

Evidence-Based Report

Childhood Sexual Abuse and Borderline Personality Disorder

Reviewer	Associate Professor Ian Lambie
Literature search	Ariana Krynen, Sarah Miers
Date Draft Report Completed	9 November 2015
Date Final Report Completed	13 June 2016

Important Note:

- The purpose of this brief report is to summarise the evidence for an association between childhood sexual abuse and the development of borderline personality disorder.
- It is not intended to replace clinical judgement, or be used as a clinical protocol.
- A reasonable attempt has been made to find and review papers relevant to the focus of this report; however, it does not claim to be exhaustive.
- This report is based upon information supplied up to November 2015.

1. Executive Summary

- Childhood sexual abuse can have significant short- and long-term effects, including the development of borderline personality disorder.
- The purpose of this report is to provide an evidence-based guide on the association between childhood sexual abuse and borderline personality disorder as an adult. These findings will be used to assist in the decision making process regarding cover and entitlements of those who have experienced childhood sexual abuse and later developed borderline personality disorder.
- A literature search was conducted in November 2015 using Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations, Cochrane Database of Systematic Reviews, PsycINFO, and the Worldwide Web. Further literature was also located through reading the reference list of review articles.
- Findings from one systematic review, one meta-analysis, two cohort studies, two narrative reviews, and seven primary studies identified in this report showed that:
 - There is fair quality evidence that childhood sexual abuse is moderately associated with borderline personality disorder (pooled $r^{\ddagger} = .279$).
 - Fair quality evidence that the association between childhood abuse and borderline personality disorder traits may be mediated by common genetic factors.
 - Overall associations between childhood trauma and the development of borderline personality disorder are strong and consistently identified. However, childhood sexual abuse may not be a specific or unique risk factor for the diagnosis of borderline personality disorder. Instead, there appear to be more complex indirect relationships between specific trauma types and later diagnosis of borderline personality disorder.
 - There is some evidence that those with early onset sexual abuse are more likely to have a diagnosis of borderline personality disorder than late onset, and that severity of childhood sexual abuse is significantly related to symptom severity in core sectors of borderline personality psychopathology.
 - Limitations of the current research examining the association between childhood sexual abuse and borderline personality disorder include abuse

[‡] correlation coefficient; measure of effect size

being reported retrospectively, the presence of confounding variables, and limited generalisability of results due to sample characteristics (e.g., Caucasian participants).

- There is some evidence that genetic traits act as a mediator of the link between childhood sexual abuse and the development of borderline personality disorder. Additional theories regarding mediators include childhood sexual abuse being hypothesised to disrupt psychological developmental stages associated with self-identity, impact the development of emotional regulation, and have an independent and interactive effect with neurocognitive deficits on adult attachment disturbance.
- Borderline personality disorder continues to be a controversial diagnosis because of the symptom overlap with other disorders, including complex post-traumatic stress disorder (PTSD); the diversity of patients receiving the diagnosis; and the lack of support in the literature for the reliability and validity of borderline personality as a diagnostic entity.
- Given the identified limitations of the current literature and the complex pathways linking childhood sexual abuse and borderline personality disorder, it is difficult to conclude whether childhood sexual abuse is a direct and sufficient cause of borderline personality disorder. However, there is good quality evidence that childhood sexual abuse is a likely risk factor for developing borderline personality disorder symptomology.

2. Introduction

Borderline personality disorder is a common mental health disorder which occurs in 0.5 to 5.9% of the general population (Grant et al., 2008; Lenzenweger, Lane, Loranger, & Kessler, 2007), 7 to 27% of psychiatric outpatients (Korzekwa, Dell, Links, Thabane, & Webb, 2008), and 40 to 43% of adult inpatients (Grilo et al., 1998; Marinangeli et al., 2000). It should be noted that prevalence rates vary substantially between studies depending on setting (i.e., inpatient, outpatient, community) and methodology used (i.e., source of information and instrument used) (see Zimmerman, Rothschild, and Chelminski, 2005). Borderline personality disorder is characterized by a pervasive pattern of emotional instability, interpersonal difficulties, impulsivity, identity disturbance, and disturbed cognition (Leichsenring, Leibing, Kruse, New, & Leweke, 2011; Lieb, Zanarini, Schmahl, Linehan, & Bohus, 2004). Borderline personality disorder is associated with severe functional impairment, high rates of comorbid mental disorders, high rates of suicide, and its presentation is chronic in nature (Aragonès, Salvador-Carulla, López-Muntaner, Ferrer, & Piñol, 2013; Leichsenring et al., 2011).

The estimated prevalence of childhood sexual abuse for females is between 8 to 31%, and between 3 to 17% for males; the wide estimate ranges reflecting the heterogeneity of studies (Barth, Bermetz, Heim, Trelle, & Tonia, 2013). Despite the methodological challenges inherent in conducting international systematic reviews and meta-analyses, most studies have consistently shown that worldwide, more than 1 out of 5 women, and 1 out of 10 men experience childhood sexual abuse (Pereda, Guilera, Forns, & Gómez-Benito, 2009). However, underreporting of childhood sexual abuse is a well-documented phenomena and likely impacts these prevalence rates (Leclerc & Wortley, 2015).

For victims of childhood sexual abuse, the effects can be devastating both in the short- and long-term. Frequently reported short-term effects include fear, anxiety, depression, aggression, anger and hostility, and sexually inappropriate behaviour. Long-term effects include ongoing depression and anxiety, poor self-esteem, difficulty in trusting others, self-harm and suicide, a tendency toward revictimization, feelings of isolation and stigma, substance abuse, and a host of other mental health problems (Browne & Finkelhor, 1986; Fergusson, McLeod, & Horwood, 2013; Paolucci, Genuis, & Violato, 2001). Additional long-term effects of childhood sexual abuse include borderline personality disorder, which is the focus of this report.

It is important to acknowledge the debate as to whether borderline personality disorder is in fact a disorder of “personality” or a disorder arising out of historic experiences of childhood trauma (MacIntosh, Godbout, & Dubash, 2015). Borderline personality disorder as a diagnosis continues to be controversial given its distinct overlap with other diagnosis, namely post-traumatic stress disorder (PTSD), and the limited support for its validity and reliability as a diagnostic entity (MacIntosh et al., 2015). What is being debated is the conceptual distinction between complex PTSD (cPTSD)^{*†} and borderline personality disorder, and whether borderline personality disorder is an appropriate diagnosis given the ubiquity of complex trauma in its sufferers (MacIntosh et al., 2015).

Questions still remain as to whether borderline personality disorder is the most appropriate diagnosis to account for the symptomology of childhood sexual abuse survivors, and the most recent literature on the topic calls for more a more nuanced and differentiated view of cPTSD, PTSD, and borderline personality disorder (Ford & Courtois, 2014; MacIntosh et al., 2015).

* cPTSD differs from ordinary PTSD in three psychobiological areas, namely emotional processing, self-organization, and relational security (Ford & Courtois, 2014).

† Complex PTSD is not a recognised disorder in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5; American Psychiatric Association)

3. Background

ACC Research subcontracted Associate Professor Ian Lambie to conduct an evidence-based review to investigate the association between childhood sexual abuse and the subsequent development of borderline personality disorder as an adult.

This evidence-based report will be used to provide ACC clinical advisors, claims management staff and service providers with an evidence-based guide on the relationship between childhood sexual abuse and the development of borderline personality disorder. In addition, this report will be used to assist in the development of an approach to deciding cover and entitlements for people who experienced childhood sexual abuse and develop borderline personality at an older age.

4. Investigation

A search was conducted in November 2015 in the following databases: Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations, Cochrane Database of Systematic Reviews, and PsychINFO. Further literature was also located through searching the Worldwide Web and reading the reference list of review articles. Only articles in English and published between 2000 and 2015 were included.

Search terms used included: Borderline personality disorder, childhood sexual abuse, child sexual abuse, sexual abuse.

Original inclusion criteria: Systematic reviews and meta-analyses looking at the relationship between childhood sexual abuse and borderline personality disorder.

Original exclusion criteria: Non-English studies, animal or laboratory studies, narrative reviews, letters or editorials; study designs other than systematic review or meta-analysis.

This resulted in identifying 21 articles, of which one systematic review was used in this report.

Revised criteria: Due to limited findings, inclusion criteria were revised to include narrative reviews from 2015, cohort studies with a comparison group, and other primary studies with a comparison group. This resulted in the identification of two cohort studies, two narrative reviews, and seven primary studies examining the association between childhood sexual abuse and borderline personality disorder.

One meta-analysis published in 1999 was also included in this report, as no meta-analysis has been conducted since this was published.

Evidence tables were created for the systematic review, and this can be found in Appendix 1. A table of the excluded studies can be found in Appendix 2. Evidence tables were also created for the meta-analysis, two cohort studies, and seven primary studies identified following the revised inclusion criteria, and can be found in Appendix 3. A description of the excluded studies based on the revised criteria can be found in Appendix 4.

Any relevant papers were assessed for their methodological quality using the following SIGN[‡] criteria:

Levels of evidence (LOE)	
1++	High quality meta-analyses, systematic reviews of RCTs, or RCTs with a very low risk of bias
1+	Well-conducted meta-analyses, systematic reviews, or RCTs with a low risk of bias
1-	Meta-analyses, systematic reviews, or RCTs with a high risk of bias
2++	High quality systematic reviews of case control or cohort or studies High quality case control or cohort studies with a very low risk of confounding or bias and a high probability that the relationship is causal
2+	Well-conducted case control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal
2-	Case control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal
3	Non-analytic studies, e.g. case reports, case series
4	Expert opinion

[‡] Scottish Intercollegiate Guidelines Network <http://www.sign.ac.uk/>

5. Findings

Systematic Review

One systematic review is included in this report: Martins et al. (2011)¹.

The systematic review by Martins et al. (2011)¹ investigated the occurrence of early life stress among adult psychiatric patients. Early life stressors included emotional, sexual and physical abuse, as well as emotional and physical neglect. The authors included 31 studies in the review. Four studies examined the association between sexual abuse and borderline personality disorder.

Overall, the authors reported that the association between borderline personality disorder and childhood sexual abuse was one of the most consistent findings in the review. Early life stress was associated with reporting more symptoms of borderline personality disorder, and a high incidence of childhood sexual abuse was found in patients with borderline personality disorder. An association was also found between sexual abuse and borderline personality disorder and the presence of eating disorders, especially bulimia. No prevalence or odds ratio figures were provided in the review.

This systematic review was of fair methodological quality (1-). Limitations of the systematic review include abuse among subjects being reported retrospectively in all studies; temporality; differing study methods, measures, and definitions; and failing to control for the overlap with comorbid disorders and/or other traumatic events. These limitations mean that it cannot be stated that childhood sexual abuse is aetiologically responsible for borderline personality disorder; however, it can be hypothesised that childhood sexual abuse may be more frequent among individuals with borderline personality disorder than the general population.

Meta-Analysis

One meta-analysis, Fossati et al. (1999)², fell outside the publication date scope of this report. However, due to the absence of any other meta-analysis studies published since then, the main findings will be briefly summarised. This meta-analysis was of fair methodological quality (1+) and investigated the association between childhood sexual abuse and borderline personality disorder. The authors reviewed 21 studies published in the 15 years prior, with a total of 2,479 participants. Twenty studies found a significant association, and the pooled effect size was moderate (pooled $r^{\ddagger} = .279$). However, the authors stated that the moderate pooled effect size and the finding that larger effect sizes were strongly linked to smaller, less

[‡] correlation coefficient; measure of effect size

representative samples, does not support the hypothesis that childhood sexual abuse is a major psychological risk factor or a causal antecedent of borderline personality disorder. Instead, the authors concluded that childhood sexual abuse could be related to specific borderline personality disorder psychopathic features (for example, stress-related dissociative symptoms) rather than the full syndrome.

Cohort Studies

Two cohort studies are included in this report: Bornovalova et al. (2013)³ and Cutajar et al. (2010)⁴.

The first cohort study by Bornovalova et al. (2013)³ looked at the causal association between sexual, emotional, and physical abuse in childhood (before age 18) and borderline personality disorder traits at age 24 in a large longitudinal discordant twin study. This study also investigated the genetic and environmental influences underlying the link between childhood abuse, internalising^ø and externalising symptoms[§] in childhood, and borderline personality disorder traits in adulthood (age 24). Data from same-sex twin pairs of the longitudinal Minnesota Twin Family Study (MTFS) were examined. The MTFS final sample included 756 twin pairs from their 11-year old cohort and 626 twin pairs from the 17-year cohort. Of these 1,382 pairs, 896 were monozygotic (MZ) and 486 dizygotic (DZ).

The authors found that experience of childhood abuse (regardless of type) had a significant effect on borderline personality disorder traits, with exposed individuals exhibiting more borderline personality disorder traits than nonexposed (child sexual abuse = $d^c = .30$, $p < .01$). Men reported more borderline personality disorder traits than women ($d = .17$). Internalising symptoms, externalising symptoms or internalising-externalising interactions mediated the relationship between childhood abuse and borderline personality disorder traits (i.e., the effect of childhood abuse dropped to nonsignificance).

Discordant twin analyses found MZ twins discordant for child abuse were similar in borderline personality disorder traits, but discordant DZ twins differed significantly. The authors noted that this pattern of results suggest that the association between child abuse and borderline personality disorder traits are likely mediated by common genetic factors. Borderline personality disorder evidenced moderate heritability, a small and nonsignificant effect of shared environment, and large nonshared environmental effects (.35, .10 and .56, respectively). Child sexual abuse showed small but significant genetic effects, large shared

^ø predisposition to experience depression, anger and anxiety

[§] impulsivity and inability to inhibit undesirable actions

^c Cohen's d; measure of effect size

environmental influences, and moderate and significant nonshared environmental influences (.05, .65 and .30, respectively). Analysis found corroborating evidence for genetic mediation effects in the association between childhood abuse and borderline personality disorder.

Based on their findings, the authors concluded that there is little to no evidence of a causal effect of childhood abuse on borderline personality disorder traits. Instead, they noted that the association between childhood abuse and borderline personality disorder traits stem from common genetic influences. Furthermore, they described their findings as being inconsistent with the widely held assumption that childhood abuse causes borderline personality disorder.

This cohort study was of adequate methodological quality (2+). Limitations of the study included using a sample of mostly Caucasian twins; retrospective reporting of child abuse with no independent corroboration, which could have introduced retrospective bias; self-report questionnaire to measure borderline personality disorder traits; and measures of child abuse obtained from several different instruments at several time points.

The second cohort study by Cutajar et al. (2010)⁴ looked at psychopathology in a large cohort of sexually abused children up to 43 years. Forensic medical records of 2,759 sexually abused children assessed between 1964 and 1995 were linked with a public psychiatric database between 12 and 43 years later. Cases were compared to control subjects matched on gender and age groupings drawn from the general population through a random sample of the electoral database. This research was the only study discussed in this report to use non-retrospective reports and the public record for both sexual abuse and subsequent use of the public mental health system.

The authors found that exposure to sexual abuse significantly increased the risk of subsequent borderline personality disorder ($OR^{\dagger} = 6.07$, 95% $CI^{\pm}: 2.87-12.85$, $p < .001$), as well as psychotic disorders, affective disorders, anxiety disorders, post-traumatic stress disorder, alcohol abuse, drug abuse and a number of other personality disorders, and had three times the mental health burden of the general community.

Females were significantly more likely than males to be diagnosed with borderline personality disorder (ORs: 7.2 and 0.58, respectively), as well as post-traumatic stress disorder and an affective disorder. Males were significantly more likely to be diagnosed with other disorders and antisocial personality disorder.

This cohort study was of adequate methodological quality (2+). Limitations of the study included the extent of available information collected on cases and controls for purposes other

[†] odds ratio

[±] 95% confidence interval

than intended for the study (i.e., information on potentially confounding covariates such as family history of mental illness and social background factors could not be taken into account and controlled for). The authors also noted that caution should be taken when interpreting results on sexual abuse variables as not all cases had information collected and recorded by forensic medical examiners on sexual abuse variables.

Narrative Reviews

Two narrative reviews are discussed in this report: MacIntosh et al. (2015)⁵ and Cotter et al. (2015)⁶.

The narrative review by MacIntosh et al. (2015)⁵ reviewed the empirical literature on borderline personality disorder to examine whether it is a disorder of personality or a disorder arising out of experiences of childhood trauma. The authors concluded that the literature examining the relationship between a history of childhood trauma and later PTSD^Ø, complex PTSD, and/or borderline personality disorder consistently finds significant associations between childhood trauma and later diagnosis of borderline personality disorder. However, they state that although early studies found strong associations suggestive of a causal relationship between childhood trauma and later borderline personality disorder, later multivariate studies failed to confirm that a history of childhood sexual abuse is a specific or unique risk factor for the diagnosis of borderline personality disorder. Rather, they identified more complex indirect relationships between specific trauma types and later diagnosis of borderline personality disorder.

The authors stated that borderline personality disorder continues to be a controversial diagnosis because of the symptom overlap with other disorders, including PTSD and other axis I disorders in the DSM[¥]; the diversity of patients receiving the diagnosis; and the lack of support in the literature for the reliability and validity of borderline personality as a diagnostic entity. In the review, the authors noted that due to evidence arising from clinical observations and research into associations between borderline personality disorder, PTSD and childhood sexual abuse, some practitioners and researchers believe that borderline personality disorder is in fact complex PTSD. This continues to be explored and debated in the literature. In the meantime, careful assessment of childhood sexual abuse in those with borderline personality symptoms could reveal basic posttraumatic suffering that must be addressed in treatment.

^Ø post-traumatic stress disorder

[¥] Diagnostic and Statistical Manual of Mental Disorders (DSM; American Psychiatric Association)

Overall, the authors stated that while relationships between specific trauma types and outcomes in adulthood are inconsistent, overall associations between childhood trauma and the development of borderline personality disorder are strong and consistently identified.

A second narrative review by Cotter et al. (2015)⁶ examined childhood trauma and functional disability in psychosis, bipolar disorder and borderline personality disorder. The authors stated that high rates of childhood trauma were found in borderline personality disorder, and that this was associated with impaired social and occupational functioning in both the premorbid and established phases of this disorder, over and above the deficits typically observed in this population.

Primary Studies

Because of the limited studies identified following the revised inclusion criterion, seven primary studies that utilised comparison groups were also reported. The evidence tables for these studies can be found in Appendix 2. These findings further extend knowledge regarding the relationship between childhood sexual abuse and the development of borderline personality disorder.

The most recent study, by Merza et al. (2015)⁷ found that adverse childhood experiences (neglect, emotional abuse, physical abuse, sexual abuse, witnessing trauma) were more prevalent among borderline patients than among depressed and healthy controls. They also found the strongest predictors of borderline diagnosis were sexual abuse, specifically genital fondling (OR = 8.156, 95% CI = 2.479-26.836, $p = 0.001$) and penetration (OR = 5.316, 95% CI = 1.152-24.535, $p = 0.032$); intrafamilial physical abuse (OR = 4.083, 95% CI = 1.560-10.686, $p = 0.004$); and neglect by the caretakers (OR = 4.248, 95% CI = 1.673-10.786, $p = 0.002$).

Several other studies also found early experiences of sexual abuse to be predictive of borderline personality disorder. These included Pietrek et al. (2013)⁸, which found regression analyses confirmed early experiences as a predictor of borderline personality disorder; and Wingenfeld et al. (2011)⁹ which found sexual abuse, either in childhood or in adulthood, was a significant predictor of all aspects of measured psychopathology, including borderline personality disorder. Furthermore, Hernandez et al. (2012)¹⁰ found that borderline personality disorder criteria were associated with higher scores on measures of emotional and sexual abuse.

Another study by Leporte et al. (2013)¹¹ pointed to the complexity of pathways to the development of borderline personality disorder. Their results suggest that the outcome of childhood adversity is mediated by personality traits.

Contrary to previous literature, Hecht et al. (2014)¹² found that childhood sexual abuse was not associated with increased overall borderline feature scores. It should be noted, however, that this study's sample was comprised of 10-12 year old children, with only 27 having had experience of sexual abuse. The authors reported that the lack of association between childhood sexual abuse and borderline features could have been attributed to the small sample of those who had experienced sexual abuse, consequently limiting the statistical power required to show this association. In addition, features of borderline personality disorder may impact later on in the young person's development.

In their sample of Chinese outpatients, Huang et al. (2012)¹³ found four types of childhood abuse experiences to be significant predictors of borderline personality disorder: sexual abuse, maternal neglect, maternal physical abuse, and paternal antipathy. Findings indicated that childhood sexual abuse predicted borderline personality disorder, but at lower rates than those found in USA studies. The authors suggested that this was likely due to the lower rates of reporting of sexual abuse in China. Based on their findings, the authors concluded that childhood abuse is a cross-cultural etiological factor for borderline personality disorder.

In summary, the majority of the primary studies found childhood sexual abuse to be predictive of borderline personality disorder, and this suggests it should be seen as a significant risk factor for the development of borderline personality disorder.

6. Additional Information

Characteristics of childhood sexual abuse

Although not the focus of this report, additional studies have also examined the relationship between characteristics of childhood sexual abuse (i.e., age of onset, severity of abuse) and the development of borderline personality disorder later in life. Two sources were used (with no formal methodological appraisal): two cross-sectional studies by McLean and Gallop (2003) and Zanarini et al. (2002).

McLean and Gallop (2003)

This study examined whether individuals with a history of early onset sexual abuse or late onset sexual abuse were more likely to meet diagnostic criteria for both borderline personality

disorder and complex PTSD. The sample consisted of 65 women outpatients with a diagnosis of borderline personality disorder.

Childhood sexual abuse and paternal incest were found to be significant predictors of borderline personality disorder and complex PTSD (Wald's $\chi^2_{\phi} = 5.11$, $df^{\#} = 7$, $p < 0.05$, and Wald's $\chi^2 = 4.18$, $df = 7$, $p < 0.05$, respectively). The diagnoses of both borderline personality disorder and complex PTSD were significantly higher (Pearson's $\chi^2 = 57.33$, $df = 1$, $N = 65$, $p < 0.0001$) in women reporting early onset sexual abuse than in those with late onset abuse (Cramer's $V^{\Psi} = 0.94$, $p < 0.0001$).

Overall, the results of this study indicate that childhood sexual abuse predicts the development of borderline personality disorder in females. The limitations of the study included the sample, which was all-female and a convenience group, and the retrospective design. Nonetheless, childhood sexual abuse should be considered a risk factor for borderline personality disorder.

Zanarini et al. (2002)

This study investigated the severity of reported childhood sexual abuse and its relationship with severity of borderline psychopathology and psychosocial impairment. Participants included 290 inpatients with borderline personality disorder. Results found more than 50% of sexually abused borderline patients reported being abused both in childhood and in adolescence, on at least a weekly basis, for a minimum of 1 year, by a parent or other person well known to the patient, and by two or more perpetrators. More than 50% also reported that their abuse involved at least one form of penetration and the use of force or violence.

Using multiple regression modelling, results found that the severity of reported childhood sexual abuse was significantly related to severity of symptoms in each of the four core sectors of borderline psychopathology (affect, cognition, impulsivity, and disturbed interpersonal relationships; $p < 0.001$). Age, gender, and race were controlled for.

Findings from this study indicate that the majority of sexually abused borderline patients may have been severely abused, and also that the severity of the abuse plays a role in the symptomatic severity and psychosocial impairment characteristic of borderline personality disorder. Limitations of the study include retrospective reporting of abuse. Nonetheless, there is some evidence that severity of childhood sexual abuse is associated with severity of borderline personality disorder.

ϕ Chi-squared test

$\#$ degrees of freedom

Ψ a measure of association between two nominal variables

Influence of genetic factors

Similarly, although not the focus of this report, understanding the influence of genetic factors in the development of borderline personality disorder will help provide context to the evidence about childhood sexual abuse. Genetic factors and the development of borderline personality disorder has been previously discussed in the cohort study Bornovalova et al. (2013)³. Here, one source was used (with no formal methodological appraisal): one review by Skodol et al. (2002).

Skodol et al. (2002)

In this review, the authors stated that there may be a strong genetic component for the development of borderline personality disorder, but it seems clear that there are at least strong genetic influences on traits that underlie it, such as neuroticism, impulsivity, anxiousness, affective lability, and insecure attachment. The authors also stated that predictors of poor prognosis in borderline personality disorder include a history of childhood sexual abuse, early age at first psychiatric contact, chronicity of symptoms, affective instability, aggression, substance abuse, and increased comorbidity.

Mediators of the Association between Childhood Sexual Abuse and Borderline Personality Disorder - Theories

As mentioned previously, there is ongoing debate as to whether borderline personality disorder is a disorder resulting from childhood trauma or personality. Complex PTSD has been put forward by some practitioners and researchers as a more appropriate diagnosis which acknowledges the ubiquity of childhood trauma in clients with borderline personality disorder. However, complex PTSD is not a recognised disorder in the DSM-5^ψ. Currently, borderline personality disorder is the defining diagnosis for the symptomology and therefore the following section will concern borderline personality disorder specifically.

Several theories have been developed to help explain the link between childhood sexual abuse and the development of borderline personality disorder. Early theories proposed that childhood sexual abuse results in psychological development going awry, whereby there has been a failure to adequately accomplish the psychological developmental stage of

^ψ Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5; American Psychiatric Association)

separation-individuation during the first few years of life (Landecker, 1992). This is thought to contribute to an individual's inability to maintain a stable sense of self identity, and the subsequent development of core borderline personality disorder symptoms and defences (Landecker, 1992).

Similarly, childhood sexual abuse is thought to disrupt the development of emotion regulation. Developmental theories identify developing the ability to regulate emotions as a major milestone of childhood (Cole, Michel, & Teti, 1994), and the unsuccessful achievement of this has been described as being an explanatory link between childhood abuse and borderline personality disorder (Hughes, Crowell, Uyeji, & Coan, 2012).

Neurodevelopmental models have proposed that genetic factors combined with adverse childhood events (e.g., childhood sexual abuse) might contribute to emotional dysregulation and impulsive use of aggression through reduced serotonergic activity in the brain, leading to the development of other hallmark borderline personality disorder symptoms, including dysfunctional behaviour patterns and psychosocial conflicts and deficits (Lieb et al., 2004; Skodol et al., 2002). Childhood abuse (including childhood sexual abuse) and neurocognitive deficits have been found to have independent and interactive effects on adult attachment disturbance (a prototypical feature of borderline personality disorder) (Minzenberg, Poole, & Vinogradov, 2008). For example, it is hypothesised that temporal-limbic dysfunction, possibly contributed to by childhood sexual abuse, may have a disruptive effect on adult attachment (Minzenberg, Poole, & Vinogradov, 2008).

The biosocial model proposed by Marsha Linehan (1993) describes the development of borderline personality disorder arising from transactions between an individual's biological vulnerability for heightened emotional responses and an invalidating environment (i.e., intolerance toward the expression of private emotional experiences; childhood sexual abuse). When an emotionally vulnerable individual is placed in an invalidating environment, this is seen to contribute to the child not learning how to understand, regulate or tolerate emotional responses.

A more recent theory has proposed that childhood emotional abuse is the key ingredient in the invalidating environment which leads to difficulties in emotional regulation and subsequent borderline personality disorder features (Kuo, Khoury, Metcalfe, Fitzpatrick, & Goodwill, 2015). This echoes a number of other studies which indicate childhood sexual abuse is neither a necessary nor sufficient cause for borderline personality disorder (Lieb et al., 2004). What we can conclude from the most up to date literature is that the cause of borderline personality disorder is complex, with several factors, including childhood sexual

abuse, implicated in the development of borderline personality disorder through a number of pathways.

7. Conclusions

The systematic review, meta-analysis, cohort studies and narrative reviews included in this report found:

- Fair quality evidence (i.e., the review was of fair methodological quality (1+/1-)) from one systematic review that a history of childhood sexual abuse is associated with borderline personality disorder (no raw data provided)¹.
- Fair quality evidence from one meta-analysis that childhood sexual abuse is moderately associated with borderline personality disorder (pooled $r = .279$)².
- Fair quality evidence from one cohort study that the association between childhood abuse and borderline personality disorder traits is mediated by common genetic influences³.
- Fair quality evidence from one cohort study that exposure to sexual abuse increases the risk of subsequent borderline personality disorder (OR = 6.07)⁴.
- Fair quality evidence from two narrative reviews that associations between childhood trauma and the development of borderline personality disorder are strong and consistently identified^{5,6}. However, childhood sexual abuse may not be a specific or unique risk factor for the diagnosis of borderline personality disorder. Instead, there appear to be more complex indirect relationships between specific trauma types and later diagnosis of borderline personality disorder⁵.
- Some evidence from the majority of the primary studies that childhood sexual abuse is predictive of borderline personality disorder^{7,8,9,10,11,13}.

Using Bradford Hill's guide to causation (Appendix 5), the strength of association between childhood sexual abuse and the development of borderline personality disorder is moderate (pooled $r = 2.79$)^{2‡}, with studies demonstrating consistency of this association^{1,2,3,4,5,6}. Temporality (i.e., that the abuse occurs before the development of borderline personality disorder) is not able to be established due to largely retrospective study designs.

‡ Note: the strength of association for the studies reported in the systematic review could not be determined due to no raw data provided

No studies directly examined the biological gradient or dose-response relationship (i.e. more exposure results in greater risk of developing borderline personality disorder); however, the absence of such research does not rule out causality. One study found those with early onset sexual abuse were more likely to have borderline personality disorder than those with late onset, and another study found severity of childhood sexual abuse was significantly related to symptom severity in core sectors of borderline personality psychopathology.

In relation to plausibility, there may be evidence for genetic traits acting as a mediator of the link between childhood sexual abuse and the development of borderline personality disorder³. Additional theories regarding the mediators of the relationship between childhood sexual abuse and borderline personality disorder include childhood sexual abuse being hypothesised to disrupt psychological developmental stages associated with self-identity, childhood sexual abuse disrupting the development of emotion regulation, and childhood sexual abuse and neurocognitive deficits having independent and interactive effects on adult attachment disturbance.

Limitations of the current research examining the association between childhood sexual abuse and borderline personality disorder include abuse being reported retrospectively, the presence of confounding variables, and limited generalisability of results due to sample characteristics (e.g., Caucasian participants).

There are likely to be many causes of borderline personality disorder, so one cannot conclude that childhood sexual abuse is a direct and sufficient cause. In addition, there appears to be complex pathways linking childhood sexual abuse and borderline personality disorder, likely involving genetic factors. Furthermore, borderline personality disorder is a controversial diagnosis because of the symptom overlap with other disorders, including complex PTSD; the diversity of patients receiving the diagnosis; and the lack of support in the literature for the reliability and validity of borderline personality as a diagnostic entity. However, there is some good quality evidence that childhood sexual abuse is a likely risk factor for developing borderline personality disorder in later life.

8. Limitations

As only English language articles were included, the presence of publication bias in this report is a possibility. The dearth of systematic reviews and meta-analyses mean research findings need to be replicated in order to more fully investigate and understand the aetiology of borderline personality with regard to childhood sexual abuse, as well as the validity of borderline personality as a diagnosis and its relationship to complex PTSD.

9. Appendix 1: Evidence Table for Original Inclusion Criteria

Reference and study design	Studies	Exposure	Outcome measure	Results/effect size	Conclusions
<p>Martins et al. (2011)</p> <p>“Analysis of the occurrence of early life stress in adult psychiatric patients: A systematic review”.</p> <p><u>Psychology and Neuroscience</u>, 4(2), 219-227.</p> <p>Brazil.</p> <p><u>Included studies:</u> McLaughlin et al. 2010; Green et al. 2010; Rubino et al. 2009; Medley & Sachs-Ericsson 2009; Afifi et al. 2009; Sfoggia et al. 2008; Caspi et al. 2008; Afifi et al. 2008; Afifi et al. 2007; Wonderlich et al. 2007; Grover et al. 2007; Zavaschi et al. 2006; Afifi et al. 2006; Sachs-Ericsson et al. 2005; Bandelow et al.</p>	<p><u>Number of studies:</u> N=31</p> <p><u>Inclusion criteria:</u> Studies needed to have been published between 1990 and 2010; written in English or Portuguese; examined predictive value; and included one of the following forms of early life stress: emotional abuse, sexual abuse, physical abuse, emotional neglect and physical neglect.</p> <p><u>Exclusion criteria:</u> Review articles; animal studies; studies that explored other forms of childhood adversity such as parental loss or separation, parental psychiatric disorders, or other early stressful life events; studies that evaluated the association between early life stress and psychiatric disorders in children, adolescents or</p>	<p>Early life stress including emotional, sexual and physical abuse, and emotional and physical neglect.</p>	<p>Diagnosis of borderline personality disorder and other psychiatric disorders.</p>	<p>No prevalence or odds ratio figures were provided in the review.</p> <p>Grover et al. 2007 Subtype of ELS: SA, PA, EA, EN, PN Diagnosis: PD Main finding: A history of early life stress was associated with reporting more symptoms of subclinical paranoia, narcissistic, borderline, antisocial, obsessive-compulsive, passive-aggressive, and depressive personality disorders.</p> <p>Bandelow et al. 2005 Subtype of ELS: SA Diagnosis: AD, PD Main finding: A high incidence of childhood sexual abuse was found in patients with borderline personality disorder.</p> <p>Johnson et al. 1999 Subtype of ELS: SA, PA, EN, PN Diagnosis: PD Main finding: Victims of neglect and sexual and physical abuse were four-fold more likely to develop personality disorder</p>	<p><u>Author’s conclusions:</u> Most of the papers suggested that different types of early life stress are associated with personality disorders in adulthood. One of the most consistent findings in this review was the association between borderline personality disorder and sexual abuse.</p> <p><u>Reviewer’s conclusions:</u> This systematic review presents evidence suggesting that those with borderline personality disorder are at risk of having a history of CSA, however causality cannot be determined due to methodological limitations of the individual studies.</p>

<p>2005; Bebbington et al, 2004; Sar et al. 2004; Holowka et al. 2003; Roy 2002; Lewis-Fernandez et al. 2002; Molnar et al. 2001; Johnson et al. 2001; Bulik et al. 2001; Molnar et al. 2001; Brown et al. 1999; Johnson et al. 1999; Giese et al. 1998; Welch & Fairburn 1996; Folsom et al. 1993; Waller 1993; Pribor & Dinwiddie 1992.</p>	<p>the elderly; studies that evaluated the association between early life stress and other medical conditions; and articles in languages other than English and Portuguese.</p> <p><u>Databases used:</u> PubMed and SciELO.</p> <p><u>Description of the methodological assessment of studies:</u> Not discussed.</p> <p><u>Fixed or variable effects:</u> Not applicable.</p> <p><u>Heterogeneity:</u> Not discussed.</p>			<p>compared with those who were not abused.</p> <p>Waller, 1993 Subtype of ELS: SA Diagnosis: ED, PD Main finding: An association was found between sexual abuse and borderline personality disorder and the presence of eating disorders, especially bulimia.</p>	
<p>SA, sexual abuse; EA, emotional abuse; PA, physical abuse; N, neglect; PN, physical neglect; EN, emotional neglect; MD, mood disorder; AD, anxiety disorder; SAD, substance abuse disorders; PD, personality disorder;; ED, eating disorder.</p>					
<p>Study type: Systematic review</p> <p>Quality: 1-</p> <p>Comments: Adequately conducted systematic review with appropriately no meta-analysis. Systematic search of two databases. Methodological limitations of individual studies mean causal inferences are not feasible. Some studies in the review fall outside of the scope of this report with respect to publication date.</p>					

10. Appendix 2: Exclusion Study Table for Original Inclusion Criteria

The 21 studies excluded from this report are presented in the table below. These studies had the term “review”, “systematic review”, and/or “meta-analysis” stated in its title and/or abstract.

An additional 350+ articles were identified by the literature searches conducted. However, these articles were not included in this report based on the exclusion criteria (i.e., non-English studies, animal or laboratory studies, narrative reviews, letters or editorials; study designs other than systematic review or meta-analysis).

Reference	Reason for Exclusion
Bandelow et al., 2005	In Martins et al. 2011
Binks et al., 2012	Focus is on interventions
Bradley et al., 2005	Not a systematic review or meta-analysis
Bunse et al. 2014	Focus is on brain stimulation
Calati et al., 2013	Focus is on genetic modulation of borderline personality disorder
Dimascio et al., 2002	Review; Dissertation
Dvir et al., 2014	Narrative review; Focus not on borderline personality disorder
Everly et al., 2004	Review; Book chapter
Huang et al., 2010	Review; Chinese language
Kitchiner et al., 2012	Focus is on interventions
Links, 2013	Not a systematic review or meta-analysis; Focus on association between suicidal behaviour and borderline personality disorder
Links, 2003	Review; Focus on association between suicidal behaviour and borderline personality disorder
Mercer et al., 2009	Focus is on interventions
Merza et al., 2015	Not a systematic review or meta-analysis; Hungarian language
Morrison, 2009	Review; Dissertation
Pennay et al., 2011	Focus is on interventions
Pereda et al., 2011	Review; Spanish language
Renneberg et al., 2003	Not a systematic review or meta-analysis; German language
Solof et al., 2002	Not a systematic review or meta-analysis; Focus on association between suicidal behaviour, borderline personality and childhood sexual abuse
Victor et al. 2014	Focus is on self-injury
Xenaki et al., 2015	Focus is on ADHD and borderline personality disorder

11. Appendix 3: Evidence Tables for Revised Inclusion Criteria

Reference and study design	Studies	Exposure	Outcome measure	Results	Conclusions
<p>Fossati et al. (1999)</p> <p>“Borderline Personality Disorder and Childhood Sexual Abuse: A Meta-Analytic Study”</p> <p><u>Journal of Personality Disorders.</u> 13:268-280.</p> <p>Italy</p> <p><u>Included studies:</u> Baker et al., 1992; Briere & Zaidi, 1989; Brown & Anderson, 1991; Bryer et al., 1987; Byrne et al., 1990; Goldman et al., 1992; Herman, Perry, & Van der Kolk, 1989; Hurlbert et al., 1992; Links et al., 1988; Links & van Reekum, 1993; Ludolph et al., 1990; Madeddu et al.,</p>	<p><u>Number of studies:</u> N=21</p> <p><u>Number of participants:</u> N = 2,479</p> <p><u>Inclusion criteria:</u> studies been published in scientific journals so as to consider studies of comparable quality; studies (either correlational or controlled) featured association tests between BPD and CSA.</p> <p><u>Exclusion criteria:</u>. Not stated</p> <p><u>Databases used:</u> MEDLINE and Psychological Abstracts electronic databases + an on-line search (January 1980 to October 1 995).</p>	<p>Childhood sexual abuse</p>	<p>Correlation coefficient (r) of later diagnosis of BPD</p>	<p>CSA and BPD</p> <p>Twenty studies found a significant association between CSA and BPD. The pooled effect size was moderate (pooled $r^{\ddagger} = .279$).</p> <p>No significant effect of moderators was evidenced.</p>	<p><u>Author’s conclusions:</u> The authors concluded that the results of the study did not support the hypothesis that CSA is a major psychological risk factor or a causal antecedent of BPD. The findings support the need for future research on the relationship between CSA and BPD, avoiding oversimplifications and emphasizing the importance of a multifactorial aetiological model</p> <p><u>Reviewer’s conclusions:</u> An adequately conducted meta-analysis which found a significant association between CSA and BPD across 20 studies.</p>

[‡] correlation coefficient; measure of effect size

1993; Nigg et al., 1991; Ogata et al., 1990; Paris, Zweig- Frank, & Gudzer, 1994a, 1994b; Sansone et al., 1994; Waller, 1994; Weaver & Clum, 1993; Westen et al., 1990; Zanarini et al., 1989	<u>Description of the methodological assessment of studies:</u> Not discussed. <u>Fixed or variable effects:</u> Not applicable. <u>Heterogeneity:</u> Not discussed.				
CSA, childhood sexual abuse; BPD, Borderline personality disorder.					
Study type: Meta-Analysis Quality: 1+ Comments: Adequately conducted meta-analysis, with two databases searched.					

Reference	Data/Participants	Exposure and Outcome Measure	Data Analysis	Results
<p>Bornovalova et al. (2013)</p> <p>“Tests of a direct effect of childhood abuse on adult borderline personality traits: A longitudinal discordant twin study.”</p> <p><u>Journal of Abnormal Psychology</u> 122(1): 180-194</p> <p>United States</p>	<p><u>Data:</u> Data were from the Longitudinal Minnesota Twin Family Study (MTFS). The MTFS intake sample includes an 11-year-old and a 17-year-old cohort of male and female twins.</p> <p><u>Participants:</u> 756 twin pairs from the 11-year-old cohort and 626 twin pairs from the 17-year-old cohort. Of these 1,382 pairs, 896 were MZ (50.8% female) and 486 were DZ (54.5% female).</p> <p><u>Average age:</u> The mean age of participants at the age-24 assessment was 24.92 years (SD .90 years).</p> <p><u>Ethnicity:</u> Over 95% of the twins were Caucasian, reflecting the ethnic composition of Minnesota for the birth years sampled.</p>	<p><u>Exposure:</u> Childhood sexual abuse (Trauma Assessment for Adults; sexual, physical, emotional)</p> <p><u>Outcome measure:</u> Borderline personality disorder in adults age 24 (Minnesota Borderline Personality Disorder Scale),</p> <p><u>Mediators and moderators:</u> internalising (predisposition to experience depression, anger and anxiety) and externalising (impulsivity and inability to inhibit undesirable actions) symptoms; measured using structured interview and report measures.</p>	<p>Correlation and regression analysis, Sobel tests, Biometric analysis.</p>	<p>Prevalence of childhood sexual abuse Total in sample 7.3%</p> <p>Child abuse and BPD</p> <p>Each type of CA had a significant effect on BPD traits, such that exposed individuals showed more BPD traits than the nonexposed individuals. Child sexual abuse: $d = .30, p < .01$</p> <p>Gender</p> <p>Men reported more BPD traits than women ($d = .17$)</p> <p>Mediating and moderating effects of childhood externalising and internalising disorders</p> <p>Internalising symptoms, externalising symptoms or internalising-externalising interactions mediated the relationship between childhood abuse and BPD traits (i.e., the effect of CA dropped to nonsignificance).</p> <p>Discordant Twin Models</p> <p>Monozygotic (MZ) twins: child abuse-affected and child abuse-nonaffected twins within an MZ pair did not differ significantly in BPD traits, regardless of type of abuse.</p> <p>Dizygotic (DZ) twins: child abuse-affected and child abuse-nonaffected twins within an MZ pair significantly differed in BPD traits for any child</p>

				<p>abuse, emotional child abuse, and physical child abuse, but not sexual.</p> <p>Additional analyses:</p> <p><u>Heritability of BPD traits</u> MZ = .44; DZ = .28 Additive genetic influences = .35 (.14, .50), shared environmental influences = .10 (.00, .28), nonshared environmental influences = .56 (.50, .62).</p> <p><u>Heritability of Child Sexual Abuse</u> MZ = .60; DZ = .58 Additive genetic influences = .05 (.03, .08), shared environmental influences = .65 (.61, .70), nonshared environmental influences = .30 (.25, .34).</p> <p><u>Genetic and environmental influences on BPD traits</u> Moderate to large genetic effects found on the association between each type of child abuse and BPD traits.</p> <p>Cholesky models indicated internalising symptoms, externalising symptoms and internalising-externalising interactions do not account for much of the genetic relationship between sexual child abuse and BPD traits (range = .88 to .97^z). Instead, there are common genetic risk for BPD traits and child abuse that are independent of internalising or externalising symptoms.</p>
<p>Author's conclusions: Although childhood abuse, borderline personality traits, and internalizing and externalizing symptoms were all correlated, the discordant twin analyses and biometric modelling showed little to no evidence that was consistent with a causal effect of childhood abuse on BPD traits. Instead, our</p>				

^z standardised regression coefficients

results indicate that the association between childhood abuse and BPD traits stems from common genetic influences that, in some cases, also overlap with internalizing and externalizing disorders.

Reviewer's conclusions: This cohort study provides little to no evidence of a causal effect of childhood abuse on BPD traits.

Study type: Cohort

Quality: 2+

Comments: A well-conducted discordant twin cohort study with extensive data analysis.

Reference	Data/Participants	Exposure and Outcome Measure	Data Analysis	Results
<p>Cutajar et al. (2010)</p> <p>“Psychopathology in a large cohort of sexually abused children followed up to 43 years.”</p> <p>Child Abuse & Neglect 34: 813-822</p> <p>Australia</p>	<p><u>Data/participants</u>: Forensic medical records of 2,759 sexually abused children assessed between 1964 and 1995 were linked with a public psychiatric database between 12 and 43 years later.</p> <p>Comparison group drawn from a random sample of 4,938 Victorian residents on the electoral role. Control subjects matched on gender and age groupings.</p> <p><u>Average age</u>: Mean age of CSA group at follow-up was 33.82 years</p>	<p><u>Exposure</u>: Childhood sexual abuse (at age 16 years or younger)</p> <p><u>Outcome</u>: Mental health outcomes (from a public psychiatric database; diagnosis generated by treating or responsible psychiatrist using DSM* or ICD[‡])</p>	<p>T-tests, Chi-square, odds ratios, logistic regression, Cox regression.</p>	<p>CSA and BPD</p> <p>Sexual abuse significantly increased the risk of subsequent BPD OR = 6.07, 95% CI: 2.87 to 12.85, p <0.001</p> <p>Females were significantly more likely to be diagnosed with BPD than were males (p = <.001)</p>
<p>Conclusions</p> <p><u>Author’s conclusions</u>: Overcoming many of the limitations of previous studies (i.e., retrospective nature), this study confirms that sexual abuse in childhood increases the risk for subsequent psychiatric disorders in both childhood and adulthood.</p> <p><u>Reviewer’s conclusions</u>: This cohort study provides evidence of an association between sexual abuse and subsequent risk of BPD but is not definitive.</p>				
<p>Study type: Cohort</p> <p>Quality: 2+</p> <p>Comments: A well-conducted cohort study (12 to 43 year follow-up) with comparison group drawn from the general population.</p>				

* Diagnostic and Statistical Manual of Mental Disorders (DSM; American Psychiatric Association)

[‡] World Health Organisation International Classification of Disease

Reference	Data/Participants	Exposure and Outcome Measure	Data Analysis	Results
<p>Merza et al. (2015)</p> <p>“The role of childhood traumatization in the development of borderline personality disorder in Hungary.”</p> <p><u>European Journal of Psychiatry</u> 29(2): 105-118</p> <p>Hungary</p>	<p><u>Data</u>: Data were obtained from Hungarian inpatients with a diagnosis of borderline personality disorder, as well as those with a diagnosis of depression, and healthy controls.</p> <p><u>Participants</u>: The final sample consisted of 204 participants, of whom 80 psychiatric inpatients were in the borderline personality disorder group, 73 psychiatric inpatients were in the depressed comparison group and 51 people were in the healthy comparison group.</p> <p><u>Average age</u>: BPD group: (30.5 ± 10.87 years), depressed comparison group: (44.3 ± 5.91 years) healthy comparison group: (33.6 ± 8.71) .</p> <p><u>Ethnicity</u>: Not reported</p>	<p><u>Exposure</u>: Childhood traumatisation, assessed with the Trauma Antecedents Questionnaire and the Sexual Abuse Scale of Early Trauma Inventory</p> <p><u>Outcome measure</u>: Borderline Personality Disorder (Hungarian version of Structured Clinical Interview for DSM-IV Axis I and Axis II disorders (SCID-I-II)</p>	<p>Chi-square test</p>	<p>Prevalence of CSA: BPD group (N=80): 45 (56.3%) Depressed group (N=73): 15 (20.5%) Healthy group (N=51): 2 (3.9%) $\chi^2 = 45.52$, $p < 0.001$</p> <p>Comparison of CSA in: BPD vs Depressed: $\chi^2 = 20.42$, $df = 2$, $p < 0.001$ BPD vs Healthy: $\chi^2 = 37.07$, $df = 1$, $p < 0.001$</p> <p>The prevalence of separation ($\chi^2 = 7.94$, $p = 0.005$), emotional abuse ($\chi^2 = 14.69$, $p < 0.001$), physical abuse ($\chi^2 = 17.09$, $p < 0.001$) and witnessing trauma ($\chi^2 = 24.25$, $p = 0.005$) was significantly higher in the group of sexually abused borderline patients.</p>

Comparisons of the groups on reported rates of childhood traumatization in the three developmental stages.

Type of traumatization	BPD (N = 80)	Depressed (N = 73)	Healthy (N = 51)	Analysis					
				All Groups		BPD vs. Healthy		BPD vs. Depressed	
				χ^2 (df = 2)	<i>P</i>	χ^2 (df = 2)	<i>P</i>	χ^2 (df = 1)	<i>P</i>
Sexual abuse									
Early childhood (0-6 years)	17 (21.3%)	4 (5.5%)	0 (0.0%)	18.08	<0.001	12.45	<.0001	8.02	0.005
Latency (7-12 years)	28 (35.0%)	7 (9.6%)	0 (0.0%)	31.42	<0.001	22.70	<0.001	13.97	<0.001
Adolescence (13-18 years)	42 (52.5%)	6 (8.2%)	2 (3.9%)	56.03	<0.001	32.95	<0.001	34.76	<0.001

Pathological childhood experiences of sexually abused and not sexually abused borderline patients.

	Sexually abused BPD patients (N = 45)		Not sexually abused BPD patients (N = 35)		Analysis	
					χ^2 (df = 1)	<i>P</i>
Neglect	41	91.1%	28	80.8%	2.05	0.152
Separation	41	91.1%	23	65.7%	7.94	0.005
Emotional abuse	45	100%	23	71.4%	14.69	<0.001
Physical abuse	38	84.4%	14	40.0%	17.09	<0.001
Witnessing	44	97.8%	18	51.4%	24.25	<0.001

Significant risk factors associated with the diagnosis of borderline personality disorder.

Variables	Beta	SE	df	<i>P</i>	Odds Ratio	95.0% C.I. for Odds Ratio	
						Lower	Upper
Genital fondling	2.099	0.608	1	0.001	8.156	2.479	26.836
Penetration	1.671	0.780	1	0.032	5.316	1.152	24.535
Neglect	1.407	0.491	1	0.004	4.083	1.560	10.686
Physical abuse	1.446	0.475	1	0.002	4.248	1.673	10.786

Conclusions

Author's conclusions: Adverse childhood experiences (neglect, emotional abuse, physical abuse, sexual abuse, witnessing trauma) were more prevalent among borderline patients than among depressed and healthy controls. Borderline patients reported severe sexual abuse, characterized by incest, penetration and repetitive abuse. Sexually abused borderline patients experienced more physical and emotional abuse than borderlines who were not sexually abused. The strongest predictors of borderline diagnosis were sexual abuse, intrafamilial physical abuse and neglect by the caretakers.

Reviewer's conclusions: This case control study provides evidence of an association between CSA and a borderline diagnosis.

Study type: Case control

Quality: 2-

Comments: An adequately conducted case control study utilising comparison groups, moderate sample size.

Reference	Data/Participants	Exposure and Outcome Measure	Data Analysis	Results
<p>Pietrek et al. (2013) “Childhood adversities in relation to psychiatric disorders.” <u>Psychiatry Research</u> 206: 103-110 Germany</p>	<p><u>Data:</u> Data were collected from a total 160 inpatients of the local Center for Psychiatry. Healthy subjects were recruited from the community.</p> <p><u>Participants:</u> 41 patients received the primary diagnosis of borderline personality disorder, 86 patients were diagnosed with major depressive disorder, and 33 patients with schizophrenia. 85 were healthy controls.</p> <p><u>Average age:</u> Healthy controls: M = 38.3, SD = 14.1 Patients: M = 36.7, SD = 13.8</p> <p><u>Ethnicity:</u> Not reported</p>	<p><u>Exposure:</u> Childhood adversities (assessed with Bremner’s Early Trauma Interview).</p> <p><u>Outcome:</u> Borderline symptoms (Borderline Symptom List)</p>	<p>Analysis of variance</p>	<p>Experiences differed between diagnostic groups (Diagnostic group x Type, $F(6,471)=11.84$, $p= 0.01$) in that sexual abuse was particularly pronounced in patients with borderline personality disorder (post-hoc t-test comparison with all other groups, $p = 0.01$), while borderline personality disorder and major depressive disorder reported more physical punishment and general traumata than schizophrenia patients ($p= 0.01$).</p>
<p>Conclusions</p> <p><u>Author’s conclusions:</u> Regression analyses confirmed early experiences as a predictor of borderline personality disorder, but not of major depressive disorder and schizophrenia.</p> <p><u>Reviewer’s conclusions:</u> This case control study provides evidence for an association between sexual abuse and BPD.</p> <p>Study type: Case control</p> <p>Quality: 2-</p> <p>Comments: An adequately conducted case control study utilising a comparison group, moderate sample size.</p>				

Reference	Data/Participants	Exposure and Outcome Measure	Data Analysis	Results
<p>Wingenfeld et al. (2011)</p> <p>“Childhood adversities in relation to psychiatric disorders.”</p> <p><u>Child Abuse and Neglect</u> 35: 647-654</p> <p>Germany</p>	<p><u>Data</u>: Data were collected from inpatients. Healthy subjects were recruited from the community.</p> <p><u>Participants</u>: Fifty-nine inpatients with borderline personality disorder and 47 in patients with major depressive disorder as well as 108 healthy controls were included.</p> <p><u>Average age</u>: Healthy controls: M = 38.3, SD = 14.1 Patients: M = 36.7, SD = 13.8</p> <p><u>Ethnicity</u>: All patients were Caucasian and of German nationality</p>	<p><u>Exposure</u>: Childhood adversities (assessed by Early Trauma Inventory and Trauma Assessment for Adults).</p> <p><u>Outcome</u>: Borderline symptoms (Borderline Symptom List)</p>	<p>Analysis of variance, regression analysis</p>	<p>Trauma Assessment for Adults score and Borderline Symptom List</p> <p>$\beta = .167$ $p = 0.002$</p>
<p>Conclusions</p>				
<p><u>Author’s conclusions</u>: Sexual abuse, either in childhood or in adulthood, was a significant predictor of all aspects of measured psychopathology, including borderline personality disorder.</p>				
<p><u>Reviewer’s conclusions</u>: This cohort study provides evidence for an association between sexual abuse and BPD.</p>				
<p>Study type: Case control</p>				
<p>Quality: 2-</p>				
<p>Comments: An adequately conducted case control study utilising a comparison group, moderate sample size.</p>				

Reference	Data/Participants	Exposure and Outcome Measure	Data Analysis	Results
<p>Hernandez et al. (2012)</p> <p>“Relationships between childhood maltreatment, parenting style and borderline personality disorder criteria.”</p> <p><u>Journal of Personality Disorders</u> 26(5): 727-736</p> <p>Spain</p>	<p><u>Data:</u> Data were collected from inpatient and outpatient females between 18 and 65 years of age</p> <p><u>Participants:</u> 109 inpatients: 32 with borderline personality disorder, 43 inpatients with one or more personality disorders excluding borderline, and 34 without any personality disorders but with an Axis I disorder.</p> <p><u>Average age:</u> M = 38.79, SD = 10.73</p> <p><u>Ethnicity:</u> Not reported</p>	<p><u>Exposure:</u> Childhood maltreatment (assessed by Childhood Trauma Questionnaire – Short Form).</p> <p><u>Outcome:</u> Borderline personality disorder (SCID-II Spanish version, Revised Diagnostic Interview for Borderlines)</p>	<p>Chi-square, Kruskal-Wallis H tests, Kendall’s Tau</p>	<p>All abuse and neglect scales were related to BPD criteria, but only sexual and emotional abuse remained significant after controlling for all the co-occurring variables.</p> <p>Correlation between childhood sexual abuse and borderline personality disorder criteria: .24, p < .01</p> <p>Correlation between childhood sexual abuse and borderline personality disorder criteria, while controlling for age, co-occurring maltreatment, parenting style and positive symptom distress index: .16, p < .05</p>
<p>Conclusions</p> <p><u>Author’s conclusions:</u> Borderline personality disorder criteria were associated with higher scores on emotional and sexual abuse, whereas parenting style did not show a specific association with borderline personality disorder.</p> <p><u>Reviewer’s conclusions:</u> This case control study provides evidence for an association between emotional and sexual abuse and BPD.</p>				
<p>Study type: Case control</p> <p>Quality: 2-</p> <p>Comments: An adequately conducted case control study utilising a comparison group, moderate sample size.</p>				

Reference	Data/Participants	Exposure and Outcome Measure	Data Analysis	Results
<p>Leporte et al. (2013)</p> <p>“Psychopathology, childhood trauma, and personality traits in patients with borderline personality disorder and their sisters.”</p> <p><u>Journal of Personality Disorders</u> 25: 448-462.</p> <p>Canada</p>	<p><u>Participants:</u> Female BPD patients and their sisters referred from psychiatric clinics across a large urban area.</p> <p>All sisters were full siblings with at least one of the same biological parents during their upbringing. All sisters were within 5 years of each other. The BPD patient was the youngest of the pair in 64% of cases, and 3 sets were dizygotic twins.</p> <p>Of the 62 pairs of sisters who participated, 56 fully completed the study.</p> <p><u>Average age:</u> The mean age was 28.7 for BPD patients, 30.2 for the sisters.</p> <p><u>Additional information:</u> Sisters were comparable on most demographic variables (marital status, income, having children), but had significantly more education ($p < 0.008$). 57% was French speaking and 43% English speaking.</p>	<p><u>Exposure:</u> Childhood abuse and neglect (physical neglect, emotional abuse, physical abuse, sexual abuse; CTI[Ⓢ]). Severity and frequency of childhood interpersonal trauma.</p> <p><u>Outcome:</u> Diagnosis of BPD (DSM-IV-TR[Ⓢ]; score of 8/10 on DIB-R[Ⓢ]), eating disorder, substance use (SCID-I[Ⓢ]; HAM-A and HAM-D[Ⓢ]), personality traits (SCL-90-R[Ⓢ]; DAPP-BQ[Ⓢ], BIS, ALS[Ⓢ]). Semi-structured interviews, self-report questionnaires.</p>	<p>Paired t-tests, chi-square analyses, multilevel modelling, principal component analysis.</p>	<p>Childhood Adversities</p> <p>Reports between patients and their sisters were the same in relation to severity of neglect, prevalence of neglect, prevalence of physical abuse, prevalence of sexual abuse by extended family or by strangers, and severity of sexual abuse by extended family or strangers.</p> <p>More patients than sisters reported experiencing emotional abuse (BPD: 76.8% vs. 53.4%), severity of emotional abuse, intrafamilial sexual abuse (BPD: 26.8% vs. sisters: 8.9%).</p> <p>Personality Traits</p> <p>Patients with BPD scored significantly higher than their sisters on all but two scales (compulsivity and rejection) of the DAPP-BQ, as well as on the factors DAPP1[Ⓢ], DAPP2[Ⓢ], and DAPP3[Ⓢ] and on all scales of impulsivity (BIS) and affective lability</p> <p>Multilevel Analyses</p> <p>Trait measures were the strongest predictors of dependent variables.</p>

Table 1. Contribution of abuse and personality variables to current borderline personality disorder symptoms

	DIB-R	
	b	F
SA prev	0.73	0.74
EA prev	0.91	1.23
EA comp	-0.00	0.09
PA comp	0.00	0.09
ALS	1.88	7.75**
BIS	0.04	1.70*
Mcare	0.00	0.00
DAPP 1	1.38	4.69*
DAPP 2	-0.38	0.40
DAPP 3	0.98	5.23*
DAPP 4 ^{°°°°}	0.02	0.00

Notes. SA prev = prevalence of intrafamilial sexual abuse; EA prev = prevalence of emotional abuse; EA comp = composite of emotional abuse; PA comp = composite of physical abuse; Mcare = PBI Mother care; *df* = 1, 11 for SA prev, *df* = 1, 20 for EA prev, and *df* = 1, 40 for all other predictors.

p* < .05; *p* < .01; ****p* < .001.

Principal Component Analysis of the DAPP-BQ scales:

[°]DAPP1 (loadings >0.40 of affective instability, submissiveness, cognitive distortion, identity problems, insecure attachment, anxiousness, suspiciousness, social avoidance, narcissism, and passive aggressivity);

^{°°}DAPP2 (loadings >0.40 of conduct problems, stimulus seeking, callousness, and rejection);

^{°°°}DAPP3 (loadings >0.40 of restricted expression and intimacy problems)

^{°°°°}DAPP4 (loadings >0.40 of compulsivity).

^φ Childhood Trauma Interview (Fink et al. 1995)

^ψ Diagnostic and Statistical Manual of Mental Disorders (DSM; American Psychiatric Association)

^Σ Diagnostic Interview for Borderline Personality Disorder, Revised (Zanarini et al. 1989)

[∅] Clinical Interview for DSM-IV

[‡] Hamilton Anxiety Scale (Hamilton, 1959); Hamilton Depression Scale (Hamilton, 1960)

[‡] Symptom Checklist-90, revised (Derogatis, 1975)

[‡] Diagnostic Assessment of Personality Pathology, Brief Questionnaire (DAPP-BQ)

[‡] Barratt Impulsivity Scale

Conclusions

Author's conclusions: This study points to the complexity of pathways to the development of BPD. Our results suggest that the outcome of childhood adversity is mediated by personality traits. However, causal inferences based on the present data are not warranted.

Reviewer's conclusions: This case control study indicates the complexity of pathways to the development of borderline personality disorder. Results suggest that the outcome of childhood adversity is mediated by personality traits.

Study type: Case control

Quality: 2+

Comments: An adequately conducted case control study utilising a comparison group consisting of patient's sisters, moderate sample size.

Reference	Data/Participants	Exposure and Outcome Measure	Data Analysis	Results
<p>Hecht et al. (2014)</p> <p>“Borderline personality features in childhood: The role of subtype, developmental timing and chronicity of child maltreatment.”</p> <p><u>Developmental and Psychopathology</u> 26: 805-815</p> <p>United States</p>	<p><u>Data</u>: Data were obtained from children attending a summer camp research program designed for low-income school-aged children.</p> <p><u>Participants</u>: 599 children, aged between 10-12. The sample comprised children who had been maltreated (n= 314) and children who had not (n= 285).</p> <p><u>Average age</u>: M age = 11.30, SD = 0.94)</p> <p><u>Ethnicity</u>:</p> <p>Maltreated group: African American 70.0% Latino 14.0% Caucasian 11.8% Other 4.1%</p> <p>Non-maltreated group: African American 66.0% Latino 22.8% Caucasian 8,1% Other 3.1%</p>	<p><u>Exposure</u>: Childhood maltreatment (assessed with Maltreatment Classification System))</p> <p><u>Outcome measure</u>: Borderline personality traits (Borderline Personality Features Scale for Children; BPFS-C)</p>	<p>Analysis of variance</p>	<p>Sexually abused children did not significantly differ from non-maltreated children on any of the four subscales of the BPFS-C, or total sum score (figures not provided).</p>
<p>Conclusions</p> <p><u>Author’s conclusions</u>: Childhood sexual abuse was not associated with increased overall borderline feature scores. This finding is contrary to previous literature.</p> <p><u>Reviewer’s conclusions</u>: This case control study does not provide evidence for an association between CSA and BPD.</p>				

Study type: Case control

Quality: 2-

Comments: An adequately conducted case control study utilising a comparison group, adequate sample size.

Reference	Data/Participants	Exposure and Outcome Measure	Data Analysis	Results
<p>Huang et al. (2012)</p> <p>“Childhood abuse in Chinese patients with borderline personality disorder.”</p> <p><u>Journal of Personality Disorders</u> 26: 238-254.</p> <p>China</p>	<p><u>Participants</u>: 382 individuals were recruited from multiple sources: outpatient Psychology department, outpatient Psychiatry department, and advertisement in hospital lobbies.</p> <p>Participants were aged between 18 and 40 years, had at least average intelligence, and had no history or current symptoms of serious organic condition or major psychotic disorder (i.e., schizophrenia or Bipolar I disorder)</p>	<p><u>Exposure</u>: Childhood abuse experience (childhood emotional, physical and sexual abuse before age 17; CECA,Q[Ⓞ]).</p> <p><u>Outcome</u>: Diagnosis of BPD (MSI-BPD)[Ⓟ]</p> <p>Ⓞ Childhood Experience of Care and Abuse Questionnaire</p> <p>Ⓟ Chinese version of the McLean Screening Instrument for Borderline Personality Disorder</p>	<p>Chi-square analyses, MANOVA, Binary logistic regression.</p>	<p>Diagnosis of BPD</p> <p>Of the 382 patients, 203 had a diagnosis of BPD, 109 had at least one diagnosis of personality disorder (PD) other than BPD, and 70 had no diagnosis of PD.</p> <p>Prevalence of Sexual Abuse</p> <p>BPD group: 22.2% (n=45) Other PD: 10.1% (n=11) No PD: 8.6% (n=6) Significant difference found across groups p =.006</p> <p>Sexual Abuse</p> <p>Significant differences found among the three groups for sexual abuse ($\chi^2 = 14.40$, p = 0.006). At the stringent corrected p = 0.017, a significantly higher percentage of the BPD group reported childhood sexual abuse than the Other PD and Non-PD groups ($\chi^2 = 8.42$, p = 0.015; $\chi^2 = 8.70$, p = 0.013, respectively).</p> <p>Among the 62 participants who reported sexual abuse, no significant difference was found among the three groups in relation to age of first sexual event (F = 2.251; p = 0.115); significant difference on the severity score of sexual abuse (F = 8.100; p = 0.001). Scheffe post hoc tests: mean sexual abuse severity score of the BPD patients (M = 4.9, SD = 1.4) was significantly higher than that of the Other PD group (M = 2.9, SD = 0.8) and Non-PD group (M = 3.3, SD = 1.0; p = 0.023, p = 0.000, respectively).</p> <p>Predictors of BPD</p>

				Predictors of diagnosis of BPD in adulthood were sexual abuse (OR= 1.86; 95%CI: 1.19 to 2.90), mother neglect (OR= 1.07; 95%CI: 1.02 to 1.12), mother physical abuse (OR =2.09; 95%CI: 1.21 to 3.61), and father antipathy (OR= 1.07; 95%CI: 1.03 to 1.12).
Conclusions				
<p><u>Author's conclusions:</u> Our findings indicate that childhood abuse contributes to the development of this disorder in China, as it does in North America and Japan. Accordingly, they suggest that childhood abuse is a cross-cultural aetiological factor for BPD. Four types of childhood abuse experiences were significant predictors of BPD in our sample of Chinese outpatients: sexual abuse, maternal neglect, maternal physical abuse, and paternal antipathy. The findings illuminate culture-specific aspects of BPD aetiology. In particular, maternal physical abuse seems to play a strong role in the development of BPD in China.</p> <p><u>Reviewer's conclusions:</u> This primary study provides evidence for an association between child abuse and BPD but results are not definitive.</p>				
Study type: Case control				
Quality: 2-				
Comments: An adequately conducted case control study utilising a comparison group, moderate sample size.				

12. Appendix 4: Excluded Studies for Revised Inclusion Criteria

350 articles were identified by the literature searches conducted. However, these articles were not included in this report based on the exclusion criteria (i.e., non-English studies, animal or laboratory studies, narrative reviews published prior to 2015, letters or editorials; study designs other than systematic review or meta-analysis, except for primary studies with comparison groups).

In addition:

- Approximately 243 were excluded because the focus was not on childhood sexual abuse and/or Borderline Personality Disorder and causation
- Approximately 16 were excluded because they did not have a comparison group and/or were not a cohort study
- Approximately 31 were excluded because they were a book or book chapter
- Approximately 19 were excluded because they were dissertations
- Approximately 32 were excluded because they were not in English
- Approximately 9 were excluded because they were editorials, commentaries or corrections on other articles

13. Appendix 5: Bradford Hill's Criteria of Causation

A suggested guide to assessing the likelihood of causation

- **Strength of the association:** A small association does not mean that there is not a causal effect, though the larger the association, the more likely that it is causal.
- **Consistency of the association:** Consistent findings observed by different persons in different places with different samples strengthens the likelihood of an effect.
- **Specificity:** Causation is likely if a very specific population at a specific site and disease with no other likely explanation. The more specific an association between a factor and an effect is, the bigger the probability of a causal relationship.
- **Temporality:** The effect has to occur after the cause (and if there is an expected delay between the cause and expected effect, then the effect must occur after that delay).
- **Biological gradient:** Greater exposure should generally lead to greater incidence of the effect. However, in some cases, the mere presence of the factor can trigger the effect. In other cases, an inverse proportion is observed: greater exposure leads to lower incidence.
- **Plausibility:** A plausible mechanism between cause and effect is helpful (but Hill noted that knowledge of the mechanism is limited by current knowledge).
- **Coherence:** Coherence between epidemiological and laboratory findings increases the likelihood of an effect. However, Hill noted that "... lack of such [laboratory] evidence cannot nullify the epidemiological effect on associations".
- **Experiment:** "Occasionally it is possible to appeal to experimental evidence".
- **Analogy:** The effect of similar factors may be considered.

14. References

- Aragonès, E., Salvador-Carulla, L., López-Muntaner, J., Ferrer, M., & Piñol, J. L. (2013). Registered prevalence of borderline personality disorder in primary care databases. *Gaceta sanitaria*, 27(2), 171-174.
- Barth, J., Bermetz, L., Heim, E., Trelle, S., & Tonia, T. (2013). The current prevalence of child sexual abuse worldwide: a systematic review and meta-analysis. *International journal of public health*, 58(3), 469-483.
- ³Bornovalova, M.A., Huibregtse, B.M., Hicks, B.M., Keyes, M., McGue, M., & Iacono, W. (2013). Tests of a direct effect of childhood abuse on adult borderline personality disorder traits: A longitudinal discordant twin study. *Journal of Abnormal Psychology*, 122(1), 180-194.
- Browne, A., & Finkelhor, D. (1986). Impact of child sexual abuse: a review of the research. *Psychological bulletin*, 99(1), 66.
- Cole, P. M., Michel, M. K., & Teti, L. O. D. (1994). The development of emotion regulation and dysregulation: A clinical perspective. *Monographs of the Society for Research in Child Development*, 59(2-3), 73-102.
- ⁶Cotter, J., Kaess, M., & Yung, A.R. (2015). Childhood trauma and functional disability in psychosis, bipolar disorder and borderline personality disorder: A review of the literature. *Irish Journal of Psychological Medicine*, 32(1), 21-30.
- ⁴Cutajar, M.C., Mullen, P.E., Ogloff, J.R., Thomas, S.D., Wells, D.L., & Spataro, J. (2010). Psychopathology in a large cohort of sexually abused children followed up to 43 years. *Child Abuse and Neglect*, 34, 813-822.
- Fergusson, D. M., McLeod, G. F., & Horwood, L. J. (2013). Childhood sexual abuse and adult developmental outcomes: Findings from a 30-year longitudinal study in New Zealand. *Child abuse & neglect*, 37(9), 664-674.
- Ford, J. D., & Courtois, C. A. (2014). Complex PTSD, affect dysregulation, and borderline personality disorder. *Borderline personality disorder and emotion dysregulation*, 1(1), 1.
- ²Fossati, A., Madeddu, F., & Maffei, C. (1999). Borderline personality disorder and childhood sexual abuse: A meta-analytic study. *Journal of Personality Disorders*, 13, 268–280.
- Grant, B. F., Chou, S. P., Goldstein, R. B., Huang, B., Stinson, F. S., Saha, T. D., . . . Pickering, R. P. (2008). Prevalence, correlates, disability, and comorbidity of DSM-IV borderline personality disorder: results from the Wave 2 National Epidemiologic

- Survey on Alcohol and Related Conditions. *The Journal of clinical psychiatry*, 69(4), 533.
- Grilo, C. M., McGlashan, T. H., Quinlan, D. M., Walker, M. L., Greenfeld, D., & Edell, W. S. (1998). Frequency of personality disorders in two age cohorts of psychiatric inpatients. *American journal of psychiatry*
- ¹² Hecht, K.F., Cicchetti, D., Rogosch, F.A., & Crick, N.R. (2014). Borderline personality features in childhood: The role of subtype, developmental timing, and chronicity of child maltreatment. *Development and Psychopathology*, 26, 805-815.
- ¹⁰ Hernandez, A., Arntz, A., Gaviria, A.M., Labad, A., & Gutierrez-Zotes, J.A. (2012). Relationships between childhood maltreatment, parenting style, and borderline personality criteria. *Journal of Personality Disorders*, 26(5), 727-736.
- Hill, A.B. (1965). The environment and disease: association or causation? *Proc R Soc Med*, 58, 295-300.
- ¹³ Huang, J., Yang, Y., Wu, J., Napolitano, L.A., Xi, Y., & Cui, Y. (2012). Childhood abuse in Chinese patients with borderline personality disorder. *Journal of Personality Disorders*, 26(2), 238-254.
- Hughes, A. E., Crowell, S. E., Uyeji, L., & Coan, J. A. (2012). A developmental neuroscience of borderline pathology: Emotion dysregulation and social baseline theory. *Journal of abnormal child psychology*, 40(1), 21-33.
- Korzekwa, M. I., Dell, P. F., Links, P. S., Thabane, L., & Webb, S. P. (2008). Estimating the prevalence of borderline personality disorder in psychiatric outpatients using a two-phase procedure. *Comprehensive Psychiatry*, 49(4), 380-386.
- Kuo, J. R., Khoury, J. E., Metcalfe, R., Fitzpatrick, S., & Goodwill, A. (2015). An examination of the relationship between childhood emotional abuse and borderline personality disorder features: the role of difficulties with emotion regulation. *Child abuse & neglect*, 39, 147-155.
- Landecker, H. (1992). The role of childhood sexual trauma in the etiology of borderline personality disorder: Considerations for diagnosis and treatment. *Psychotherapy: Theory, Research, Practice, Training*, 29(2), 234.
- Leclerc, B., & Wortley, R. (2015). Predictors of victim disclosure in child sexual abuse: additional evidence from a sample of incarcerated adult sex offenders. *Child abuse & neglect*, 43, 104-111.

- Leichsenring, F., Leibing, E., Kruse, J., New, A. S., & Leweke, F. (2011). Borderline personality disorder. *The Lancet*, 377(9759), 74-84.
- Lenzenweger, M. F., Lane, M. C., Loranger, A. W., & Kessler, R. C. (2007). DSM-IV personality disorders in the National Comorbidity Survey Replication. *Biological psychiatry*, 62(6), 553-564.
- ¹¹ Leporte, L., Paris, J., Guttman, H., & Russell, J. (2011). Psychopathology, childhood trauma, and personality traits in patients with borderline personality disorder and their sisters. *Journal of Personality Disorders*, 25(4), 448-462.
- Lieb, K., Zanarini, M. C., Schmahl, C., Linehan, M. M., & Bohus, M. (2004). Borderline personality disorder. *The Lancet*, 364(9432), 453-461.
- Linehan, M. (1993). *Cognitive-behavioral treatment of borderline personality disorder*. Guilford press.
- ⁵ MacIntosh, H. B., Godbout, N., & Dubash, N. (2015). Borderline personality disorder: Disorder of trauma or personality, a review of the empirical literature. *Canadian Psychology/Psychologie canadienne*, 56(2), 227.
- Marinangeli, M., Butti, G., Scinto, A., Di Cicco, L., Petruzzi, C., Daneluzzo, E., & Rossi, A. (2000). Patterns of comorbidity among DSM-III-R personality disorders. *Psychopathology*, 33(2), 69-74.
- ¹ Martins, C.S., de Carvalho Tofoli, S.M., Von Werne Baes, C., & Juruena, M. (2011). Analysis of the occurrence of early life stress in adult psychiatric patients: A systematic review. *Psychology and Neuroscience*, 4(2), 219-227.
- McLean, L. & Gallop, R. (2003). Implications of childhood sexual abuse for adult borderline personality disorder and complex posttraumatic stress disorder. *American Journal of Psychiatry* 160(2), 369-371.
- ⁷ Merza, K., Papp, G., & Szabo, I. (2015). The role of childhood traumatization in the development of borderline personality disorder in Hungary. *European Journal of Psychiatry*, 29(2), 105-118.
- Minzenberg, M. J., Poole, J. H., & Vinogradov, S. (2008). A neurocognitive model of borderline personality disorder: Effects of childhood sexual abuse and relationship to adult social attachment disturbance. *Development and Psychopathology*, 20(01), 341-368.

- Paolucci, E. O., Genuis, M. L., & Violato, C. (2001). A meta-analysis of the published research on the effects of child sexual abuse. *The Journal of psychology, 135*(1), 17-36.
- Pereda, N., Guilera, G., Forns, M., & Gómez-Benito, J. (2009). The international epidemiology of child sexual abuse: A continuation of Finkelhor (1994). *Child abuse & neglect, 33*(6), 331-342.
- ⁸Pietrek, C., Elbert, T., Weierstall, R., Muller, O., & Rockstroh, B. (2013). Childhood adversities in relation to psychiatric disorders. *Psychiatry Research, 206*, 103-110.
- Skodol, A. E., Siever, L. J., Livesley, W. J., Gunderson, J. G., Pfohl, B., & Widiger, T. A. (2002). The borderline diagnosis II: biology, genetics, and clinical course. *Biological psychiatry, 51*(12), 951-963.
- ⁹Wingenfeld, K., Schaffrath, C., Rullkoetter, N., Mensebach, C., Schlosser, N., Beblo, T., Driessen, M., & Meyer, B. (2011). Associations of childhood trauma, trauma in adulthood and previous-year stress with psychopathology in patients with major depression and borderline personality disorder. *Child Abuse and Neglect, 35*, 647-654.
- Zanarini, M. C., Yong, L., Frankenburg, F.R., Hennen, J., Reich, D.B., Marino, M.F., & Vujanovic, A.A. (2002). Severity of reported childhood sexual abuse and its relationship to severity of borderline psychopathology and psychosocial impairment among borderline inpatients. *Journal of Nervous and Mental Disease, 190*(6), 381-387.
- Zimmerman, M., Rothschild, L., & Chelminski, I. (2005). The prevalence of DSM-IV personality disorders in psychiatric outpatients. *American journal of psychiatry, 162*(10), 1911-1918.