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MEN WITH BORDERLINE PERSONALITY DISORDER AND ANTISOCIAL BEHAVIOR: CLINICAL CHARACTERISTICS, DEVELOPMENTAL PERSPECTIVES AND INTERVENTIONS.

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Stockholm 2018

Published by Karolinska Institutet.
Printed by Eprint AB

ISBN 978-91-7831-120-0

Men with borderline personality disorder and antisocial behavior: clinical characteristics, developmental perspectives and interventions.
THESIS FOR DOCTORAL DEGREE (Ph.D.)

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To Louise, Adam, Simon and Lukas.

ABSTRACT

Background: Borderline personality disorder (BPD) is a mental disorder characterized by a pervasive pattern of emotional instability, impulsivity, relationship problems and identity disturbance. As the disorder has been considered more prevalent in women, research on men with BPD has lagged behind. In addition to the suicidal and self-harming behaviors traditionally associated with BPD, a substantial proportion of men with this disorder also exhibit antisocial behaviors.

Aims:

- to estimate the prevalence of BPD in a sample of adult male offenders on probation or parole in Stockholm, and examine comorbidity patterns (**Study I**).
- to explore how men with BPD and antisocial behaviors describe their difficulties and their experiences of the health care system (**Study II**).
- to investige the utility of 12 months treatment with Dialectical behavior therapy (DBT) for men with BPD and antisocial behavior (**Study III**).
- to evaluate a new internet-delivered preventive program for parents of adolescents at risk of developing BPD-traits and/or antisocal behavior (**Study IV**).

Methods: We screened 109 probationers for BPD and conducted diagnostic interviews with those scoring above cut-off (**Study I**). We interviewed 8 men and analyzed the data using qualitative content analysis (**Study II**). Thirty men received DBT in a study using within-group design with repeated measurements of various dysfunctional behaviors (**Study III**). We randomized parents to receive the Parent-Web intervention directly (*n*= 43) or to a waitlist control (*n*= 32), and compared the groups on adolescent externalizing behavior, family conflicts and warmth (**Study IV**).

Results: 19.8% of male offenders on probation were estimated to have BPD, and the disorder was associated with severe mental ill health. Male psychiatric patients with BPD and antisocial behavior experienced a distressing sense of alienation and had experienced difficulties accessing mental health resources. After DBT, participants had reduced most of the dysfunctional behaviors assessed. Treatment completers (n= 19) reported high satisfaction with treatment, and maintained their improvements one year after the intervention. The Parent-Web was associated with interrupted deterioration of adolescent externalizing behavior and improvements in conflicts and family warmth.

Conclusions: BPD may be 10-times more common in male probationers/parolees than in the general population. Although men with BPD and antisocial behavior may have difficulties utilizing mental health services, preliminary evidence suggest that DBT may be a treatment alternative worth considering. A short internet delivered program may reduce risk factors associated with the development of BPD and antisocial behavior in adolescents.

LIST OF SCIENTIFIC PAPERS

I. Wetterborg, D., Långström, N., Andersson, G., & Enebrink, P. (2015). Borderline Personality Disorder: Prevalence and psychiatric comorbidity among male offenders on probation in Sweden. *Comprehensive Psychiatry,* 62: 63-70.

II. Wetterborg, D., Andersson, G., & Enebrink, P. (submitted manuscript). Exploring Borderline Personality Disorder in men with comorbid antisocial behavior: A qualitative interview study.

III. Wetterborg, D., Dehlbom, P., Långström, N., Andersson, G., Fruzzetti, A., & Enebrink, P. (in press). Dialectical Behavior Therapy for men with Borderline Personality Disorder and antisocial behavior: A clinical trial. *Journal of Personality Disorders.*

IV. Wetterborg, D., Enebrink, P., Lönn-Rhodin, K., Forster, M., Risto, E., Dahlström, J., Forsberg, K., & Ghaderi, A. (submitted manuscript). A Randomized Controlled Trial of Internet-delivered Parent Training for parents of teenagers.

CONTENTS

LIST OF ABBREVIATIONS

DBT	Dialectical behavior therapy
BPD	Borderline personality disorder
DSM-5	Diagnostic and statistical manual of mental disorders, 5:th edition
MBT	Mentalization based treatment
ASPD	Antisocial personality disorder
ODD	Oppositional defiant disorder
ADHD	Attention deficit hyperactivity disorder

1 INTRODUCTION

I began meeting patients suffering from Borderline personality disorder when working as a clinical psychologist in an outpatient psychiatric clinic in Stockholm. Through a series of fortunate events, I was given the opportunity to learn Dialectical behavior therapy (DBT) and to participate in the forming of a team dedicated to implementing this treatment at the clinic. Looking back, more than ten years later, these events had a major impact on me, both professionally and personally, and propelled me towards what was to become this thesis.

Occasionally, men with a criminal history and aggressive behaviors would be referred to us, often carrying with them a diagnosis of antisocial personality disorder. They were not specifically referred for DBT, but rather in the hope that our (at this time very limited) experience in managing women displaying a range of impulsive and dangerously dysfunctional behaviors would enable us to help also these patients. In these men, we saw chronic and severe emotional instability, impulsivity and relationship problems. They were often struggling with depression, anxiety, substance use and suicidal urges. Perhaps they did not look like typical BPD-patients, but they suffered as such.

We started our first DBT-program for men with BPD and antisocial behavior in the spring of 2009. We learned that while instructing other clinicians to refer men with BPD did not result in any patients, we would get plenty of referrals if we instead specified that the program was for men who display emotional instability, impulsivity, aggression, intense and conflict-ridden close relationships, repeated crisis and suicidal communication (i.e. the diagnostic criteria of BPD). This made us wonder if preconceived notions about BPD-patients was a barrier for effective treatment of men in the mental health services. Some of the men themselves found it hard to come to terms with the BPD-diagnose, as they perceived it to be a "diagnose for women". However, they seemed to love being in DBT, a treatment specifically developed for women. The research questions that have guided this thesis are to a large extent a direct result of these early experiences at the clinic.

You, dear reader, will be confronted with scientific language, statistics and methods that may portray a non-personalized image of the population we have studied. For me however, many of the statistics presented in this thesis is exemplified by an individual that I have met. I hope that this thesis will contribute to shine some light on a group that has been in shadow for too long.

Stockholm, spring 2018

2 BACKGROUND

2.1 BORDERLINE PERSONALITY DISORDER

Borderline personality disorder (BPD) is a mental disorder characterized by a pervasive pattern of instability in affect regulation, impulse control, interpersonal relationships and self-image [1,2]. Living with the disorder is associated with persistent functional impairment [3], high utilization of health care recourses [4], high rates of co-occurring mental illness [5] and elevated risk of many severe outcomes, including violence perpetration [6] and victimization [7] as well as suicide [8].

2.1.1 Diagnosis

For a diagnosis of BPD according to the current psychiatric classification system in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), the symptoms must begin in early adulthood, be present in a variety of contexts, and manifested in at least five of the nine diagnostic criteria listed below [2].

Table 1.
Diagnostic criteria of Borderline personality disorder in DSM-5.

Diagnostic criteria	
1.	Frantic efforts to avoid real or imagined abandonment.
2.	A pattern of unstable and intense interpersonal relationships characterized by alternating between extremes of idealization and devaluation.
3.	Identity disturbance: markedly and persistently unstable self-image or sense of self.
4.	Impulsivity in at least two areas that are potentially self-damaging.
5.	Recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior.
6.	Affective instability due to a marked reactivity of mood.
7.	Chronic feelings of emptiness.
8.	Inappropriate, intense anger, or difficulty controlling anger.
9.	Transient, stress-related paranoid ideation or severe dissociative symptoms.

There has been considerable debate on the validity of the BPD diagnosis. There are 256 different combinations that meet the cut-off of five diagnostic criteria [9], and two people may be diagnosed with BPD but only share one criteria. Researchers have argued that this classification result in significant heterogeneity amongst people diagnosed with BPD [8,10]. Favoring a dimensional model of personality functioning, some researchers argue that the empirical evidence of a non-arbitrary distinction between normal and abnormal personality function is scarce [11]. However, Sanislow [12] performed confirmatory factor analysis of data from 668 participants that showed adequate internal consistency and good fit estimates for a

one-factor model of the BPD-diagnosis. Interestingly, they also identified a three-factor model of BPD-criteria with the following underlying factors: *Disturbed relatedness* (criteria 2, 3, 7 & 9), *Behavioral dysregulation* (criteria 4 & 5) and *Affective dysregulation* (criteria 1, 6 & 8). These factors have been supported by more recent studies, and may represent important areas of impairment in BPD-patients, as well as contribute to the understanding of heterogeneity amongst people diagnosed with BPD [9,12]. Although the debate on the validity of a categorical or dimensional model continues (e.g.[13]), there is evidence of good reliability in diagnosing the disorder using the categorical model proposed in DSM-5. In a large field trial investigating the interrater reliability of DSM-5 diagnoses in USA and Canada 279 clinicians of various disciplines interviewed 2,246 patients. Results showed that BPD was one of 14 diagnoses that showed good interrater reliability with a pooled intraclass kappa of 0.54 [14,15].

2.1.2 Prevalence, comorbidity and functional impairment

Studies of the general adult population have reported prevalence rates of BPD between 0.7% in Norway [16] and 5.9% in the U.S.A [5]. However, in most studies prevalence is estimated between 1-3% [4,17]. BPD is the most common personality disorder in clinical populations, and it is usually estimated that around 10% of psychiatric outpatients and 15-25% of inpatients suffer from the disorder [18,19]. BPD is associated with high rates of comorbid mental disorders. In two large epidemiological surveys in the U.S.A, 85.5% of subjects with BPD had one or more current axis I disorders and 73.9% met criteria for at least one additional personality disorder. The mean number of comorbid mental disorders was 4.4, with mood disorders, anxiety disorders and substance abuse disorders being most common [5,17]. BPD is associated with severe and stable impairment in both occupational and social function [19]. It has, for example, been demonstrated that patients with BPD had more functional impairment and higher use of health care than patients with major depression [20]. Suicide and self-harming behavior is part of the diagnostic criteria and compared with other mental disorders, suicide risk is particularly high among patients with BPD [21,22]. It is estimated that between 8-10% of people with BPD die from suicide [8,20,23] making suicide more than 50-times more common in this group compared with the general population [19].

2.1.3 Treatment

In a systematic review of pharmacotherapy for BPD, published by the Cochrane collaboration, the authors concluded that while medication may be helpful for comorbid conditions, there is no evidence of any effect on “core borderline symptoms”, and there are several limitations of the published studies [24] In another Cochrane review specifically investigating psychological treatments, the authors argued for the use of psychotherapy as main treatment [25], as there were indications of beneficial effects of different types of treatments on core BPD-symptoms as well as associated psychopathology. Common to the effective treatments is a focus on core borderline pathology, rather than related problems or

behaviors (e.g. substance misuse), that they are long and intensive and often incorporate different treatment modalities (e.g. group and individual therapy). According to this review, there is empirical support for the use of Dialectical behavior therapy (DBT), Mentalization based treatment (MBT), Schema therapy and Transference focused therapy. However, only data from the most intensely studied, DBT, allowed for meta-analytic pooling. Compared with treatment as usual, DBT was superior on measures of suicidal and parasuicidal behavior, anger, associated psychopathology such as depression and anxiety, and overall mental health status. The effect sizes where moderate to very large and the authors concluded that DBT was the best empirically supported treatment alternative for persons with BPD [25]. In a more recent meta-analysis, DBT was also found to be the type of treatment with most studies supporting its effect and comparatively low heterogeneity of effects, although smaller effects in general were reported compared with the Cochrane review [26].

2.1.4 Dialectical behavior therapy

Dialectical behavior therapy is rooted in behaviorism, with influences from Buddhist practices, acceptance oriented psychotherapies and dialectical philosophy [27]. The aim of DBT is to help clients increase emotion regulation and reduce dysfunctional behaviors through the use of psychological skills. Therapists strive to balance acceptance and change oriented interventions and strategies. In order to manage the great variety of symptoms and dysfunctional behaviors often present in clients with BPD, DBT uses a predetermined hierarchy to prioritize between targets in therapy: 1) life threatening behaviors, 2) therapy interfering behaviors, 3) other quality of life interfering behaviors/problems.
DBT is delivered by a team of therapists and is typically made up of five components; individual therapy, skills training, telephone coaching of skills between sessions, interventions targeting the clients social network and consultation for the therapists. During individual sessions the therapist and client perform behavioral analyses of relevant target behaviors (i.e. self-harming behaviors, substance abuse), work on problem solving and strengthening of the clients commitment to stay in therapy. The skills training is typically delivered in a group format, and divided into four modules: mindfulness, relationship skills, emotion regulation skills and crisis survival skills [27].

2.2 MEN WITH BORDERLINE PERSONALITY DISORDER

Historically, Borderline personality disorder has been considered a predominately female disorder [1,28]. Consequently, most research on BPD and related areas has been conducted with women samples [28]. Although current epidemiological research suggests there are no gender differences in the prevalence of BPD in the general population [5,19], quite large differences are consistently found in studies of clinical populations. Among psychiatric patients, it is estimated that 75% of patients diagnosed with BPD are women [2].

2.2.1 Gender and the BPD diagnosis

So, why is BPD diagnosed more often in women? Are men with BPD less likely to enter into mental health services and more likely to enter into other treatment systems? Or is there a gender bias leading to underdiagnosing of BPD in men?
Bjorklund [29] argues that social cultural factors inevitably play a role in the expression of psychiatric illness and that the diagnosis of BPD has a cultural history that may influence diagnostic practices. These factors could differentially influence the way BPD-related problems are understood and expressed by afflicted men and women, but they could also affect diagnostic judgements by clinicians. In reviewing empirical evidence from studies examining the presence of various biases in diagnosing, Skodol and Bender [30] reported that this evidence was inconclusive. They therefore argued that the gender differences seen in clinical populations was not likely due to diagnostic bias, but rather the result of biased sampling methods. Contrary to this, Eubanks-Carter and Goldfried [31] had clinical psychologists diagnose hypothetical cases with the use of vignettes and found that male patients were twice as likely to be diagnosed with BPD if they were presented as gay or bisexual. They also found that when the sexual orientation of the hypothetical BPD-client was unspecified, the participating psychologists' assumptions about the client's sexual orientation differed by gender. When the client was female, 95% of participants assumed that she was heterosexual, but when the client was presented as being male 71% assumed that he was gay or bisexual [31]. Taken together, these findings support the notion that behaviors in relation to societal perceptions of gender play a role in the diagnosing of BPD. In a similar study, Braamhorst and colleagues [32] had 180 psychologists in training for a post-master degree read brief case histories and diagnose according to the DSM-5. They found no effects of client gender when enough information was presented to correctly diagnose BPD or Narcissistic personality disorder (NPD). However, when the case was presented with subthreshold features of both disorders, participants diagnosed BPD less often than NPD in male clients and vice versa in female clients. The authors thus concluded that in complex situations when there is ambiguity, sex bias may lead to underdiagnosing of BPD in men [32].

Two studies employing slightly different methods to investigate gender effects on diagnosing BPD in clinical samples can be used to illustrate the lack of consensus in the field. Boggs and colleagues [33] used a regression model to investigate bias in diagnosing personality disorders in 668 psychiatric patients, comparing different measures of functional impairment with a semi structured interview for assessing BPD. They found that all but the impulsivity criteria showed evidence of bias, such that men who were judged at the same level of the diagnostic criteria demonstrated worse overall function. Described in another way, the men were required to show more functional impairment than women to be rated at the same level on all but one of the diagnostic criteria for BPD. As there were no gender differences regarding functional impairment in the sample, the authors conclude that the results are indicative of a bias in diagnosing and speculate that the diagnostic criteria might not adequately represent the way BPD manifests in men. Contradictory results stem from a study by Sharp and colleagues [34]. They investigated differential item functioning of the diagnostic criteria across

gender, using item response theory. In a sample of 747 adult psychiatric inpatients assessed with the *Structured Clinical Interview for DSM-IV Axis II Personality Disorders* (SCID-II) and, they found that it was easier for men to have the impulsivity and uncontrolled anger criteria endorsed at the same level of latent BPD liability. No gender effects were observed for the other 7 criteria. The authors thus concluded that the different rates of BPD in men and women seen in clinical settings is unlikely due to gender bias in diagnosing [34].

2.2.2 Similarities and differences across gender

Most studies of clinical characteristics in people with BPD conclude that gender differences typically seen in the normal population are attenuated in BPD-samples [35,36]. One example of this comes from a prospective 1-year multi-site study by Newhill and colleagues [6], investigating violent behavior in patients with BPD. They found that 73% of BPD patients engaged in violence during the study period and, contrary to what is consistently found in the normal population, gender did neither predict number of violent acts nor differentiate between violent and non-violent patients with BPD. Violent behavior was mostly characterized by disputes with acquaintances or "significant others" [6]. Accordingly, BPD is considered an important risk factor for intimate partner violence perpetration in both men and women [37]. Attempting suicide and engaging in self-harming behavior seem to be equally common among men and women with BPD [38,39]. Similarly, there does not seem to be any gender differences regarding overall functional impairment [40] or number of comorbid psychiatric diagnoses [41] among people suffering from BPD. Although typically smaller than in the general population, some important differences between men and women are worth mentioning. Barnow and colleagues [42] found that men with BPD were characterized by explosive temperaments with high levels of novelty seeking and harm avoidance and studies consistently find that men with BPD are more likely to have substance use disorders and antisocial personality disorder (ASPD) [5,41]. Estimates of 12-month prevalence of substance use disorders among men with BPD are between 38-58% [5,17,41] and reports from both community and clinical samples indicate that ASPD appear more than twice as often in men than in women with BPD [5,41,43].

2.3 ANTISOCIAL PERSONALITY DISORDER IN BPD

According to the DSM-5, ASPD is characterized by a pattern of disregard for, and violation of, the rights of others that begins in childhood or early adolescence and continues into adulthood [2]. To ascertain a diagnose of ASPD the individual must be at least 18 years old, have a history of conduct disorder with onset before age 15 and manifest antisocial behavior as indicated by at least three of the seven criteria listed in the table below [2].

Table 2.

Diagnostic criteria of Antisocial personality disorder in DSM-5.

	Diagnostic criteria
1.	Failure to conform to social norms with respect to lawful behaviors, as indicated by repeatedly performing acts that are grounds for arrest.
2.	Deceitfulness, as indicated by repeated lying, use of aliases, or conning others for personal profit or pleasure.
3.	Impulsivity or failure to plan ahead.
4.	Irritability and aggressiveness, as indicated by repeated physical fights or assaults.
5.	Reckless disregard for safety of self or others.
6.	Consistent irresponsibility, as indicated by repeated failure to sustain consistent work behavior or honor financial obligations.
7.	Lack of remorse, as indicated by being indifferent to or rationalizing having hurt, mistreated, or stolen from another.

Prevalence rates range from 0.2 to 4% in community settings to around 50% in male prisoners [2,44,45]. ASPD is associated with various comorbid mental health disorders, including major depressive disorder, anxiety disorders and substance use disorders. People with ASPD are at risk for traumatic injuries, accidents, suicide and various somatic health problems [44,45]. It is estimated that 4-5% of those with ASPD will die from suicide [46]. While the disorder tends to improve with age, particularly regarding illegal behaviors, it is linked to long term impairment in job and relationship function. Earlier onset of conduct problems is associated with particularly poor prognosis [44].

BPD and ASPD overlap in diagnostic criteria (both disorders include impulsivity, aggressive behavior, and disregard for self/self-injurious behavior). There is also overlap in other symptoms and features, including emotional lability, high comorbidity rates with major depression, anxiety and substance use disorders, and elevated suicide risk [46]. These similarities between BPD and ASPD led Paris [47] to argue that they reflected the same form of psychopathology, shaped by gender. However, in a recent review he and colleagues rejected their earlier conclusion and suggested that BPD and ASPD should be considered different disorders with unique trait profiles. They argue that negative affectivity and emotional dysregulation is more unique to BPD, and that antagonism in BPD is characterized by persistent anger in response to slights, rather than the callousness often demonstrated by persons with ASPD [48]. Indeed, findings from a Brazilian study of patients in a personality disorder treatment facility showed that ASPD was associated with planned criminal behavior and property offending, while BPD was associated with impulsive and violent criminal behavior [49].

However, comorbidity rates between BPD and ASPD in men are notably high. Reported rates of ASPD in men with BPD range from 20% in the normal population [5] to between 48% and 57% in psychiatric patients [41,43]. Conversely, BPD may be present in as many as 57% of male

treatment seeking patients with ASPD [50]. It has been suggested that BPD and ASPD may share biological risk factors, such as high testosterone/cortisol ratio [51] and genetic patterns of vulnerability [52]. Compared with either BPD or ASPD alone, comorbid BPD and ASPD has been associated with various adverse outcomes. Examples include increased suicide risk [53], violence and criminal behavior in community residents [54,55] as well as re-offending in forensic populations [56]. Howard [57] therefore suggested that the BPD/ASPD comorbidity may represent a particularly severe and dangerous form of personality disorder. While this comorbidity is rare in the general population, it becomes more prevalent in samples as the assumed dangerousness of the sample increases. For example, comorbid BPD/ASPD was present in 0.3% of a sample of the general population and 9% in a sample of non-forensic treatment seeking patients with a personality disorder in UK. It was found in 16% of men in a low security correctional facility in the US and in 62% in a UK sample of high-risk prisoners with "dangerous and severe personality disorder" [57]. Studies specifically assessing BPD in offenders have reported rates between 14% and 35% in prison inmates. Although more offenders are on probation or parole than in prison in most western countries, few studies have investigated BPD in probational/parolee samples. In **Study I** of this thesis we estimated the prevalence of BPD in men on probation or parole in Stockholm and examined comorbidity patterns.

2.3.1 Development

Clinicians and researchers have noted that patients with BPD often report many adverse events in childhood, also in comparison with people suffering from other personality disorders [19]. For example, in one cross-sectional study investigating the development of BPD in men, Paris and colleagues [58] found that BPD-males reported more childhood sexual abuse and early separation or loss than men with other personality disorders. Comparing the findings with those from a study of a female sample by the same authors indicate that child sexual abuse is more common in women with BPD (70.5% vs 47.5%). However, more recent studies have found similar and lower rates of childhood sexual abuse in men and women with BPD (for example 40.4% in women vs. 30.2% in men in [35] and 37.7% in the full sample with no significant gender differences in [59]). Paris and colleagues [58] also found that fathers of BPD-patients were more frequently physically abusive, sometimes sexually abusive, often absent, and exerted excessive control on their sons. Thus, the authors identified problems with fathers as particularly important for men with BPD. Interestingly, they noted that similar problems with fathers were also often reported by people with ASPD [58]. Goodman and colleagues [60] studied the development of BPD in men using surveys to parents of male BPD-patients. They noticed that parents reported significantly more bully victimization by peers in their BPD-sons than in their non-BPD siblings. Comparing their findings with the literature on risk factors for BPD in women, the authors conclude that bully victimization may be a contributing factor to the development of male BPD in particular [60].

Although childhood trauma and other adverse events are common in people with BPD, many with the disorder have not suffered traumatic events and there is no definite association between these experiences and the development of adult BPD [19]. Thus, existing models of BPD-development typically focus on the interaction of mainly heritable biological and temperamental dispositions with social/environmental factors [19,61-64]. Twin studies report that 65%-75% of variance in BPD-diagnose is attributable to genetic heritability. Although no specific genes have been clearly identified as casual factors in BPD, studies have identified the serotonergic system, and genes involved in this system, as important [19]. This is mainly due to the fact that disruption in serotonin neurotransmitter system have been linked to suicidal behavior and impulsive aggression in psychiatric patients and community samples [19,52].

Mapping the developmental trajectory to BPD, longitudinal studies have identified emotional and behavioral disorders in childhood and adolescence as antecedents of BPD symptoms in late adolescence and early adulthood. In one of few longitudinal studies investigating the development of BPD specifically in men, Burke and Stepp [65], predicted BPD symptoms at age 24 from repeated childhood measures of psychopathology in 177 men. They found that ADHD and Oppositional defiant disorder (ODD) were the only two child psychiatric disorders that predicted BPD symptoms at age 24, and that the oppositional behavioral dimension of ODD was particularly predictive of BPD. ADHD and ODD have also been found to predict BPD symptoms in adolescent girls [65], implying similar developmental trajectories in boys and girls and highlighting externalizing behavior problems as important precursors of BPD. However, Vaillancourt and colleagues [66] investigated the association of childhood physical and relational aggression (e.g. peer group exclusion, spreading rumors, giving someone the silent treatment. etc.), depression and ADHD with BPD features at age 14. They report that childhood depression and relational aggression predicted BPD features in boys, whereas physical aggression was the strongest predictor of BPD features in girls, implying that developmental trajectories to BPD may be gender specific [66].

Noting the similarity of clinical features, environmental risk factors and developmental trajectories in ASPD and BPD, as well as the high rates of ASPD/BPD comorbidity and findings showing increased prevalence of ASPD in first degree relatives of those with BPD, Beauchaine and colleagues [46] have proposed that BPD and ASPD are multifinal outcomes of a single etiology. Crowell and Kaufman [67] later elaborated on this interactional model, more clearly specifying family interactions thought to contribute to the development of BPD/ASPD. Taken together, the models define impulsivity and anxiety as primary predisposing vulnerabilities, present already in infancy and derived mainly from genetically heritable biological differences in central dopaminergic and serotonergic function. Through high risk family environments, emotional lability is maintained or worsened by operant contingencies. Specifically, the model highlights conflictual parent-child relationships that may develop in an interactional system, where temperamental vulnerabilities of the child (e.g. impulsivity) shape parent response, which in turn may further exacerbate the child's maladaptive behaviors. These coercive interactions can become a recurrent family pattern

trough intermittent negative reinforcement of aversive behavior. For example, a tantrum from a child may lead a parent to withdraw a demand (reinforcing dysregulated behavior of the child), and parent yelling or other aversive behaviors may be effective in ending child misconduct (reinforcing these behaviors of the parent). Over time, these negative reinforcing patterns may contribute to harsh and inconsistent parenting, which have been repeatedly shown to increase the risk of antisocial behavior in youth (e.g. [68]). Also, emotional invalidation in which the emotional needs of the child are ignored, minimized or rejected may become predominate in these relationships [27] and further contribute to the development of BPD/ASPD [67]. By late adolescence/young adulthood, the resulting patterns of emotion dysregulation and externalizing behaviors stabilize into a constellation of characteristics (interpersonal problems, aggression, identity dysfunction and emotional lability) in vulnerable individuals [46,67].

Investigating the assumed shared etiology of BPD and ASPD, Reichborn-Kjennerud and colleagues [69] collected data from 2282 twins that were followed for 10-years starting in early adulthood. They concluded that genetic risk factors accounted for most of the stability over time for ASPD and BPD, and that these factors did not change over the study period. This is different from what is typically found in studies of younger twins, where the contribution of genetic factors tend to increase over time as new genetic effects appear. Importantly, the genetic correlations between ASPD and BPD were 0.73 leading the authors to conclude that genetic liability factors were, to a large extent, shared by the two disorders [69]. Comparing men with comorbid BPD/ASPD with men suffering one of the two disorders and men without any personality disorder, Robitaille and colleagues [70] conducted a longitudinal study of 311 boys that were followed from age 6 to 33 years. They found that comorbid BPD and ASPD was characterized by disruptive behaviors in childhood, violent criminal behavior in adolescence and most strongly in adulthood. Similar results are reported from a cross-sectional study by Freestone and colleagues [54], where comorbid BPD/ASPD was associated with retrospectively reported severe child conduct disorder. Conduct disorder is a prerequisite for adult ASPD, and accordingly a robust predictor of adult antisocial behavior. It is usually estimated that slightly less than half of children with conduct disorder will develop ASPD in adulthood [71]. Indeed, characteristics from the samples included in this thesis reflect this association. Of the 39 adult men with BPD and antisocial behavior interviewed with the SCID-II in this thesis, 38 (97%) reported conduct disorder with onset before age 15.

2.3.2 Early prevention

Interventions aimed at preventing the development of antisocial behavior and other psychopathology in children and adolescents typically include some form of parent training. Parent training programs are often based on social learning theory, literature on risk and protective factors, as well as research on the coercive parenting described above. The focus is therefore to reduce harsh and inconsistent parenting practices and to help establish a warm and close parent-child relationship. Parent training interventions have been found to reduce

externalizing behavior in children [72] and adolescents [73]. Importantly, the result from a meta analytic review of long-term effects of preventive and therapeutic psychosocial interventions by Sawyer and colleagues [74] showed that the beneficial effects were still present one-year beyond the interventions. There is thus a strong empirical case for early interventions to reduce the risk of adult antisocial behavior. The emergence of interventions aimed specifically at preventing the development of BPD is more recent [75]. Examples include extensive treatment programs for adolescents displaying with BPD-symptoms [76] and interventions based on DBT with a clear parent-training component for children with BPD-traits [77]. Given that risk-factors and developmental trajectories seem to be similar for BPD and ASPD, it could be assumed that parent training programs developed to reduce externalizing behavior in children and adolescents may protect against the development of both disorders.

However, a significant problem is that access to effective interventions is limited [78]. Sadly, Robitaille and colleagues [70] reported that while many of the boys in their study that later developed comorbid BPD/ASPD were rated by teachers as displaying more disruptive behaviors than other children as early as at age 6, only a few of them were identified by the health system and could subsequently benefit from interventions [70]. Research focusing on how to identify and reach families at risk remains an important area of future research. In **Study IV** of this thesis we evaluated a novel internet delivered preventive program for parents of teenagers with externalizing behavior.

2.3.3 Treatment of men with BPD

In the Cochrane review mentioned above, only 11% of participants in the 28 included studies were male and no study had balanced gender proportions. In the DBT-trials included in the review, the proportion of men was even lower (2.7%). The authors of the review conclude that gender differences that could affect treatment outcome (e.g. more substance abuse and antisocial behavior in men) caution against generalizing the optimistic findings also to men with BPD [25]. The lack of men included in intervention-research appears to correspond to psychiatric treatment utilization. In one report, using data from 495 parents of patients with BPD, Goodman and colleagues [79] found that men with BPD had higher use of drug/alcohol rehabilitation services while female subjects received more psychiatric outpatient interventions, including psychotherapy (*OR*=2.30) and pharmacotherapy (*OR*=2.26). Just like in the Cochrane review, the gender imbalance was highest for the best empirically supported treatment, DBT, (*OR*=2.59) [79]. A secondary finding from the longitudinal study of boys that later developed BPD, ASPD or comorbid BPD/ASPD [70] is yet another indicator of the difficulties of men with BPD to access relevant health care. Only a third of the men that were diagnosed with BPD or comorbid BPD/ASPD in adulthood were identified by the health system as suffering a personality disorder, a prerequisite for access to BPD treatment programs. In a qualitative study examining how suicidal men used mental health services Strike and colleagues [80] interviewed 15 men with a history of suicidal and aggressive

behaviors and a diagnosis of BPD and/or ASPD. The authors describe a cyclical pattern of health care use wherein negative experiences of health care providers where followed by avoidance of health care settings, crisis, and then by involuntary service utilization. The authors identify several practices that may contribute to fragmented pathways to care for men with BPD and/or ASPD, including behaviors of the patients (i.e. inability to articulate feelings and emotions and difficulties navigating the referral system) and behaviors of health care staff (i.e. disrespectful treatment of patients and insufficient assessment) [80]. In **Study II**, we explored how men with BPD and antisocial behavior present their difficulties and BPD-problems in contact with psychiatric services, and what their experiences were of utilizing health care in Stockholm.

While research on treatment for men with BPD is rare, research on treatments for ASPD are even more scarce. In a systematic review published by the Cochrane collaboration [81] the authors noted that most studies on ASPD came from substance abuse interventions where participants with and without ASPD were compared on substance related outcomes. Few studies included antisocial behavior as outcome and the authors conclude that there is insufficient evidence to justify using any psychological intervention for adults with ASPD [81]. Similarly, in a meta-analysis investigating the effect of treatments aimed at reducing criminal recidivism in adults with ASPD, Wilson [82] reported no difference between treated and untreated individuals with ASPD. She concludes that "One of the most notable findings of this review was the paucity of studies identified for inclusion" ([83], p. 42). The only study included in these reviews that investigated an intervention delivered in a community setting and employed antisocial outcomes (self-reported aggressive behavior) was a study by Davidson and colleagues [84]. They compared 6 and 12-months group Cognitive behavior therapy with treatment as usual and found no statistically significant differences in any of the study outcomes. However, the authors concluded that it was feasible to conduct a randomized controlled trial in this group [84]. More recently, encouraging results stem from two reports investigating MBT and Systems training for emotional predictability and problem solving (STEPPS) for people with BPD [85,86]. Sub samples were analyzed separately, comparing participants with and without comorbid ASPD. Although these studies did not include antisocial behaviors as outcome measures, and only 44 of the total 100 participants were male, they conclude that BPD-patients with comorbid ASPD improved similar to those with only BPD and should therefore not be excluded from these programs [85,86].

When studies of DBT include men, they typically stem from forensic psychiatric or correctional settings. In a recent review of DBT in these settings [87], the authors report that they identified 34 unique DBT programs worldwide and that 23 of these conducted outcome evaluations with a total of 996 participants (38% male). However, these evaluations were often conducted at a very preliminary level and the authors state that the widespread implementation of DBT in these settings has outpaced the research on its effectiveness. Still, they conclude that their results offer "very preliminary evidence that DBT has the potential to reduce recidivism risk in criminal justice systems" ([87], p 72). To my knowledge, no studies of

DBT delivered in its original outpatient format for men with BPD have been published. Against this background, **Study III** examined the utility of a 12-month DBT-program delivered in routine psychiatric outpatient services.

2.4 SUMMARY OF BACKGROUND

Borderline personality disorder has long been assumed to be a disorder mainly affecting women. Consequently, research on men with BPD has lagged behind. In addition to the suicidal and self-harming behaviors traditionally associated with BPD, a substantial proportion of men with this disorder also exhibit violent and antisocial behaviors. Antisocial personality disorder and BPD are both characterized by emotional lability, impulsivity, high comorbidity rates, persistent functional impairment, and high rates of suicide. Comorbidity between these two disorders is high, and they may share etiology and developmental trajectories. Early interventions found to reduce parent-child conflicts and externalizing behavior in children and adolescents may prevent against both BPD and antisocial development in families at risk, but access to these interventions is limited. While research has established effective treatments for women with BPD, this is not yet the case for men. Antisocial behavior could impair contact with health care providers, making men with BPD less likely to enter into the health system, be correctly diagnosed with BPD, and come into contact with potentially effective treatments. Instead, they may be more likely to involve substance abuse treatment providers and correctional settings, were they are unlikely to receive BPD-specific treatment.

3 AIMS

3.1 OVERALL AIM OF THE THESIS

The aim of the thesis was to study BPD in men with antisocial behavior in a broad context, by investigating BPD and comorbidity patterns in offenders, exploring the experience of BPD and health care utilization in male psychiatric patients, evaluating a treatment program delivered in routine psychiatric care and examining the effects of a novel preventive program for parents of teenagers. The specific aims of the individual studies are listed below:

3.1.1 Study I

The aim of **Study I** was to estimate the prevalence of BPD in a consecutive sample of adult male offenders on probation or parole in Stockholm, and examine comorbidity patterns, especially regarding ADHD.

3.1.2 Study II

The aim of **Study II** was to investigate how men with BPD and antisocial behaviors experience and describe their difficulties and their experiences of the health care system.

3.1.3 Study III

The aim of **Study III** was to investigate the utility of 12 months treatment with DBT for men with BPD and antisocial behavior, delivered in addition to usual care at two adult psychiatric outpatient units in Stockholm.

3.1.4 Study IV

The aim of **Study IV** was to examine a newly developed indicated prevention program delivered via the Internet to parents of adolescents with externalizing behavior, who experience family conflicts, in a randomized controlled trial.

4 SUMMARY OF STUDIES

4.1 STUDY I

Probation officers informed a total of 436 newly admitted male offenders on probation or parole in Stockholm about the study, and collected informed consent from 109 (25%) willing to participate. Probation officers thereafter administered the *McClean Screening Instrument for BPD* (MSI-BPD) [88], the *Adult ADHD Self Report Scale-Screener (ASRS-S)* [89] and the *Hospital Anxiety and Depression Scale (HADS*) [90]. The MSI-BPD contains 10 items corresponding to the 9 diagnostic criteria of BPD. Items are answered "yes" or "no". We translated the MSI-BPD to Swedish and employed a lower cut-off of 5 yes-rated items, instead of the original 7, to reduce the risk of false negatives. This was done because the instrument had not previously been used in male offender samples. Participants scoring above cut-off on the MSI-BPD were contacted for a diagnostic interview with a clinical psychologist, using Swedish versions of the *Mini International Neuropsychiatric Interview* (M.I.N.I) [91] and the borderline and antisocial personality sections of the *Structured Clinical Interview for DSM-IV Axis II Personality Disorders* (SCID-II) [92]. To complement the initial ASRS-S screening with data on childhood ADHD symptoms, interviewed participants also responded to the *Wender Utah Rating Scale* (WURS) [93]. Of 53 screen-positive men, we were able to conduct 28 interviews. However, data from one of the interviews were not included due to some inconsistencies in the given information. We found no significant differences between those interviewed and screen-positive participants who did not participate in the interview on MSI-BPD, ASRS-S or HADS, but interviewed participants were older (*M*= 35.5 vs. 30.8 years).

BPD was diagnosed in 11 of 27 interviewed men. We assumed that this proportion was representative for all participants screening above cut-off on MSI-BPD (*n*= 53) and ascertained a prevalence estimate in the total sample of 19.8% (95% CI: 12.3%-27.3%). Subjects with BPD met on average 6.4 diagnostic criteria for the disorder, compared with 2.9 for those screening above cut-off but not diagnosed with BPD at the interview. Interviewed participants with BPD had more comorbid mental disorders than interviewed participants without BPD (*M*= 6.2 vs. 3.6). The most common comorbid disorders in those with BPD were ASPD (90.9%), major depressive disorder (81.8%), drug (72.7%) and alcohol (63.6%) dependence disorders, and ADHD (70%). Participants with BPD (*n*= 11) reported substantially more symptoms of ADHD, anxiety and depression on the screening instruments than other participants (*n* =98). The mean ratings of anxiety and depression on HADS of participants who were diagnosed with BPD at the interview were more than two standard deviations above the mean in the Swedish general population [94], and well above cut-offs indicative of anxiety disorders and major depressive disorder [90].

This was the first study we carried out as part of this thesis, and consequently the first time I managed a research project. Recruitment of participants was more difficult and took longer time than anticipated. Being dependent on probation staff to recruit participants and collect data made me appreciate the necessity of understanding an organization, its goals and demands, down to the level of the people involved in the daily work with the clients. For probation staff, whose work sometimes involves stressful and emotionally demanding tasks, the extra assignments added as part of an externally initiated research project could naturally be experienced as stressful. Listening to their experiences was crucial in motivating and problem solving around this. Also of great value was negotiating and resolving issues around the demands of the research project and that of the organization. This was accomplished due to a collaborative attitude of the Swedish Prison and Probation Services, for which I remain grateful.

4.2 STUDY II

Eight men with BPD and a history of at least one prison or probation sentence, or current criminal behaviors, were recruited from **Study III.** They were selected into the study based on BPD-criteria, assessed using the SCID-II [92] as part of eligibility assessment in **Study III**, and age in order to enable a sample with rich variation of experiences of living with BPD. Participants took part in an in depth-interview that took place during the orienting-to-treatment phase preceding the start of full therapy in the clinical trial. They were conducted by a clinical psychologist designated to be the participants' individual therapist, lasted between 58-78 minutes and followed an interview-guide with open ended questions that was centered around their experiences of living with BPD and their experiences of seeking help. The interviews were audio recorded and transcribed verbatim, before we analyzed the data using content analysis [95,96]. The text was condensed, abstracted and labeled with a code. The codes were compared based on similarities and differences and organized into categories and subcategories. This process was done in an iterative process alternating between the categories and the raw text. Trough discussion among the authors, we revised the categories and sub categories until agreement was reached on the meaningfulness of the final set. Finally, a theme cutting across the different categories was formulated based on our interpretation of the underlying meaning of the text.

Data was organized into three categories: **Narrative**, **Powerful emotions** and **The health care system**. Narrative contained the subcategories *Being a victim in the past* (history), *Being a failure with competence* (present), and *Hope and hopelessness* (future). Powerful emotions contained the subcategories *Loss of control* and *Coping with emotio*ns. The health care system was also made up of two subcategories *From denial to insight* and *Wishes and reality*. We identified a superordinate theme, **Struggling to belong.** The men experienced a distressful sense of alienation that set the stage for a cyclical pattern, in which relationships

oscillated between offering comfort and triggering intense and painful emotions that often resulted in extreme behaviors, increasing the probability of rejection. These experiences further strengthened the sense of alienation and longing to belong. This process manifested in close relationships, but also in contact with health care staff, work and society at large. The men also described a contradictory good/bad sense of self, exemplified by statements of self-judgements related to harming others and repeated failures in life contrasted by self-statements of altruism and competence. This good/bad sense of self may differ from the typical self-image of people with BPD, without antisocial behavior. Participants wanted health care staff to devote more time to listen, provide information about their problems, and "tools" to manage emotions but experienced instead an overreliance on medication that often made them feel discarded.

This study enabled me to learn more about qualitative design in research. Data consisted of large amounts of text material, which could be organized in many different ways. While data analysis in the first study was relatively straight forward and aimed at producing "correct" estimates, analyzing the data in this study was a lot more time consuming and complex. Quite a few different versions of categories and subcategories were produced and revised in discussion with my main supervisor. Deciding on the final categories, subcategories and theme was somewhat difficult and required me to challenge the idea of arriving at the one "correct" result. Also, writing the manuscript in a way that enabled the reader to understand the results and the way we arrived at those results, with "just right" level of details, took some time and was a good learning experience.

4.3 STUDY III

We recruited 30 adult men with BPD and a history of at least one prison or probation sentence, or current criminal behaviors, from psychiatric and probation services in Stockholm. Current criminal behaviors were defined as one or more self-reported criminal offences the past 12 months, that could have rendered a prison or probation sentence. After securing permission from participants, we contacted 22 relatives who consented to contribute study data. Participants were offered one year of treatment with DBT, with individual therapy sessions, group skills training and as-needed telephone coaching of skills between sessions. Based on our previous clinical experience, we delivered the group skills training at half the pace suggested in the original manual and incorporated a module for teaching validation skills. Validation can be defined as communicating legitimacy and acceptance of the experience of others [27]. The study was conducted using within-group

design with repeated measurements, pre, mid and post treatment. Treatment-completers were assessed again, at six and twelve months follow-up. Primary outcomes were self-reported dysfunctional behaviors, including suicide attempts, self-harm, criminal offending and interpersonal violence. Secondary outcomes included general aggression and rule-breaking behaviors, BPD symptoms, depression, anxiety, substance use related problems and satisfaction with treatment. Primary outcomes were measured trough retrospectively reported data collected via an adapted version of the Timeline Follow-Back Interview (TLFB) [97] and prospectively using diary cards. A researcher not involved in the participants' treatment conducted the TLFB-interviews. Diary cards are an integral part of DBT and they were collected weekly by the individual therapist at the start of the therapy session. Secondary outcomes were measured using self and relative report questionnaires: the *Adult Self-Report* and the corresponding *Adult Behavior Checklist* for relatives [98], the *Beck Depression Inventory-II* [99], the *Beck Anxiety Inventory* [100], the *Alcohol Use Disorders Identification Test* [101], the *Drug Use Disorders Identification Test* [102], the *Karolinska Affective and Borderline Symptom Scale* [103], and the *Dialectical behavior therapy, post-treatment evaluation* [104].

Generalized Linear Mixed Modeling (GLMM) yielded statistically significant reductions from pre to post treatment for many of the primary outcomes: retrospectively reported number of days with self-harm, property offending and violent offending measured with TLFB, as well as diary card recorded number of days with physical aggression, verbal aggression, non-violent offending, and other self-destructive behaviors (interfering with long term goals, without falling into one of the other categories). There was no significant reduction of suicide attempts, possibly due to insufficient statistical power, or drug and alcohol use. GLMM-estimated rate ratios suggested moderately strong effects (RR= 0.17-0.39). We also found medium to large, statistically significant, reductions from pre to post treatment of self and relative reported general aggression and rule-breaking, BPD symptoms and depressive symptoms. We found no significant reductions of anxiety, and again no reductions of alcohol or drug related problems (measured using the AUDIT and the DUDIT). The dropout rate was 30% and completing participants reported high satisfaction with treatment and maintained their improvements during the one-year follow-up period.

Project managing this study was a fantastic learning opportunity and I believe it contributed to an enhanced understanding of the complexity involved in running long trials in a clinical setting. Striving for high internal validity of the study while adhering to good clinical practice was an ongoing theme during recruitment and data collection. This was exemplified by me trying to balance the role as researcher with that of being one of the therapists. BPD as a disabling condition and many of the participants led chaotic lives, sometimes with intense suffering. Naturally, filling out questionnaires was not always top priority for them. Being considerate, respectful, and (sometimes very) persistent was key. Developing a relationship with the participants was inevitable, and we put a lot of effort into trying to collect data in a manner that minimized the influence of this relationship. However, as the follow-up measurements were conducted it became apparent to me that without this relationship we would not have ended up with nearly as complete data. This experience made me think a little bit differently about design choices, seeing that specific features of a study can be both a limitation and a strength.

4.4 STUDY IV

We recruited parents of adolescents aged 12-18 years (41% boys) who reported distressing parent-youth conflicts and clinical or subclinical levels of externalizing behavior in their adolescents. A total of 75 families were included, 32 were randomized to an 8-week waitlist control and 43 to receive the intervention directly. The parent-web intervention was comprised of an introduction and goal setting module, followed by five working modules, and six short non-mandatory bonus sections addressing different specific problem areas available upon family need. Each module was made up of written text, illustrations and short movies, and contained exercises and homework. Primary outcomes were adolescent externalizing behavior measured using the Disruptive Disorder Rating Scale (DBD) [105] and the Strenghts and Difficulties Questionnaire (SDQ) [106], family conflicts and family warmth measured with the Family Check Up Caregiver Assessment Scale [107]. Secondary outcomes were adolescent emotional symptoms, peer problems, hyperactivity/inattention and prosocial behavior, and callous and unemotional traits, parenting strategies and parent psychological health. Secondary outcomes were measured using the following questionnaires: the *Strenghts and Difficulties Questionnaire* (SDQ), *the Inventory of Callous and Unemotional Traits* (ICU) [108], the *Alabama Parenting Questionnaire short form* (APQ-9) [109], the *Perceived Stress Scale* (PSS) [110], HADS [90], and the *Affective Style Questionnaire* (ASQ) [111] Outcomes were assessed pre and post intervention and consisted of parent-reported data. Those randomized to receive the intervention directly were also assessed at 6-9 months following the intervention.

Through analyses with Generalized Linear Mixed Model regressions (GLMM) we found that parents randomized to receive the intervention improved significantly more from pre to post assessments on adolescent externalizing behavior, family conflicts and family warmth. Effect sizes were moderate (Cohen's *d*= 0,48- 0.79). The waitlist group showed deterioration of teenager externalizing behavior, while those receiving the Parent-Web did not. Also, receiving the Parent-Webb was associated with more improvements in adolescent emotional symptoms and peer problems, as well as parental stress and depression. These effect sizes were small to moderate (Cohen's *d*= 0.41- 0.61). The changes over time in parental stress and depression resembled those of adolescent externalizing behavior in that the waitlist group deteriorated while those receiving the intervention improved slightly. However, no differences regarding parental behaviors were observed. Moderator analyses indicated that girls in the intervention group reduced their behavior problems and family conflicts more than boys. Also, high levels of pre treatment conduct problems were associated with greater improvements on externalizing behavior for those randomized to the Parent-Web. Participants reported high satisfaction with the program and those receiving the intervention directly maintained their post treatment results on primary outcomes at the follow up assessment.

This study enabled me to learn about internet-delivered interventions and studies employing a randomized design. As my clinical work, and previous research, has been exclusively with adults, the study also required me to learn more about the development of BPD and antisocial behavior and about preventive programs targeting externalizing behavior in children and adolescents. In contrast to the other studies, I did not initially project manage around the development of the intervention, design-questions and data collection but participated and contributed in this work as a member of the research team. Over time however, I became more involved with the project, particularly regarding data-analyses and the writing of the manuscript. I believe that having somewhat different roles in this project helped me to develop my capacity to collaborate in research projects, and my confidence in doing so also when the project is not completely within my initial field of expertise.

4.5 ETHICAL CONSIDERATIONS

All studies were approved by the regional ethical review board in Stockholm. In **Study I**, ethical considerations were centered around two topics: the risk of participants/eligible participants believing that their contact with the Prison and Probation Services would be affected by their choice regarding participation, and adverse experiences as a result of the

diagnostic interview. We educated probation staff regarding how to inform eligible participants in accordance with the ethical guidelines of the Helsinki declaration, and provided written information about this to probation staff and participants. No information about participants was fed back to the probation staff. The interviews were conducted by a clinical psychologist with extensive experience in psychiatric management. When participants were diagnosed with any mental disorder, there was time to discuss this. Sometimes participants were aided to come in to contact with community psychiatric services. No participant reported experiencing the interview situation as aversive.

In **Study II**, ethical considerations included assuring that participants/eligible participants understood that their choice regarding participation would not affect their treatment at the clinic. Again, participants were informed about this orally and in writing. Also, consideration was taken to ensure that the interview was not aversive. This was probably aided by the fact that the interviews were conducted with a clinical psychologist designated to be their individual therapist in the trial, as this setup meant that interviewee and interviewer had already established a good working alliance. No participant reported that the interview situation was aversive. Participants provided descriptions about highly sensitive and private experiences, and the choice not to include direct quotations in the manuscript was partly due to ethical considerations.

In **Study III**, ethical considerations included assuring that participation in the trial did not result in less than optimal psychiatric management. This could include making sure that participants were referred to substance abuse treatment providers, or that they had regular appointments with their treating psychiatrist. Also, data collection was conducted so as to not interfere with psychiatric management. When assessed for outcomes, participants were expected to disclose sensitive and private material. Great care was taken to collect this information in a considerate manner, guaranteeing the confidentiality of the information. However, certain information would require clinicians to report to relevant authorities. For example, information regarding child abuse. Participants were informed about these exceptions to the rule of confidentiality both orally, and in writing, before consenting to participate. Participants were recruited to the study from the whole Stockholm region. After the DBT, participants either continued their contact with the clinic where they had received DBT, or were referred to another clinic if they preferred.

In **Study IV**, ethical considerations included assuring that the web portal used was secure and functioned reliably. Also, family guides were designated to offer support and answer questions from participants. These family guides were educated on how to perform this function and supervised by an experienced psychologist.

5 DISCUSSION

We studied BPD and its correlates in a sample of adult male offenders on probation, explored the experiences of men with BPD and antisocial behavior before entering treatment, investigated the utility of DBT for men with these problems, and evaluated an internet-delivered training program for parents of adolescents at risk of developing BPD-traits and antisocial behavior. In the following section, the results will be discussed considering relevant literature, the strengths and weaknesses of the individual studies, as well as similarities and differences across the studies.

5.1 MAIN FINDINGS, STRENGTHS AND LIMITATIONS

5.1.1 Study I

In **Study I** we estimated a prevalence rate of BPD in male probationers/parolees of 19.8%. This is similar to the 20% reported by Pluck and colleagues [112], in one of few published reports on BPD in probationers. It is also similar to studies of prison inmates, using similar design [113 114]. Although Sweden may have comparatively more offenders on probation/parole than some countries, the similarities of prevalence rates among probationers and prisoners suggest that the main findings are likely generalizable also to other comparable countries. Taken together, the results imply that BPD may be ten times more common among male offenders on probation than in the general population [2]. The BPD-rate in our study is comparable to the 15%- 25% that have been reported in psychiatric inpatient samples [19]. The high comorbidity rates are also similar to findings from psychiatric samples, with major depression and substance use disorders being among the most common co-occurring disorders in people with BPD [41]. Some of the comorbid disorders that were common in participants with BPD are particularly associated with criminal recidivism. Most notably, the comorbidity with ASPD was 91%. This is a key finding given the severe outcomes associated with this pattern of comorbidity [53,54]. BPD-participants had substantially more comorbid disorders and psychiatric symptoms than other participants in our sample. This would suggest that men with BPD are burdened by mental illness in a way that stands out, even in offender populations were the prevalence of mental illness is notoriously high [115]. Although higher compared with the study by Pluck and colleagues [112], the most important limitation of the study was the low (25%) client participation rate. Also, as only slightly more than half of the planned diagnostic interviews were conducted, few participants were diagnosed with BPD (n= 11) leading to rather imprecise estimates of prevalence and comorbidity. Thus, some caution is required when interpreting the main findings. The major strength of this study was that we used subject-completed screening followed by established diagnostic interviews by an experienced psychologist, rather than relied on information from probation officers, criminal justice or mental health records, which is often the case in studies of mental illness among probationers [116].

5.1.2 Study II

In **Study II** we found that the participants experienced a distressing sense of alienation and struggled to belong in different relational contexts. Persistent loneliness has been identified as an important feature of BPD in women. Unfortunately, this experience may be particularly hard to change [117,118]. The men in this study reported many adverse experiences from childhood and adolescence. In line with the literature on environmental risk factors for BPD in men [58,60], both childhood sexual abuse and bully victimization was reported by participants. Also, many participants described experiencing intense and painful emotions, including anxiety, anger, sadness and shame. They experienced no control over emotions and subsequent emotion-driven behavior, and many identified this lack control as their most disabling problem. This is in accordance with the assumption of a general deficit in emotion regulation as a key factor driving suicidal and violent behavior in people with BPD [46]. Previous studies employing a qualitative interview design have described the self-image of people with BPD as altruistic and suffering, only seeing aggressive tendencies in other persons [119]. In contrast, while the men in **Study II** described being victims, they also acknowledged the fact that they were often in the role of aggressor. They experienced a sense of failure, but also a sense of being better than others in some areas. This contradictory good/bad sense of self may be particularly prominent in men with BPD and antisocial behavior. There was consensus in the sample that health care providers relied too much on medication as a treatment alternative. A perceived overreliance on medication by patients with BPD has been identified in previous qualitative studies [80,120]. The men in Study III were in agreement about wanting to be listened to, understood and receive warm and caring responses from staff. Due to ethical considerations, we did not include any direct quotes in the manuscript. This is a limitation, as it prevents the reader from examining at least some of the data on which we base our conclusions. Another limitation is the fact that participants were selected from a clinical trial, influencing the generalizability of the findings. A strength of the study is the use of an interview format with open ended questions, enabling rich qualitative data.

5.1.3 Study III

In **Study III** we found moderately strong reductions of many dysfunctional behaviors after 12 months treatment with DBT. Self-destructive behaviors decreased across measures of retrospectively reported days with self-harm (TLFB), diary card days with self-harm and diary card days with other self-destructive behaviors. The reduction of the proportion of participants reporting self-harm, and the decreased rate of days with self-harm, was similar to that reported for women receiving DBT in two previous randomized trials [121,122]. Aggressive and violent behaviors were reduced across a variety of measures, as were non-violent offending and general rule breaking. Importantly, self-reported improvements in aggressive

and rule-breaking behavior were validated by relatives reporting similar improvements. Also, as relatives are often the target of violent and aggressive behaviors of people with BPD [6], the reduced aggression reported by the relatives in the study is an indication of the beneficial effects of potentially effective treatment, beyond those gained by the afflicted men with BPD/ASPD themselves. Symptoms of BPD and depression were substantially reduced but that was not the case for anxiety, substance use or suicide attempts. The study was likely underpowered to detect differences in suicide attempts, and possibly also regarding substance use. Importantly, evidenced by the fact that 75% of the sample had comorbid BPD/ASPD, the intervention reached men who are at risk of many severe outcomes [53,54]. The drop-out rate was similar to what is typically found in offender treatment programs and studies of DBT for women [123,124]. The most important limitation of the study is the lack of a control group, making inferences about the causes of the observed changes impossible. The sample size is rather small and quite many statistical analyses increase the risk of type I errors. The study findings are supported by the notable consistency across different measures of similar outcomes. In fact, we consider the employment of different techniques to measure behavioral outcomes a strength of this design. Another advantage is that outcomes included actual antisocial behavior, rather than process measures (e.g. anger and hostility). That exclusion criteria were few, and DBT was delivered in routine psychiatric context by therapists with no prior training in working specifically with this population is a perhaps the most important strength, as this improved generalizability of the findings to the clinical context were an intervention like this could be delivered.

5.1.4 Study IV

In **Study IV** we found that 74% of parents completed all five modules and evaluated the program as useful and easy to work with. The program was associated with moderate effects on externalizing behavior and family conflicts, similar to other international evaluations of programs for parents of adolescents [65,125]. It was also associated with large improvements of family warmth. The effect on externalizing behavior corresponded to small reductions of problem behaviors in the intervention group and a reported deterioration in the waitlist group. Thus, rather than reducing these behaviors per se, the program may protect against further worsening of problems by interrupting an adverse development. The effect of the Parent-Web on externalizing behavior and family conflicts was greater for girls than for boys. However, girls showed more externalizing behavior and had more family conflicts at the pretreatment assessment. Thus, the difference in effect could be due to parents of girls implementing strategies differently, the strategies working better for girls, or girls improving more as a result of them having more problems initially. For those randomized to the Parent-Web, the results on primary outcomes were maintained during the 6-9 months following the intervention. Parents in the Parent-Web group also reported improvements in adolescent emotional symptoms, while those on the waitlist did not. Being on the waitlist was also associated with deterioration of peer problems, while this was not the case in the intervention

group. For parents, the Parent-Web seemed to protect against depressive symptoms and stress. However, the Parent-Web did not improve parenting strategies, contrary to the theoretical assumptions underpinning this and similar parent training programs. However, this pattern of results (i.e. effects on externalizing behavior and parental health, but not on parental strategies) is far from unique [65,126], pointing to the need for further studies of mechanisms of change in parent training programs. Perhaps the instrument used to measure parental strategies does not capture important behaviors with sufficient detail. The major limitation of the study is the use of parent-report as single source of outcome data. In future studies, it would be wise to include other sources of data, for example from the youths themselves or teachers. Also, investigating a broad range of outcomes, while informative, resulted in many statistical analyses increasing the risk of type-I errors. The randomized design is a strength of the current study, as is the use of follow-up assessments of primary outcomes.

5.2 CHARACTERISTICS OF THE SAMPLES

5.2.1 the BPD-samples

Studies I, **II** and **III** was conducted with adult samples. While **Study I** included clients of the Swedish Prison and Probation Services, the samples in **Study II** and **III** were mainly comprised of psychiatric patients. As nearly identical procedures were used for diagnosing BPD and comorbid disorders in these studies, combining the samples allow for some rudimentary comparisons. This combined sample includes 11 participants diagnosed with BPD from **Study I** and 28 participants with BPD who completed the eligibility assessments as part of **Study III**. Overall, the samples were similar, but those in the offender sample had more comorbid disorders compared with those in the psychiatric sample (M= 6.3 vs. M= 4.6; $t(38)$= 2.37, p= .02). Drug dependence disorder (72.7% vs. 29.6%; $\chi^2(1)$= 5.96, p= .015) and alcohol dependence disorder (M= 63.6% vs. M= 25.9%; $\chi^2(1)$= 4.78, p=.03) were more common in the offender sample. There was a trend for participants in the offender sample with BPD to endorse somewhat fewer diagnostic criteria for the disorder than those in the psychiatric sample (M= 6.4 vs. M= 7.2; $t(38)$= -2.01, p= .052). In the combined sample (n= 39), participants met on average 7.0 diagnostic criteria for BPD (SD= 1.28). The most frequently endorsed criteria were affective instability (97.5%), inappropriate anger (92.5%), impulsivity (87.5%), and unstable and intense relationships (87.5%). Transient paranoia/dissociative symptoms was the least frequently endorsed criteria (45%). The four most common criteria in our sample were also the four most commonly met by both men and women with BPD in a study by Johnson and colleauges [35], and three of these criteria were among the top four endorsed by men and women in Hoertel and colleauges [127]. This implies that the men with antisocial behavior in this thesis may not differ significantly from other BPD-patients regarding areas of impairment related to this disorder.

In the combined sample, 81.1% of participants with BPD had ASPD (91% in the offender sample and 75% in the psychiatric sample). Participants (*n*= 39) met on average 4.1 diagnostic criteria for ASPD (SD= 1.81), and there were no significant differences between the two sub samples regarding the number of fulfilled criteria. The most frequently endorsed criteria were impulsivity (91.9%), failure to conform to social norms manifested in repeated illegal acts (83.8%), irritability and aggressiveness (67.6%), and disregard for the safety of self or others (67.6%). Lack of remorse was the least frequently endorsed criteria (21.6%).

The overlap of clinical problems represented by the most frequently endorsed criteria for the two disorders in the sample (e.g. aggression and impulsivity), fits well with the literature suggesting these two disorders share many clinical features (e.g. [46]). Most researchers studying ASPD have identified considerable heterogeneity among those diagnosed [45]. Attempting to identify more homogenous subgroups, some have argued that those with ASPD can be classified as having more or less psychopathic traits [128] [45]. Although not included as a diagnose in DSM-5, psychopathy as a construct is common in forensic research and describes an individual with many of the features of ASPD but also displaying certain interpersonal and affective characteristics, including superficial charm, manipulation, shallow affect and callousness. There is growing evidence that ASPD and psychopathy, although overlapping, have different epidemiological and etiological features. Glenn and colleagues [45] review this evidence, including brain imaging studies, and argued that these subgroups are characterized by distinct neurobiological processes. Interestingly, in one study investigating differences in brain structure, Bertsch and colleagues [129] compared subjects with ASPD and BPD, to subjects with ASPD and high psychopathic traits. There was remarkably little overlap in the regional distribution of brain abnormalities in the two ASPD-groups, when compared with the healthy controls. The authors thus concluded that there may be prominent differences in the pathology of these two ASPD-groups, although cautioning that their findings should be considered preliminary [129]. Against this body of literature, and considering the pattern of endorsed diagnostic criteria, the men with BPD and antisocial behavior included in this thesis fit rather well with the larger subgroup of antisocial individuals, not displaying significant psychopathic traits. Rather than characterized by shallow affect, they appear to display severe and chronic emotion dysregulation. Further, participants in **Study II** reported experiencing feelings of guilt and remorse in relation to hurting loved ones, not typical of the callousness associated with psychopathy.

Violent behavior was common in the adult samples. For example, two thirds of the combined sample endorsed the ASPD-criteria of aggressiveness manifested in repeated physical fights, and 54% in **Study III** reported having committed a violent offence in the six months preceding the trial. Self-harming and suicidal behavior was also common, with 80% in the combined sample endorsing the BPD-criteria of repeated suicidal or self-mutilating behavior and 50% in **Study III** reported self-harming behavior in the six months before start of treatment. The co-occurrence of violent and self-harming or suicidal behavior is not unique to this sample. This association has been noted in people with BPD in both clinical [53,130], and forensic samples [131], and more generally among those with self-harm [132]. Also, both samples

rated symptoms of depression and anxiety well above clinical cut-offs. For example, in **Study III**, the average pre treatment BDI-II score was indicative of severe depression [99], and the corresponding BAI score was similar to what has been reported for people with obsessive compulsive disorder, and higher than what has been found in people with social anxiety syndrome and generalized anxiety disorder [100]. Thus, the men included in this thesis appeared to suffer markedly from both externalizing and internalizing ill health, a pattern also typical found in people with BPD [13,19].

5.2.2 The parent-sample

The sample in **Study IV** was comprised of parents of adolescent girls and boys. As the intervention evaluated was a preventive program, we intended to recruit parents of teenagers with sub-clinical levels of conduct problems. The boys were on average 14 years old, and at the pretreatment assessment, the parents reported a mean score of 2.0 on the SDQ-conduct problems subscale and 1.9 on the SDQ-emotional problems subscale. These ratings are indicative of sub-clinical levels of conduct problems and emotional problems, corresponding approximately to the 80th percentile according to Swedish norm data [133,134]. There were no significant differences between the girls and boys regarding age, or pre treatment levels of conduct or emotional problems. The pre treatment level of parent-adolescent conflicts were also similar for boys and girls. No instrument specifically measuring BPD-symptoms were administered, preventing conclusions about the existence of these symptoms among the adolescent children of the parents in the sample. However, combined internalizing and externalizing pathology has been associated with development of BPD in previous research (e.g. [67]). Accordingly, adult participants in **Study II** reported early onset of both emotional problems, such as anxiety and depressive ruminations, and conduct problems, including violence and alcohol or drug use. However, unlike the adolescents in the parent sample 97% of the adult men with BPD in this thesis was retrospectively found to have met diagnostic criteria for conduct disorder. In conclusion, although the adolescents of the parents included in **Study IV** may be at risk of developing BPD-traits and antisocial behavior, they are perhaps less likely to develop the full constellation of BPD/ASPD comorbidity evidenced in the other samples included in this thesis.

5.3 IMPLICATIONS FOR RESEARCHERS AND CLINICIANS

The findings from **Study I** suggest that correctional systems may benefit from improved identification of individuals with BPD, as this disorder may be associated with severe mental ill health known to affect recidivism risk, as well as self-harming and suicidal behavior in offenders [56,131]. To achieve this, developing reliable methods for identification of BPD in correctional settings is an area requiring development. We translated the MSI-BPD, a short screening instrument based on DSM-criteria, and performed a rudimentary investigation of its' psychometric properties in the sample. The original cut-off is 7 (of 10) items rated "yes",

but we chose a lower cut-off of 5 items. We did so because the instrument had not been previously used in a sample of male offenders. However, only 2 of 13 participants (15%) scoring 5 or 6 met criteria for BPD at the diagnostic interview, while the corresponding proportion for those scoring above the original cut-off was 9 of 14 (64%). Through analyses using Receiver Operating Characteristics, we identified an optimal cut-off at 6.5. Sensitivity (.82) and specificity (.69) were adequate, suggesting that the instrument may work well in offender populations with its original cut-off. However, these evaluations of the psychometric properties are to be considered exploratory. As we did not interview participants scoring below 5, we did not include any of this information in the manuscript. In conclusion, the MSI-BPD could be one alternative worth considering in research on effective identification of BPD in offenders.

Correctional services may also want to consider improved management and care of male clients with BPD. This could amount to different actions, such as education of staff, development of risk assessment protocols, and improved collaboration with community based psychiatric services. The findings in **Study II** underscore the importance of establishing a good and collaborative relationship with these individuals, which may be particularly challenging in correctional settings. Validation, communicating the legitimacy of the thoughts and emotions of others, is central in DBT [27] and may be helpful also in this context. Unfortunately, there is limited evidence that shorter treatments that do not address core BPD pathology are effective in helping people with BPD reduce dysfunctional behaviors [25,135]. Thus, although there are treatment programs shown to reduce the risk of reoffending by targeting criminogenic risk factors (e.g. substance abuse) [136,137], men with BPD may be less likely to benefit from them. Indeed, noting that ASPD predict dropout from offender treatment programs Olver and colleagues [124] conclude that those in most need of these programs are also the least likely to complete them. Although various adapted versions of DBT have been implemented in correctional and forensic settings, the empirical evidence supporting their effect is limited [87]. Perhaps correctional services, particularly outpatient ones, would benefit from focusing on enhancing continua-of-care with community based mental health care services, were clients are more likely to receive BPD-specific treatment. Research on effective management and treatment of offenders with BPD in correctional settings is an important area of future studies.

Hopefully, the findings from **Study II** may aid clinicians in identifying BPD related pathology in men with antisocial behavior when they appear in mental health settings. In assessment, it may be wise to specifically examine internalizing problems in addition to the often more salient externalizing behaviors of these men. Although the topics covered by the men often centered around typical BPD-features, such as relationship problems, a general tendency of dysregulated emotion, impulsive and self-destructive behaviors, aggression, and identity disturbance, the manifestation of these features may differ somewhat from the typical BPD patient. It has been suggested that repeated suicidal or self-harming behavior is the most useful criteria for a correct diagnosis of BPD [127]. Gender differences in self-harming behavior of BPD-patients has hardly been studied. Sansone and colleagues [39] compared different types

of self-harming behaviors in 18 men and 43 women with BPD and found nearly identical patterns. Men were more likely to report banging ones head on purpose (56% vs. 24%), but no differences were found for any other type of self-harming behavior. In **study II**, some of the self-harming behaviors reported by participants may be more readily categorized as self-harm, by both clinicians and patients, than others. For example, cutting and burning oneself may fit better with preconceived notions of self-harm than smashing ones hand into hard surfaces or starting a fight with the intention of being beaten up. In assessment, clinicians may benefit by specifically addressing different types of self-harming behavior, including types mentioned above. For researchers, studying self-harming behavior in men with BPD and antisocial behavior should be prioritized, as this is a central clinical feature of BPD. Loneliness, and related topics, could also be an interesting area for future studies. Specifically, it would be valuable to examine what factors influence this experience in men. This could potentially lead to the development of more effective treatment interventions. The findings in this study highlight the importance of health care staff establishing a warm and therapeutic relationship with men suffering from BPD and antisocial behavior. These patients may be particularly sensitive to criticism and signs of rejection, while exhibiting a lack of behavioral control that could make them extra likely to receive it. Many participants believed that lack of time contributed to health care staff not listening enough to their experiences, and relying too much on medication. The participants themselves also engaged in behaviors that hindered effective health care utilization, including lack of compliance with treatment. Again, validation could be a useful communicative strategy for health care staff when encountering these men. The treatment preferences of the men in **Study II** were clearly that of less pharmacotherapy and more psychotherapy. Albeit biased by the fact that the participants were in the process of starting psychological treatment, it is worth noticing that there is agreement among policy makers that psychotherapy should be the primary treatment for women with BPD (see for example the NICE guidelines and [25]).

The results from **Study III** suggest that DBT could be an alternative for clinicians to consider for men with BPD and antisocial behavior. In the second edition of the skills training manual (published after the start of the trial), there is a modified program for treatment of co-occurring substance abuse and BPD [138]. It may be wise to incorporate this program to more effectively target these problems, common in men with BPD. Although many of the adverse outcomes in the study were reduced during treatment, anxiety was not. In DBT, targets in treatment are prioritized according to a predetermined hierarchy. Behaviors that pose an imminent danger to the participant or others are prioritized first, followed by treatment-interfering-behaviors, and other quality-of-life-interfering problems. Perhaps longer treatment times are required to effectively treat comorbid anxiety disorders?

Future studies using a randomized design are necessary to determine the effect of DBT for men with BPD and antisocial behavior. Two somewhat different approaches could be used when choosing about the design of such a study. One focuses on high internal validity necessary to firmly determine the causes of any observed changes. In such a study, DBT would be compared to a control intervention resembling it regarding potentially confounding

variables, such as amount of therapist contact, length of treatment, mode or treatment, etc (sometimes called psychological placebo). However, for decision makers in clinical settings the result of such a study may be difficult to interpret, and fail to provide information relevant in deciding on implementing new treatments. As no clinics offer psychological placebo (at least not intentionally), it may be more relevant for decision makers to learn if the new treatment outperforms the current treatment of choice in the setting were the treatment is intended to be delivered. Studies designed with this in mind are sometimes referred to as pragmatic trials [139]. When DBT has been compared to active control groups, the average effects are smaller than when it has been compared to treatment as usual [25,26]. As there are no empirically supported treatments for men with BPD and antisocial behaviors to compare DBT with, and as this group may be unlikely to receive long and intensive psychological treatment in current clinical practice, one potential risk of a trial focusing on high internal validity is the construction of a comparison group that bears little resemblance to clinical practice. If such a study would yield small, or nonsignificant, between group effects it could implicate that treatment is not effective, without knowing if it outperforms treatment as usual. Clearly, designing a randomized trial for men with BPD and antisocial behavior carries with it is a responsibility, as the implications of such a trial can be very important for this group.

Regardless of these design choices, inclusion of outcome data from other sources than participants and relatives could perhaps be useful (e.g. emergency room visits/inpatient days from health care records, reoffending from police records). Also, including quality of life related outcomes, functional outcomes and economic outcomes would yield valuable information about the utility of DBT. Historically, these outcomes have been less studied in DBT-research but recent reports show promising results [140] [141,142]. Our study was not sufficiently powered to perform subgroup analyzes. In a larger trial, this could be done to investigate potential predictors of treatment outcome, which could contribute valuable information and enable tailoring the treatment to the need of patients. Another interesting area for future research, requiring high internal validity, is investigation of the proposed mechanisms of change. DBT is assumed to exert its' effect through the teaching of skills that enhance emotion regulation and interpersonal effectiveness. However, although some empirical support of this model have emerged recently [143], it needs to be further studied. Also, it is unclear which components of DBT that are necessary to produce effects in people with BPD [144]. In short, much like the status of psychotherapy research in general, there is robust evidence that DBT is effective (for women with BPD) but we do not know how it produces those effects. Increased knowledge on these topics, could result in more effective treatment, which is urgently needed as DBT in its current form is very extensive. Another interesting research endeavor would be to compare treatment outcome in men and women with BPD directly.

The findings from **Study IV** add to the growing literature on the utility of the Internet in delivering psychological interventions. Working through a mostly self-directed program, with limited possibility of individualization could result in reduced compliance and increased dropout rates. It was therefore encouraging that 74% of participants completed the full

program, and experienced it as useful. Advantages of delivering this program through the internet include the possibility for participants to work autonomously, when they have the time, and they may also go back and forth between different modules depending on needs. The main advantage of the internet is naturally the possibility to reach families that might not otherwise come in contact with parent training programs. For families with an adolescent exhibiting sub-clinical levels of behavioral problems, it may be difficult to access therapist delivered interventions due to limited resources of the mental health system and social services. Another barrier could be that parents are hesitant to ask for help, due to shame and stigma. Considering the risk factors and developmental trajectories associated with BPD and ASPD, it could be assumed that many of those that develop comorbid BPD/ASPD in adulthood exhibit more severe levels of conduct problems in childhood/adolescence. The heritability estimates of these disorders suggest that many parents of these children/adolescents may also be burdened by significant mental ill health. Although this would suggest an increased need of therapist contact, these families may be particularly hesitant to ask for help. Thus, adapting an internet-delivered program to families exhibiting more mental ill health could be an important venue for future research. Also interesting would be to study the potential added benefit of including teenagers together with parents as recipients of an internet-delivered program. Specifically measuring BPD-traits, in addition to outcomes more commonly assessed in evaluations of parent management programs, could be informative.

Similarly to what was discussed in relation to **Study III**, another important area for future research is investigation of the mechanisms of change in parent training programs. While we found effects on parent rated adolescent problems and some aspects of parental health, no effects were found regarding parental strategies. If parents are not parenting differently, how do their adolescents improve? Are the improvements of parental health (stress and depression) causing improvements in adolescents? Or is it the other way around? In a meta-analysis by Forehand, Lafko [126] found that parenting only mediated outcomes in 45% of the studies. If this is due to methodological problems (i.e. not adequately measuring the critical parental behaviors) or simply because other factors than parenting (i.e. parental psychological health) is more important, requires further examination. The use of the Internet enables continuous measurement of potentially mediating variables, and could thus enable high quality research on these issues.

In summary, there may be a need for research on improved identification and management of BPD in offenders. Professionals helping these men may benefit from increased focus on developing a good working relationship before deciding on interventions. There is also a need to broadly study self-harming behavior in this group, and further investigation of loneliness and related topics may provide useful information. To conduct well designed trials of potentially effective treatments and preventive interventions, also investigating the processes by which they produce change, should be prioritized by researchers.

5.4 CONCLUSIONS

BPD affected one fifth of probationers and was related to serious mental ill-health known to increase risk of criminal recidivism and suicide. The findings suggest the need to study possible benefits of improved identification and treatment of BPD in offender populations. Male psychiatric patients with BPD and antisocial behavior experience a distressing sense of alienation, that increases the likelihood of intense emotional responses and dysregulated behavior in the presence of signs of rejection, also in relation to health care providers. The findings underscore the need for health care staff to establish a warm and therapeutic relationship, and for researchers to study the concept of loneliness in men with BPD and antisocial behavior. There is preliminary evidence of the utility of outpatient Dialectical behavior therapy in reducing a wide range of dysfunctional behaviors and improving mental health in men with BPD and antisocial behavior. These promising initial findings suggest that future trials with a randomized design should be prioritized. A novel internet delivered parent-training program, called the Parent-Web, shows promising outcomes in terms of interrupting adverse development of externalizing behavior in adolescents, and reducing conflicts and increasing warmth in the families. Future examination of potential mediators of change may help in developing more effective interventions.

6 SVENSK SAMMANFATTNING

Bakgrund: Borderline personlighetssyndrom (BPS) kännetecknas av ett ihållande mönster av emotionell instabilitet, impulsivitet, relationsproblem och identitetsstörning. Eftersom syndromet har ansetts vanligare hos kvinnor, har forskning om män med BPS varit eftersatt. Förutom de suicidala och självskadande beteenden som är förknippade med diagnosen, uppvisar en stor andel män med BPS också antisociala beteenden.

Syfte:

- att uppskatta förekomsten av BPS i ett urval av manliga brottsdömda i frivård i Stockholm och undersöka psykiatrisk samsjuklighet (**Studie I**).
- att utforska hur men med BPS och antisociala beteenden beskriver sina svårigheter och sina erfarenheter av sjukvården (**Studie II**).
- att undersöka nyttan av 12 månaders behandling med Dialektisk beteendeterapi (DBT) för män med BPS och antisociala beteenden (**Studie III**).
- att utvärdera ett nytt internetbaserat preventivt program för föräldrar till tonåringar med risk för att utveckla drag av BPS och/eller antisociala beteenden (**Studie IV**).

Metoder: Vi screenade 109 brottsdömda i frivård för BPS och intervjuade de som svarade över cut-off (**Studie I**). Vi intervjuade 8 män och analyserade data genom kvalitativ innehållsanalys (**Studie II**). Trettio män erbjöds DBT i en studie med inomgruppsdesign med upprepade mätningar av olika dysfunktionella beteenden (**Studie III**). Vi randomiserade föräldrar till att genomgå ett föräldrastödsprogram direkt (n= 43) eller till en vänteliste-kontroll (n= 32) och jämförde grupperna med avseende på utagerande beteenden hos tonåringarna samt konflikter och värme i familjerna (**Studie IV**).

Resultat: 19.8% av manliga brottsdömda i frivård uppskattades ha BPS och detta var förknippad med allvarlig psykisk ohälsa. Manliga psykiatriska patienter med BPS och antisociala beteenden beskrev en plågsam upplevelse av utanförskap och upplevde svårigheter med att få tillgång till sjukvårdsinsatser. Efter DBT hade deltagarna minskat de flesta av de dysfunktionella beteenden som undersöktes. De som fullföljde behandlingen (n= 19) rapporterade hög tillfredsställelse med densamma och vidmakthöll sina framsteg ett år senare. Föräldrastödsprogrammet var förknippat med minskad negativ utveckling av utagerande beteendeproblem hos tonåringarna samt förbättringar av konflikter och värme i familjerna.

Slutsatser: BPS kan vara 10 ggr vanligare hos manliga brottsdömda i frivård än i den allmänna befolkningen. Även om män med BPS och antisociala beteenden kan ha svårt att utnyttja psykiatrisk vård, tyder preliminära fynd på att DBT kan vara en behandling värd att beakta. Ett kort internetbaserat föräldrastödsprogram kan minska riskfaktorer förknippade med utveckling av BPS och antisociala beteenden hos tonåringar.

7 ACKNOWLEDGEMENTS

In the following section, I will try to extend my warmest gratitude to all you wonderful people that have contributed to this work in one way or another. I would like to begin with a special thank you to all the participants that have devoted their time in contributing to this research.

First of all, I would like to thank *Peter Dehlbom*. You were an initiator of this project, and have contributed in all thinkable ways ever since we first met at Kronan. Besides collaborating in the research, you have also supported me as a friend and showed extreme patience with my shortcomings in helping you with your research. I look forward to paying you back.

Also invaluable to this project, and to my development as a researcher, was my main supervisor, *Pia Enebrink*. You invested lots of time and energy into this project, long before we had any funding. From the beginning, you have combined a supportive and warm stance with clear and constructive feedback, as well as high demands, in a way that, in my opinion, defines good quality supervision. With patience and intellect, you have helped me to grow into the role of a researcher and to trust in my capacity for doing so. I will always remain grateful for this.

I would also like to thank *Gerhard Andersson* and *Alan Fruzzetti*, who have been my co-supervisors. Gerhard, besides taking advantage of your extensive experience in research, I have always left our sessions with a smile on my face. While I have sometimes been preoccupied with managing different problems related to our research, you have always made me feel that this project is something to be proud of. Alan, besides teaching me DBT, you have generously invested your time and energy into this project. I am deeply grateful for how you have helped me to feel welcome in Seattle, and for all the good meals that you have treated me to. Again, I look forward to returning the favor.

Although not my supervisor in form (but definitely in function), *Niklas Långström* have been an invaluable source of inspiration throughout this project. I have learned so much from your attention to detail and impressive knowledge about forensic issues. I know that our collaborations, and thereby this thesis, have improved substantially because of this. I am very grateful for all your help.

Also, *Lena Lundholm* of the Swedish Prison and Probation Services deserves a warm thank you for excellent collaboration. I am specifically grateful for your impressive media skills, which helped me dodge my 15 minutes of fame.

There is a special kind of connection among therapists in a DBT-team. I am immensely proud to have had the opportunity to work with so many fantastic clinicians, combining intellectual sharpness with emotional genuineness when trying to help people with this disabling

disorder. I would like to extend a special thank you to the clinicians involved in the treatment study: *Peter Dehlbom*, *Christer Lundmark*, *Susanne Westh*, *Ewa Hjort* and *Peter Csatlos*. Also, thank you to the rest of the DBT-team in Liljeholmen for having patience with me being absent, or absentminded, most of the time: *Levy Friedman*, *Anna Eriksson*, *Catharina Mattsson*, *Nils Alwall*, *Cili Blomgren* and *Sanna Böhn*.

My bosses at Prima psykiatri, also deserves acknowledgement. Thank you *Torbjörn Gustafsson* and *David Eberhard* for your flexibility and solution-oriented approach to our collaboration.

Having friends that will help you take your mind of work when that is needed, while also help you to develop as a researcher, is a true blessing. Both of these activities typically appear in our research group, in the form of intense discussion (topics spanning between "gendered parenting practices" and "how to curse effectively in Latin America"). Having a critical friend is often said to be important in research education. I am lucky to have several. Thank you past and present members of our research group: *Anna Finnes*, *Maria Helander*, *Martin Forster*, *Maria Vinberg*, *Sophie Österberg*, *Sara Isling*, *Cecilia Fyring*, *Frida Dahlbäck*, *Malin Ulfsdotter*, *Kajsa Lönn-Rhodin* and *Jens Högström*.

A special thank you to my beloved parents, *Lars* and *Karin*, for all your support (financial and emotional), and for all the times you have babysitted sick children when I have had to work.

Speaking of children. Thank you *Adam*, *Simon* and *Lukas* for at least trying not to run screaming into this room more than once every two minutes while I wrote this thesis. Seriously though, I love you. Although you may not realize it. You have contributed greatly to this thesis. For example, many times have you offered me an opportunity to pause from work related problems and focus on what is important in life, thereby helping me to recover in stressful times.

Lastly, thank you Louise. I love you.

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