 (2,0)	3 (2,8)	13 (2,1)	1 (0,9)

* $p < 0.01$, ** $p < 0.001$

The only significant differences between the groups, was regarding the BPD+ group and former treatment for either drug addiction or mental health protection. The Chi Square test showed that this association was significant both for the last year, $\chi^2 (1, 714) = 37,5, p < .001$, and for the last five years prior to measurement, $\chi^2 (1, 714) = 25,4, p < .001$.

3.4 Provided and desirable treatment

Scores on the variables ‘provided treatment’ and ‘desired treatment’ are presented in Table 3. Neuropsychological test and ECT were excluded from the table, because of few responses on these interventions. There were 20 subjects (2,8 %) missing in the analyses for actual treatment and 279 subjects (39,1 %) missing in the analyses for desired treatment.

Table 3, actual and desired treatment

	Actual treatment		Desired treatment	
	BPD- (N=605)	BPD+ (N=109)	BPD- (N=605)	BPD+ (N=109)
Medication treatment, N (%)	331 (54,7)	63 (57,8)	144 (23,8)	27 (24,8)
Individual treatment, N (%)	512 (84,6)	97 (89,0)	228 (37,7)	42 (38,5)
Group treatment, N (%)	151 (25,0)	20 (18,3)	140 (23,1)	19 (17,4)
Therapy with the patient and the closest of kin, N (%)	52 (8,6)	14 (12,8)	49 (8,1)	13 (11,9)
Training program, N (%)	68 (11,2)	16 (14,7)	84 (13,9)	21 (19,3)
Work training, N (%)	43 (7,1)	8 (7,3)	81 (13,4)	21 (19,3)
Treatment for drug addiction, N (%)	9 (1,5)	25 (22,9)**	16 (2,6)	38 (27,5)**
Other, N (%)	16 (2,6)	4 (3,7)	8 (1,3)	3 (2,8)

* $p < 0.01$, ** $p < 0.001$

When using the Chi Square test for independence few significant differences between the BPD- and the BPD+ groups in regard to the actual or desired treatment were found. There were significant differences with respect to provided and desirable treatment for drug addiction. A Chi-Square test for independence indicated a significant association between drug addiction and ongoing treatment for drug addiction, $X^2(1, n=714) = 89.0, p = .000, phi = .36$, and also between drug addiction and desired treatment for drug addiction, $X^2(1, n=714) = 90.8, p = .000, phi = .36$. The table shows that for individual and pharmacological treatment, there is a clear drop in the responses from the actual to the desired treatment. This has not been tested for significance.

4 Discussion

4.1 Prevalence of substance abuse

7,1 % of the patients with BPD had a reported diagnosis of SUD in this study. By including patients with recent high drug abuse we got a prevalence of 15,2 % of BPD patients with substance abuse problems (BPD+). Trull et al, 2000, estimated that 57,4% of the patients diagnosed with BPD also have reported SUD, and compared to this the prevalence in our study is low. The reason for this finding could be that fewer patients fulfilled the criteria for both of these diagnoses in this study. Another possibility is, however, that therapists do not screen for these problems in all patients. The fact that we excluded 68 subjects in our study because of unknown drug use in the weeks prior to measurement, together with the low prevalence of the co-occurrence in this study, is something that could be an indication of a lack of screening for substance use in these patients. If this is the case, it is unfortunate because research has shown that substance use need specific attention in therapy in addition to treatment for BPD (Drake, et al., 2005; RachBeisel, et al., 1999). The reason for the low prevalence should be explored in future research, and if a lack of screening is present, the reasons for this should also be explored.

There were more women (82,9%) than men (13,7%) diagnosed with BPD in our study. This is consistent with earlier findings in clinical settings, where 75% of BPD patients are reported to be women (American Psychiatric Association, 1994). It is, however, not consistent with prevalence studies in the general population, where it seems that just as many men as women satisfy the criteria for BPD (Lenzenweger, et al., 2007). It could be that the threshold for seeking treatment for women is lower than for men. It is also possible that too many women receive the diagnosis, or that more men satisfy the criteria than those receiving the

diagnosis. Possibly, a combination of these explanations can best explain these results. This is an issue for future research to explore.

4.2 Demographic and clinical differences between the groups

We found few differences between the BPD- group and the BPD+ group regarding demographic variables. The differences we found are similar to earlier findings (Mueser, et al., 2003; Zanarini, et al., 1998). Firstly, it seems as though the patients in the BPD+ group (patients with BPD and additional substance abuse) are younger when seeking treatment than the patients in the BPD- group. This could be caused by the fact that substance abuse is a more obvious symptom, and that they therefore seek treatment earlier. More research is needed to explore if it possible to reach the patients in the BPD- group earlier. Secondly, we found that the BPD+ group consists of more men than would be expected from the gender distribution in the sample as a whole. This finding could reflect that male BPD patients rather develop substance abuse, which has also been found in earlier research (Johnson et al., 2003; Zlotnick, Rothschild, & Zimmerman, 2002). Another possible explanation is that BPD is more often diagnosed in men when a substance abuse is present.

There were not found any differences in educational level between the groups. Nor were there found group differences in the number of patients dependent of social support, or whether they were living alone or not. This is not consistent with what we could expect from earlier research (Links, et al., 1995; Miller, et al., 1993; Mueser, et al., 2003).

4.3 Offered treatment to the borderline patients with and without substance abuse

Regarding the offered treatment, few differences between the groups were found. The only difference was that the patients in the BPD+ group significantly more often were offered substance abuse treatment. Except from this, the patients in the BPD+ group are being offered the same treatment as the BPD- group. There were no differences in the length of treatment nor in the number of consultations offered to the patients. These findings show that the patients in the BPD+ group are offered the same form and amount of treatment as BPD- patients, which would be in line with the Norwegian treatment guidelines (The Norwegian Directorate of Health, 2011) for this group. However, from these data we cannot infer the content of the treatment, only the form in which it is offered. This should therefore be interpreted with caution, and be analyzed further in future research.

For both of the groups, individual treatment was the most frequently offered treatment, while pharmacological treatment was the second most offered. As was the case with the content of individual treatment, we do not know what kind of medication they are being offered. It could be interesting to explore if borderline patients with substance abuse are being offered medication targeting their borderline symptoms, or if the medications administered to the BPD+ group are directed mainly at their substance abuse.

For both individual and pharmacological treatment there was registered a remarkable reduction in the desire to offer these interventions compared to what is currently the case. Twice as many therapists offered these treatments, compared to the amount reporting these interventions to be the desired treatment for the patients. According to these numbers there seems to be a desire from the therapists to drastically reduce the amount of individual therapy

and pharmacological therapy given to both of these groups. Given that specific types of individual treatment with additional medications to lower their symptoms are important parts of the recommended treatment for BPD patients (American Psychiatric Association, 2001; Roth & Fonagy, 2005), and also for BPD and SUD patients (Centre for addiction and mental Health, 2001), this finding is quite surprising and needs further exploration. One possible explanation is that the therapists do not have much optimism in treating these groups, and that they see little progress in their treatment. Given the recent positive results from research on interventions towards these groups (Lenzenweger, 2010; Koerner & Linehan, 2000; Linehan, 1993; Linehan, et al., 1999; Linehan, et al., 2002, Zanarini, et al., 2004) this could implicate that the therapists may need better training or guidance if this is the case. Another possibility can be that therapists need more specific training to work with patients with BPD, or even that these patients are so demanding that special facilities are needed for the treatment of this personality disorder.

Types of treatment that therapists would prefer to offer to more patients

Three types of interventions were reported by the therapists to be desirable to offer to more patients than those already offering it. For both groups, this applies to training programs and work training. For the patients in the BPD+ group this also applies to drug abuse treatment. This last result could easily be interpreted as a desire from the therapists to give more integrated treatment to the BPD+ group than what is currently the case. For future research it is therefore important to look at what factors that hinders this from being done in these cases. For both groups, training programs and work training were interventions that the therapists would like to implement more often than were currently the case. Considering that patients diagnosed with BPD seem to struggle with several aspects of their lives (Gunderson & Links, 2008), offering training programs and work training would be one way of adding

interventions that go beyond the therapy room. These forms of interventions could also be comparable to elements in community reinforcement approaches and contingency management. These methods include behavioral treatment interventions that use the environment to reward nondrinking behavior so that the patients make lifestyle changes. Thus, these interventions include a broader context of the patients' lives, and this is in line with recommended treatment for patients with SUD (Miller & Carroll, 2006; Roth & Fonagy, 2005). However, in general it seems like the co-operation between different services is hard to achieve in clinical settings (Kavanagh, et al., 2000), and an important goal for the future could be to facilitate such co-operation between social services and therapists.

4.4 Summary and implications of our findings

In this study the prevalence of BPD patients with SUD was relatively low compared to other studies, which could reflect a lack of screening of these problems in Norwegian clinical settings. Further, this study confirms that it is hard to find consistent differences between patients with BPD and patients with BPD and additional substance abuse, which has also been found in earlier research (van den Bosch, 2001). This could reflect that these differences are small, and that patients in the two groups do not differ much in demographical and clinical variables. We also found that the patients in the two groups are more often than not offered the same kind and amount of treatment, but that patients with additional substance abuse are also offered treatment for this problem.

Van den Bosch et al. (2001) claim that findings like ours, where small differences between BPD patients with and without substance abuse are detected, should implicate that future research should not exclude the BPD and SUD group from research on effective interventions on BPD. Except from a few studies (Linehan, et al., 1999; Linehan, et al., 2002),

little is known about differences in the effect of specific interventions on groups of patients with BPD with and without SUD. The studies that have been performed, seem to show that the same treatment is effective for the BPD, but that substance abuse also need to be addressed specifically. One important side-effect from excluding patients with combined BPD and SUD, is also that we know less about effective treatment of BPD for men than for women, given that substance abuse is a more common form of impulsive behavior among men than women with BPD (Zanarini, et al., 1998). The studies by Linehan and colleagues (Linehan, et al., 1999; Linehan, et al., 2002) also only included female patients, and more knowledge is therefore needed regarding male BPD and SUD patients.

Finally, our results seem to show that therapists would prefer to offer less individual and medical interventions, and more training programs and work training to both groups, in addition to more integrated treatment of the drug abuse. These findings should be further explored in future research, to explore what hinders these interventions from being implemented in such cases. Co-operation with social services seems to be important in achieving this. Regarding the implementation of drug abuse treatment to secure integrated treatment, one hinder could be that the therapists do not feel competent enough themselves to implement this treatment, and that they want other therapists to be involved. If this is the case, one should consider if making arrangements for parallel treatment is desirable, or if therapists in Norwegian mental health settings themselves should receive more training in handling drug abuse to ensure the integrated treatment. Another possibility would be to build specialized facilities for patients struggling with co-occurring BPD and SUD, or create specialized treatment programs for this group. It is also possible that more specific guidelines for the combined group of BPD and SUD patients would help therapists in their practice.

4.5 Future directions for the matching of clients and treatment

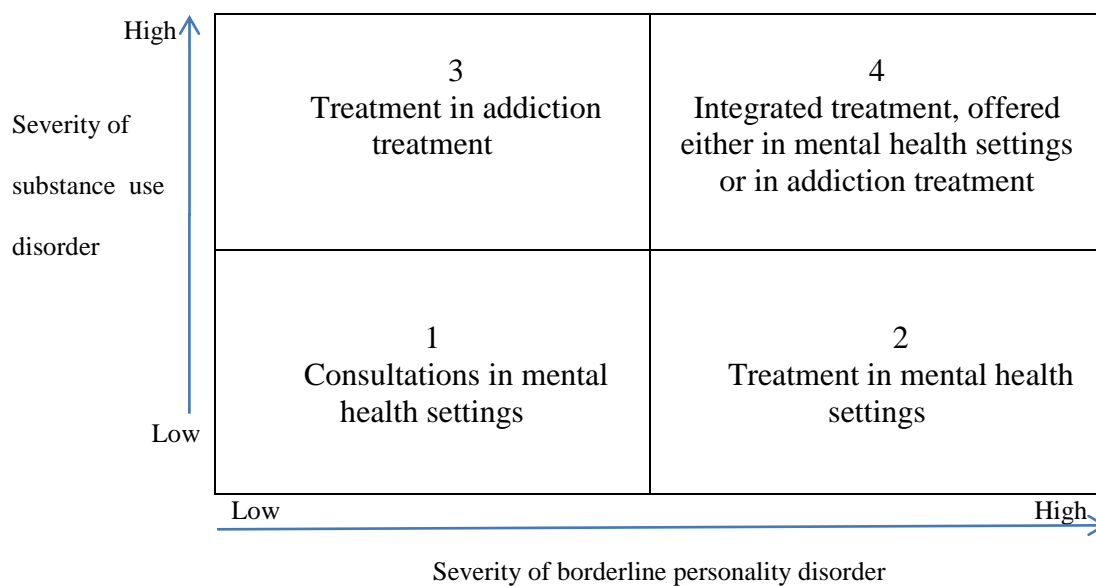
Because there has not been conducted many studies on treatment of patients with co-occurring BPD and SUD, little is known about which patients have an effect of what type of treatment. As mentioned in the introduction, in the past decades there have been attempts to match patients with specific types of treatment both based on individual characteristics and based on severity of the problems (McLelland, 2006). In the project MATCH (Project MATCH Research Group, 1997), it was found that it is hard to find consistent relationships between client characteristics, type of treatment and outcome. Recent research has found some support for matching based on severity of the problems, by using of the quadrant model (McGovern, et al., 2007). Based on available research we will look at how matching based on severity of the problems, and on individual characteristics, could adapt to patients with BPD and SUD.

Matching based on severity of the problems

Even if a patient report both problems with substance abuse, and satisfies some criteria for BPD, the severity of each of these disorders may vary. This issue is therefore important to consider, when trying to guide patients into facilities that best fit their needs. The quadrant model was developed to guide patients with different mental diseases in combination with substance abuse, into either mental health care or addiction treatment (McGovern, et al., 2007). With only one mental disorder to consider, namely BPD, we would have to make a division between low and high severity of this personality disorder. Even though the system of diagnoses is based on a categorization with a cut-off (either you satisfy the criteria or not), many would argue that a dimensional approach is more appropriate for personality disorders (Trull, Tragesser, Solhan, & Schwartz-Mette, 2007; Widiger, 2005). It has been argued that

the multifaceted nature of the combination of these problems makes distinguishing between them important (van den Bosch & Verheul, 2007). Using the quadrant model, one would be able to consider the personality disorder in a more dimensional way, but there would still be a categorization into low and high severity of the problems. A quadrant model adjusted to patients with BPD and SUD, could look like this:

Figure 2:



Based on available research, some general guidelines for the treatment of the four groups could be outlined. Patients with low severity of both problems, could have benefit of consultations. For patients with a low severity of BPD and high severity of their substance abuse, we have some indications that treating the substance abuse is sufficient. Research indicates that for mental disorders (in general) combined with substance abuse it can be sufficient to treat the substance abuse when the severity of the mental disorder is low (Flynn & Brown, 2008). Verheul, et al. (2000) found that the best predictor for the recovery of the personality disorder is the lowering of the substance use. It is plausible that this is especially true when the severity of the BPD is low, even though this must be tested scientifically.

Likewise, for patients with a high severity of their BPD and a low severity of SUD, it could be that the treatment of the BPD would lead to remission of the substance use problems. Research has shown that when treating the BPD effectively, the substance abuse is also lowered (Zanarini, et al., 2004). More research is needed to examine if specific treatment for one of the disorders is sufficient for the patients in quadrant two and three. According to the original model, patients in these quadrants should also receive treatment for the problem with low severity when necessary. Research could examine characteristics of patients for whom this is necessary, because it would be important to discriminate these patients from others to provide them the necessary treatment. When necessary, this additional treatment should be offered either in an integrated or in a parallel manner. Considering that research has shown that this is sometimes difficult to achieve in clinical settings (Kavanagh, et al., 2000), future research is needed to explore if this is achieved, and potential reasons that hinders this. Our findings may implicate a lack of belief in the treatment that is being offered, and if this is the case this could stand in the way of patients getting the treatment they should be offered. This is an important issue for future research to explore.

For patients with a high severity of both the BPD and their substance abuse integrated treatment is especially important, according to the model. As described earlier in the paper, DBT is adapted to this group (Linehan, et al., 1999), and there are indications that this treatment is efficient for patients with both disorders (Linehan, et al., 1999). As mentioned in the introduction, Trull et al., (2000) found some common factors related to both SUD and BPD. These factors could also be important in the treatment of this combination-group because if they contribute to the maintenance of both problems, it would be important to target these factors in treatment. The factors that seem to be common for both disorders are a history of traumas, affective regulation and impulsivity.

Traumatic experience is a factor that seems to be related to both BPD and SUD. The diagnosis of post-traumatic stress disorder (PTSD) is also commonly co-occurring with both SUD (Ouimette, Brown & Najavits, 1998) and BPD (Clarke, Rizvi & Resick, 2008; Golier, et al., 2003). The treatment of symptoms related to PTSD seems to have an effect, both for patients with BPD (Clarke, et al., 2008; Feeny, Zoellner & Foa, 2002; Harned & Linehan, 2008; Mueser, et al., 2008), and for patients with SUD (Ouimette, et al., 1998; Read, Brown & Kahlera, 2004). However, BPD and SUD both seem to be complicating factors for the treatment of PTSD (Feeny, et al., 2002; Ouimette, et al., 1998; Read, et al., 2004). The screening for PTSD is based on this research recommended when offering therapy to both of these groups. Because of the high co-occurrence of reported childhood trauma in patients with BPD, some therapists have suggested that BPD should be considered as a form of post-traumatic stress disorder. This is a stance that is different from treating PTSD, because it could lead to therapists trying to uncover traumas that have not been reported (Paris, 2010). It is, however, questionable that talking about previous trauma by itself is positive for the outcome of therapy. In fact, some people argue that it could make the patients worse when focusing too much on the past. BPD-patients have also been argued to be especially prone to the creation of false memories in therapy (Paris, 2010). In sum, therapy focusing on symptoms related to PTSD seems to be beneficial for these groups, and it is therefore plausible that this also applies to the combination group. Research is needed to test this assumption. Focusing on trauma with patients without such symptoms, however, has less support, and could even be harmful for some of the patients.

Therapeutic focus on impulsivity and affective regulation seem to be related to outcome in patients with BPD and SUD. Impulsivity is one symptom that is often medicated in BPD-patients (American Psychiatric Association, 2001; Siever & Koenigsberg, 2000).

Impulsive behavior is also addressed in both CBT and DBT, which are the forms of treatment that have received support in treating patients with BPD and SUD. It is, however, important that it is not only impulsive behavior in general that is targeted in these approaches, but specific behaviors that these patients struggle with. Linehan et al. (1999) showed that it was necessary to implement additional interventions towards the drug abuse to make DBT-treatment as efficient for BPD patients with SUD as for those without. Affective regulation also seems to be an important area for these patients. Substance use may be seen as a way to control emotions, and one of the characteristics of BPD is a lack of adequate affective regulation (Linehan, 1993). A recent study demonstrated that improvement in affective regulation in female BPD patients treated with DBT was directly related to decreased substance use frequency (Axelrod, Perepletchikova, Holtzman & Sinha, 2011). Thus, this seems to be an important focus-area in the treatment of these patients.

One important aspect when using the quadrant model is that when referring patients to treatment, the assessment needs to be accurate and precise. This would be the basis of the referral into different facilities. This is challenging for patients with BPD and substance abuse. Substance use can contribute to problems of affective instability, impulsivity, and interpersonal problem, which are all features of BPD (Center for Addiction and Mental Health, 2001; Trull, et al., 2000), and differential diagnosis is therefore a challenge. An ongoing substance abuse could make the assessment process difficult, and it may be necessary to implement interventions to assure that the patient is abstinent when considering the diagnosis of BPD. Because of this, the patient may already have started individual treatment when the diagnosis is finally set. Considering that the relation with the therapist is regarded as essential both to the treatment of personality disorders (American Psychiatric Association, 2001) and to substance use disorders (Miller & Carroll, 2006), it may be unwise to refer these

patients to a different clinic at this point. Thus, even though the quadrant model might guide the referral process to some extent, both mental health care and addiction treatment should for the aforementioned reasons have the knowledge necessary to meet these patients' needs. This can be used as an argument against making special facilities as the only alternative for the treatment of these patients. Although specialized facilities can be useful for some patients with BPD and SUD, it is therefore important to ensure that the competence for this treatment is also found in other facilities where these patients are likely to be found.

Another important aspect of the assessment, is that the severity of BPD and SUD fluctuate over time (Mueser, et al., 2006). At different points during treatment, it may therefore also be wise to ask patients with BPD about their substance use. This is based on that recent substance use could be as important as the diagnosis of SUD itself, for the impact on these patients' lives (RachBeisel, et al., 1999). The quantity of use may also be less important than the adverse outcomes experienced by the patient (Mueser, et al., 2003), and asking for the subjective experience is therefore important.

Another question that future research should answer is how to use inpatient and outpatient services for this group. For patients with SUD, it may be beneficial to have some distance to their normal life for a period to achieve abstinence (Miller & Carroll, 2006). Likewise, patients with BPD seem to benefit from the structured life in inpatient treatment (Paris, 1993). For both groups, however, the period after ended inpatient treatment seems to be difficult (Miller & Carroll, 2006; Paris, 1993), and an important concern is to make the patients able to live their lives outside of institutions. Making good transitions at the end of inpatient treatment, and securing that other facilities do take over the responsibility of the treatment, is important for the successful treatment of this group of patients. Research on the optimal length of inpatient treatment is also needed.

Matching based on individual characteristics

Age and gender are two factors that may be important in choosing the right treatment. It would be interesting to explore whether there is a difference in the treatment response related to the age of the clients, and if it is useful to develop different treatment interventions for younger patients. Since most research is conducted with female patients, more knowledge is also needed to consider if the same interventions are effective for men that for women.

One could also argue that because the development of the two disorders seems to differ between persons, different models for the development might guide interventions in individual cases. As mentioned above, research has shown that for patients with low severity of one of the disorders (Flynn & Brown, 2008; Zanarini, et al., 2004), interventions targeting the most severe disorder can be sufficient. This is not the same to say that the most severe disorder is primary and the less severe disorder is secondary in these cases, but this is something that would be interesting to explore. For some patients a small amount of alcohol/drugs cause them bigger problems than they would for other people. This could guide treatment in that total abstinence should be the goal of treatment for these patients. Even though research has currently not found support for one model that can explain the origin of BPD and SUD (Trull, et al., 2000), it is possible that there are sub-groups within these patients that are better explained by one model than the other, and that this could guide the interventions towards these sub-groups.

Treatment targeting factors that seem to be related to both problems seems to be effective. Improved affective regulation seems to be related to better outcome of therapy (Axelrod, et al., 2011), and therefore seems to be an important goal of therapy. Likewise, treatment targeting symptoms related to trauma also seems to be effective when such symptoms are present (Clarke, et al., 2008; Feeny, et al., 2002; Harned & Linehan, 2008;

Mueser, et al., 2008; Ouimette, et al., 1998; Read, et al., 2004). When considering these factors in addition to the diagnostic information, we move beyond the diagnostic categories and more profoundly consider what these patients struggle with. It can also be that this differs between patients, and that there in this regard also exists subgroups of patients that need specific interventions. Conducting longitudinal research with patients with BPD is necessary to see if there are specific factors related to subgroups within the BPD and substance abuse group that predict outcome and guide interventions.

4.6 Limitations

In our data there were many respondents, and therefore the answers give a broad picture of patients in Norwegian Mental Health Centers, and a good starting point for future research. The limitations of this study are mainly connected to three areas, namely the lack of systematic screening, missing data on some questions and lack of specificity on the content of the treatments offered (we only have broad categories).

The analyses that have been conducted in this study have been based on a division into groups based on reports from the therapists in charge, and there were no systematic screening of the patients. The results of the comparisons must therefore be interpreted with caution, especially regarding the demographic and clinical variables. At the same time, when considering the treatment variables, this limitation is not as important. One might argue that the therapists' perception of the problems is as interesting as the actual categories of patients, when looking into the treatment that is being offered.

In our results, we found a remarkable reduction in the desire to offer individual and pharmacological treatment to the patients, from what was currently the case. Twice as many

therapists offered these treatments, compared to the amount reporting these interventions to be desired for the patients. This can partially be caused by a much larger percent of missing answers in the desired treatment column (39,1%), than in the actual treatment column (2,8%). Even though the intention from the researchers was that all the desired treatments should be reported in the questionnaire, including interventions currently offered, it seems as though the responders in many cases only have filled out the actual treatment. These findings must therefore be interpreted with caution, and should be further explored in future research.

The treatment data does only reveal the form of treatment given, but not the content of the treatment. Individual treatment and group treatment are two such concepts, and it is not possible to know if the treatment given is based on DBT, CBT or other manuals. In the same manner, it is not possible to know the content of the drug treatment, which makes it more difficult to compare this to treatment guidelines. The content of treatment is therefore important to explore in future research.

4.7 Future directions

Through the discussion we have already pointed out several issues that need more attention in research. In sum, there is a great need for more research on the field of effective interventions for patients with co-occurring BPD and substance abuse. Even though this is currently recommended, there is a need for more research on the effectiveness of integrated treatment for the patients struggling with both BPD and SUD, and also the degree to which patients are offered such treatment. More extensive research on Nordic samples is also needed to discover what kind of help the patients with BPD and SUD receive, and whether there are many who still do not receive treatment. As mentioned earlier, most of the research on patients with BPD is done with female patients, and there is a great need for more research

regarding the effects for men. Finally, it would also be interesting to know more about which elements from evidence-based approaches on BPD and SUD are the most effective. This is important knowledge when integrating the treatment for the co-occurring BPD and SUD group. It could be interesting for research to explore if common underlying processes could be crucial in the development of both disorders. It could be that elements from different treatment manuals target the same processes. By exploring these issues, we might move beyond the diagnostic categories, and look at in a more profound way what these patients are struggling with. This is an important issue for future research to explore.

5. References

- American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders: DSM-III*. Washington DC: American Psychiatric Association.
- American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders: DSM III-R* (3rd ed., rev. ed.). Washington DC: American Psychiatric Association.
- American Psychiatric Association (1994). *Diagnostic and statistical manual of mental health disorders: DSM IV* (4th ed). Washington DC: American Psychiatric Association.
- American Psychiatric Association (2001). *Practice guideline for the treatment of patients with borderline personality disorder*. Washington: American Psychiatric Association.
- Brown, G. R., & Anderson, B. (1991). Psychiatric morbidity in adult inpatients with childhood histories of sexual and physical abuse. *American Journal of Psychiatry*, *148*(1), 55-61.
- Centre for Addiction and Mental Health (2001). *Best practices: Concurrent Mental Health and Substance Use Disorders*. Ottawa: Health Canada.
- Clarke, S.B., Rizvi, S.L. & Resick, P.A. (2008). Borderline personality characteristics and treatment outcome in cognitive-behavioral treatments for PTSD in female rape victims. *Behavior Therapy* *39*, 72–78.
- Coffey, S. F., Schumacher, J. A., Baschnagel, J. S., Hawk, L. W., & Holloman, G. (2011). Impulsivity and risk-taking in borderline personality disorder with and without substance use disorders. *Personality Disorders: Theory, Research, and Treatment*, *2*(2), 128-141. doi: 10.1037/a0020574

- Darke, S., Williamson, A., Ross, J., Teesson, M. & Lynskey, M. (2004). Borderline personality disorder, antisocial personality disorder and risk-taking among heroin users: findings from the Australian Treatment Outcome Study (ATOS). *Drug and Alcohol Dependence*, 74(1), 77-83. doi: 10.1016/j.drugalcdep.2003.12.002
- Darke, S., Ross, J., Williamson, A. & Teesson, M. (2005). The impact of borderline personality disorder on 12-month outcomes for the treatment of heroin dependence. *Addiction*, 100(8), 1121-1130. doi: 10.1111/j.1360-0443.2005.01123.x
- Dolan-Sewell, R. T., Krueger, R.T. & Shea, M.T. (2001). Co-Occurrence with Syndrome Disorders. In W. J. Livesley (Ed.), *Handbook of Personality Disorders*. New York: The Guilford Press.
- Drake, R. E., Mueser, K. T., Clark, R. E. & Wallach, M. A. (1996). The course, treatment and outcome of substance disorder in persons with severe mental illness. *American Journal of Orthopsychiatry*, 66(1), 42-51. doi: 10.1037/h0080153
- Drake, R. E. & Mueser, K. T. (2000). Psychosocial Approaches to Dual Diagnosis. *Schizophrenia Bulletin*, 26(1), 105-118.
- Drake, R. E., Wallach, M. A. & McGovern, M. P. (2005). Future directions in preventing relapse to substance abuse among clients with severe mental illnesses. *Psychiatric Services*, 56(10), 1297-1302. doi: 10.1176/appi.ps.56.10.1297
- Dulit, R. A., Fyer, M. R., Haas, G. L., Sullivan, T. & Frances, A. J. (1990). Substance use in borderline personality disorder. *American Journal of Psychiatry*, 147(8), 1002-1007.
- Feeny, N.C., Zoellner, L.A. & Foa, E.B. (2002). Treatment outcome for chronic PTSD among female assault victims with borderline personality characteristics: a preliminary examination. *Journal of Personality Disorders* 16 (1) 30-40.

- Feinstein, A. R. (1970). The pre-therapeutic classification of co-morbidity in chronic disease. *Journal of Chronic Diseases*, 23(7), 455-468.
- Feske, F., Tarter, R. E., Kirisci, K. & Pilkonis, P. A. (2006). Borderline Personality and Substance Use in Women. *The American Journal on Addictions*, 15(2), 131-137. doi: 10.1080/10550490500528357.
- Flynn, P. M. & Brown, B. S. (2008). Co-occurring disorders in substance abuse treatment: Issues and prospects. *Journal of Substance Abuse Treatment*, 34(1), 34-67. doi: 10.1016/j.jsat.2006.11.013
- Fridell, M., & Hesse, M. (2006). Psychiatric severity and mortality in substance abusers: a 15-year follow-up of drug users. *Addictive behaviors*, 31(4), 559-565. doi: 0.1016/j.addbeh.2005.05.036
- Gerra, G., Leonardi, C., D'Amore, A., Strepparola, G., Fagetti, R., Assi, C., . . . Lucchini, A. (2006). Buprenorphine treatment outcome in dually diagnosed heroin dependent patients: A retrospective study. *Progress in Neuro-psychopharmacology and Biological Psychiatry*, 30(2), 265-272. doi: 10.1016/j.pnpbp.2005.10.007
- Golier, J.A, Yehuda, R., Bierer, L.M., Mitropoulou, V., New, A.S., Schmeidler, J., . . . Siever, L.J. (2003). The Relationship of Borderline Personality Disorder to Posttraumatic Stress Disorder and Traumatic Events. *American Journal of Psychiatry* 160, 2018-2024.
- Grilo, C. M., Martino, S., Walker, M. L., Becker, D. F., Edell, W. S. & McGlashan, T. H. (1997). Controlled study of psychiatric comorbidity in psychiatrically hospitalized young adults with substance use disorders. *American Journal of Psychiatry*, 154(9), 1305-1307.
- Gunderson, J.G. & Links, P.S. (2008). *Borderline personality disorder: a clinical guide*. Arlington: American Psychiatric Publishing.

- Harned, M.S. & Linehan, M.M. (2008). Integrating Dialectical Behavior Therapy and Prolonged Exposure to Treat Co-Occurring Borderline Personality Disorder and PTSD: Two Case Studies. *Cognitive and Behavioral Practice* 15, 263–276.
- Harris, K. M. & Edlund, M. J. (2005). Use of mental health care and substance abuse treatment among adults with co-occurring disorders. *Psychiatric Services*, 56(8), 954-959. doi: 10.1176/appi.ps.56.8.954
- Johnson, D. M., Shea, M. T., Yen, S., Battle, C. L., Zlotnick, C., Sanislow, C. A., . . . Zanarini, M. C. (2003). Gender differences in borderline personality disorder: findings from the Collaborative Longitudinal Personality Disorders Study. *Comprehensive Psychiatry*, 44(4), 284-292. doi: 10.1016/s0010-440x(03)00090-7
- Kavanagh, D. J., Greenaway, L., Jenner, L., Saunders, J. B., White, A., Sorban, J. & Hamilton, G. (2000). Contrasting views and experiences of health professionals on the management of comorbid substance misuse and mental disorders. *Australian and New Zealand Journal of Psychiatry*, 34(2), 279-289.
- Kessler, R. C., Crum, R. M., Warner, L. A., Nelson, C. B., Schulenberg, J. & Anthony, J. C. (1997). Lifetime co-occurrence of DSM-III-R alcohol abuse and dependence with other psychiatric disorders in the National Comorbidity Survey. *Archives of General Psychiatry*, 54(4), 313-321.
- Koerner, K., & Linehan, M. M. (2000). Research on dialectical behavior therapy for patients with borderline personality disorder. *Psychiatric Clinics of North America*, 23(1), 151-167. doi:10.1016/S0193-953X(05)70149-0
- Kruedelbach, N., McCormick, R. A., Schulz, S. C., & Grueneich, R. (1993). Impulsivity, coping styles, and triggers for craving in substance abusers with borderline personality disorder. *Journal of Personality Disorders*, 7, 214-222. doi: 10.1521/pedi.1993.7.3.214

- Lee, H. J., Bagge, C. L., Schumacher, J. A. & Coffey, S. F. (2010). Does Comorbid Substance Use Disorder Exacerbate Borderline Personality Features?: A Comparison of Borderline Personality Disorder Individuals with vs. without Current Substance Dependence. *Personality Disorders, 1*(4), 239-249. doi: 10.1037/a0017647
- Lenzenweger, M. F., Lane, M. C., Loranger, A. W. & Kessler, R. C. (2007). DSM-IV personality disorders in the National Comorbidity Survey Replication. *Biological Psychiatry, 62*(6), 553-564. doi: 10.1016/j.biopsych.2006.09.019
- Lenzenweger, M. F. (2010). Current status of the scientific study of the personality disorders: an overview of epidemiological, longitudinal, experimental psychopathology, and neurobehavioral perspectives. *Journal of the American Psychoanalytic Association, 58*(4), 741-778. doi: 10.1177/0003065110386111
- Lilienfeld, S. O., Waldman, I.D. & Israel, A.C. (1994). A Critical Examination of the Use of the Term and Concept of Comorbidity in Psychopathology Research. *Clinical Psychology: Science and Practice, 1*(1), 71-83. doi: 10.1111/j.1468-2850.1994.tb00007.x
- Lilleng, S., Ose, S.O., Hjort, H., Bremnes, R., Pettersen, I. & Kalseth, J. (2009). *Polikliniske pasienter i psykisk helsevern for voksne 2008*. (SINTEF-rapport A11408). Trondheim: SINTEF Teknologi og samfunn.
- Linehan, M. M. (1993). *Cognitive behavioral therapy of borderline personality disorder*. New York: Guilford Press.
- Linehan, M. M., Schmidt, H., 3rd, Dimeff, L. A., Craft, J. C., Kanter, J. & Comtois, K. A. (1999). Dialectical behavior therapy for patients with borderline personality disorder and drug-dependence. *American Journal on Addiction, 8*(4), 279-292. doi: 10.1080/105504999305686

- Linehan, M. M., Dimeff, L. A., Reynolds, S. K., Comtois, K. A., Welch, S. S., Heagerty, P. & Kivlahan, D. R. (2002). Dialectical behavior therapy versus comprehensive validation therapy plus 12-step for the treatment of opioid dependent women meeting criteria for borderline personality disorder. *Drug and Alcohol Dependence*, 67(1), 13-26. doi:10.1016/S0376-8716(02)00011-X
- Links, P. S., Heslegrave, R. J., Mitton, J. E., van Reekum, R. & Patrick, J. (1995). Borderline personality disorder and substance abuse: consequences of comorbidity. *Canadian Journal of Psychiatry*, 40(1), 9-14.
- Lyons, M. J., Tyrer, P., Gunderson, J. & Tohen, M. (1997). Heuristic models of comorbidity of axis I and axis II disorders. *Journal of Personality Disorders*, 11(3), 260-269.
- Marziali, E. & Monroe-Blum, H. (1994). *Interpersonal Group Psychotherapy for Borderline Personality Disorder*. New York: Basic Books.
- McGovern, M. P., Xie, H., Segal, S. R., Siembab, L. & Drake, R. E. (2006). Addiction treatment services and co-occurring disorders: Prevalence estimates, treatment practices, and barriers. *Journal of Substance Abuse Treatment*, 31(3), 267-275. doi: 10.1016/j.jsat.2006.05.003
- McGovern, M. P., Clark, R. E. & Samnaliev, M. (2007). Co-occurring psychiatric and substance use disorders: a multistate feasibility study of the quadrant model. *Psychiatric Services*, 58(7), 949-954. doi: 10.1176/appi.ps.58.7.949
- McLelland, A. T. (2006). What we need is a system. In F. T. Miller & K. M. Carroll (Eds.), *Rethinking Substance Abuse*. New York: The Guilford Press.
- Miller, F. T., Abrams, T., Dulit, R., & Fyer, M. (1993). Substance abuse in borderline personality disorder. *American Journal of Drug and Alcohol Abuse*, 19(4), 491-497.

- Miller, W. R., & Carroll, K. M. (2006). Drawing the science together. In W. R. Miller & K. M. Carroll (Eds.), *Rethinking substance abuse* (pp. 293-311). New York: The Guilford Press.
- Mueser, K. T., Noordsy, D. L., Drake, R. E., & Fox, L. (2003). *Integrated treatment for dual disorders*. New York: The Guilford Press.
- Mueser, K. T., Drake, R. E., Turner, W. & McGovern, M. (2006). Comorbid substance use disorders and psychiatric disorders. In W. R. Miller & K. M. Carroll (Eds.), *Rethinking substance abuse* (pp. 115-113). New York: The Guilford Press.
- Mueser, K.T., Rosenberg, S.D., Xie, H., Jankowski, M.K., Bolton, E.E., Lu, W., ... Wolfe, R. (2008). A Randomized Controlled Trial of Cognitive–Behavioral Treatment for Posttraumatic Stress Disorder in Severe Mental Illness. *Journal of Consulting and Clinical Psychology* 76 (2), 259–271. doi: 10.1037/0022-006X.76.2.259.
- Nace, E. P., Saxon, J. J., Jr. & Shore, N. (1983). A comparison of borderline and nonborderline alcoholic patients. *Archives of General Psychiatry*, 40(1), 54-56.
- Nace, E. P., Davis, C. W. & Gaspari, J. P. (1991). Axis II comorbidity in substance abusers. *American Journal of Psychiatry*, 148(1), 118-120.
- Ouimette, C., Brown, P.J. & Najavits, L.M. (1998). Course and treatment of patients with both substance use and posttraumatic stress disorders. *Addictive Behaviors* 23(6), 785-795. doi: 10.1016/S0306-4603(98)00064-1
- Paris, J. (1993). *Borderline Personality Disorder: Etiology and Treatment*. Arlington: American Psychiatric Publishing.
- Paris, J. (2010). *Treatment of borderline personality disorder: a guide to evidence based practice*. New York: Guilford Press.

- Pedersen, P. B., Sitter, M., Lilleeng, S. E. & Bremnes, R. (2011). *Pasienter i det psykiske helsevernet 2009*. Oslo: Helsedirektoratet.
- Project MATCH Research Group. (1997). Matching alcoholism treatments to client heterogeneity: Project MATCH posttreatment drinking outcomes. *Journal of Studies on Alcohol*, 58, 7-29.
- RachBeisel, J., Scott, J. & Dixon, L. (1999). Co-occurring severe mental illness and substance use disorders: a review of recent research. *Psychiatric Services*, 50(11), 1427-1434.
- Read, J.P., Brown, P.J. & Kahler, C.W. (2004). Substance use and posttraumatic stress disorders: Symptom interplay and effects on outcome. *Addictive Behaviors* 29 (8), 1665-1672. doi:10.1016/j.addbeh.2004.02.061
- Regier, D. A., Farmer, M. E., Rae, D. S., Locke, B. Z., Keith, S. J., Judd, L. L. & Goodwin, F. K. (1990). Comorbidity of mental disorders with alcohol and other drug abuse. Results from the Epidemiologic Catchment Area (ECA) Study. *JAMA*, 264(19), 2511-2518. doi: 10.1001/jama.1990.03450190043026
- Ridgely, M. S., Osher, F. C., Goldman, H. H. & Talbott, J. A. (1987). *Executive summary - chronic mentally ill young adults with substance abuse problems: A review of research, treatment, and training issues*. Baltimore: Mental Health Services Research Center, University of Maryland School of Medicine.
- Ross, S., Dermatis, H., Levounis, P., & Galanter, M. (2003). A comparison between dually diagnosed inpatients with and without Axis II comorbidity and the relationship to treatment outcome. *American Journal of Drug and Alcohol Abuse*, 29(2), 263-279.
- Roth, A., & Fonagy, P. (2005). *What works for whom?* (2nd ed.). New York: The Guilford Press.

- Rutherford, M. J., Cacciola, J. S. & Alterman, A. I. (1994). Relationships of personality disorders with problem severity in methadone patients. *Drug and Alcohol Dependence*, 35(1), 69-76. doi:10.1016/0376-8716(94)90112-0
- Sabo, A. N. (1997). Etiological significance of associations between childhood trauma and borderline personality disorder: conceptual and clinical implications. *Journal of Personality Disorder*, 11(1), 50-70.
- Sacks, S., Ries, R. K. & Ziedonis, D. M. (2005). *Substance Abuse Treatment for Persons With Co-Occurring Disorders*. Rockville: Center for Substance Abuse Treatment.
- Siever, L. J. & Koenigsberg, H. W. (2000). The frustrating no-man's-land of borderline personality disorder. *Cerebrum, The Dana Forum on Brain Science*, 2(4).
- Skodol, A. E., Oldham, J. M. & Gallaher, P. E. (1999). Axis II comorbidity of substance use disorders among patients referred for treatment of personality disorders. *American Journal of Psychiatry*, 156(5), 733-738.
- Stanton, M. D. & Shadish, W. R. (1997). Outcome, attrition, and family-couples treatment for drug abuse: a meta-analysis and review of the controlled, comparative studies. *Psychological Bulletin*, 122(2), 170-191.
- Substance Abuse and Mental Health Services Administration. (2002). *Report to Congress on the Prevention and Treatment of Co-occurring Substance Abuse Disorders and Mental Disorders*. Rockville.
- Teesson, M., Hall, W., Lynskey, M. & Degenhardt, L. (2000). Alcohol- and drug-use disorders in Australia: implications of the National Survey of Mental Health and Wellbeing. *Australian and New Zealand Journal of Psychiatry*, 34(2), 206-213.

- The Norwegian Directorate of Health. (2011). *Nasjonalt faglig retningslinje for utredning, behandling og oppfølging av personer med samtidig psykisk lidelse og ruslidelse*. Oslo: Helsedirektoratet.
- Trull, T. J., Sher, K. J., Minks-Brown, C., Durbin, J. & Burr, R. (2000). Borderline personality disorder and substance use disorders: a review and integration. *Clinical Psychology Review*, 20(2), 235-253. doi:10.1016/S0272-7358(99)00028-8
- Trull, T. J., Tragesser, S. L., Solhan, M. & Schwartz-Mette, R. (2007). Dimensional models of personality disorder: Diagnostic and Statistical Manual of Mental Disorders Fifth Edition and beyond. *Current Opinion in Psychiatry*, 20(1), 52-56. doi: 10.1097/YCO.0b013e328010c838
- van den Bosch, L. M., Verheul, R., & van den Brink, W. (2001). Substance abuse in borderline personality disorder: clinical and etiological correlates. *Journal of Personality Disorders*, 15(5), 416-424.
- van den Bosch, L. M. & Verheul, R. (2007). Patients with addiction and personality disorder: Treatment outcomes and clinical implications. *Current Opinion in Psychiatry*, 20(1), 67-71. doi: 10.1097/YCO.0b013e328011740c
- Verheul, R., Kranzler, H. R., Poling, J., Tennen, H., Ball, S. & Rounsaville, B. J. (2000). Axis I and Axis II disorders in alcoholics and drug addicts: fact or artifact? *Journal of Studies on Alcohol*, 61(1), 101-110.
- Verheul, R., van den Bosch, L. M. & Ball, S. A. (2005). Substance abuse. In J. M. Oldham, A. E. Skodol & D. S. Bender (Eds.), *Textbook of personality disorders* (pp. 463-475). Washington DC: American Psychiatric Publishing.
- Watkins, K. E., Burnam, A., Kung, F. Y., & Paddock, S. (2001). A national survey of care for persons with co-occurring mental and substance use disorders. *Psychiatric Services*, 52(8), 1062-1068.

- Watkins, T. R., Lewellen, A. & Barrett, M. C. (2001). *Dual diagnosis, an integrated approach to treatment*. London: Sage Publications.
- Widiger, T. A. (2005). A dimensional model of personality disorder. *Current Opinions in Psychiatry*, 18(1), 41-43.
- Widiger, T.A. & Trull, T.J. (1993). Borderline and narcissistic personality disorders. In H. Adams & P. Sutker (Ed). *Comprehensive handbook of psychopathology (2nd ed)*, (p. 371–394), New York: Plenum Press.
- World Health Organization. (1993). *ICD-10 Classifications of Mental and Behavioural Disorder: Clinical Descriptions and Diagnostic Guidelines*. Geneva: World Health Organization.
- Wusthoff, L. E., Waal, H., Ruud, T., Roislien, J., & Grawe, R. W. (2011). Identifying co-occurring substance use disorders in community mental health centres. Tailored approaches are needed. *Nordic Journal of Psychiatry*, 65(1), 58-64. doi: 10.3109/08039488.2010.489954
- Young, J.E., Klosko, J.S. & Weishaar, M.E. (2003). *Schema therapy: A practioners guide*. New York: Guilford Press.
- Zanarini, M. C., Frankenburg, F. R., Dubo, E. D., Sickel, A. E., Trikha, A., Levin, A. & Reynolds, V. (1998). Axis I comorbidity of borderline personality disorder. *American Journal of Psychiatry*, 155(12), 1733-1739.
- Zanarini, M. C., Frankenburg, F. R., Hennen, J., Reich, D. B. & Silk, K. R. (2004). Axis I comorbidity in patients with borderline personality disorder: 6-year follow-up and prediction of time to remission. *American Journal of Psychiatry*, 161(11), 2108-2114. doi: 10.1176/appi.ajp.161.11.2108

Zanarini, M. C., Frankenbur, F. R., Weingeroff, J. L., Reich, D. B., Fitzmaurice, G. M. & Weiss, R. D. (2011). The course of substance use disorders in patients with borderline personality disorder and Axis II comparison subjects: a 10-year follow-up study. *Addiction*, *106*(2), 342-348. doi: 10.1111/j.1360-0443.2010.03176.x

Zlotnick, C., Rothschild, L., & Zimmerman, M. (2002). The role of gender in the clinical presentation of patients with borderline personality disorder. *Journal of Personality Disorders*, *16*(3), 277-282.