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Nature vs. Nurture in Borderline Personality Disorder: Investigating the Role of Childhood Sexual Abuse: A Comprehensive Literature Review

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ABSTRACT

With a focus on the significance of childhood sexual abuse, this extensive literature review explores the complex interplay between nature and nurture in the context of borderline personality disorder (BPD). BPD is a sophisticated psychological condition characterised by strong emotional reactions and frequently negative behaviours. The review examines early sexual abuse and genetic influences as two important contributors. hereditary research raises the possibility that certain gene variants and BPD are related, elucidating the disorder's hereditary basis. On the other side, research shows a significant link between BPD symptoms and childhood sexual abuse. The review discusses the connection of heredity and abuse and makes the suggestion that these elements may work together to affect the risk and manifestation of BPD. It is noted that there are sample size, diversity, and potential bias limitations. These results highlight the importance of more study to completely understand the complex interactions between heredity, trauma, and BPD.

INTRODUCTION

The term “borderline personality” is one that has amassed widespread recognition within the field of psychology over the past few decades. First proposed in 1938 by Adolph Stern, the term was originally used to differentiate a sample of Stern’s psychiatric patients that ‘bordered’ between the categories of neurosis and psychosis (Stern, 1939). Various studies have since been undertaken to develop therapeutic interventions and etiological models for the disorder, with its extremely debilitating nature to both the sufferer and society exacerbating the importance of this. Individuals with BPD often feel immense psychological pain due to their experience of highly intensified emotions compared to the average person. This mental disorder has hence been deemed one of the most psychologically painful (Holm, 2008). As a result, action is often taken by sufferers to relieve and ‘numb’ the emotions, often with harmful, destructive behaviours such as self-harm, substance abuse, maladaptive eating behaviours, suicidal tendencies, and more (Nehls, 1999).

At the nexus of this debate, two key factors emerge as prominent contributors to the development and manifestation of BPD: genetics, and a history of sexual abuse. The etiological effects of these elements on the development of BPD are the subject of this essay, delving into the intricate ways in which they may converge to shape the course of this condition.

As we navigate this exploration, it becomes clear that BPD is not a one-dimensional entity; rather, it is a dynamic interplay of nature and nurture that demands our attention, understanding, and empathy. The genetic aspect of BPD compels us to consider the role of inheritance in the manifestation of this disorder. Are there specific genetic markers that increase susceptibility to BPD? Is there a hereditary component that predisposes certain individuals to its symptoms? These are the questions that have driven scientists to scrutinize the human genome in their quest to unravel

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BPD. Understanding the genetic underpinnings of BPD not only offers a glimpse into the nature of this complex disorder but also holds the potential to revolutionize diagnosis and treatment strategies. On the other side of the spectrum, the trauma of sexual abuse is an unsettling reality that casts a long and haunting shadow over many individuals diagnosed with BPD (Bornovalova, 2009). The link between early-life trauma and the development of BPD is well-documented, raising questions about the mechanisms through which such traumatic experiences shape the emotional and psychological landscapes of those who suffer. The devastating effects of sexual abuse demand compassionate exploration, as they intertwine with genetic predispositions in ways that can exacerbate and complicate the course of BPD. (Kulacaoglu, 2018)

SEXUAL ABUSE INTERACTION TO THE DEVELOPMENT OF BPD

There is a strong correlation between sexual abuse and the development of borderline personality disorder (BPD) (Sansone, 2011). A study that shows the link between BPD and childhood trauma in specific, sexual abuse, is Sansone et al (2011). The aim of the research was to investigate how five different forms of childhood trauma are connected to two indicators of (BPD) within a clinical population that doesn't have psychiatric diagnoses.

250 participants (117 were men and 133 were females) were consecutive patients of 18 or older who were undergoing cardiac stress testing in a community hospital. To assess childhood trauma, the participants were asked questions related to the 5-childhood trauma. Questions included the theme of the witnessing of violence, psychical neglect, emotional abuse, physical abuse, and sexual abuse. Additionally, two measures were for the assessment of borderline personality symptomatology. The first procedure was the BDP scale of PDQ-4 which comprises nine true/false self-report questions aligned with DSM-IV BPD diagnostic criteria. A score of 5 or above strongly indicates a potential BPD diagnosis. The second measure was the SHI, this 22-item questionnaire assesses deliberate self-harm behaviors through yes/no responses. Each item begins with "Have you ever intentionally, or on purpose..." and includes actions like "overdosing," "self-cutting," "self-burning," and "self-hitting.". this is summarized it a yes or no response. SHI score of 5 or higher are highly suggestive of the diagnosis of BDP. (Sansone, 2011)

Sexual abuse is the key factor for PDQ-4 and SHI scores, they performed two analyses. In the first, only sexual abuse ($\beta = 0.25$, $p < 0.001$) and seeing a psychiatrist/counselor ($\beta = 0.13$, $p < 0.05$) significantly predicted PDQ-4 scores ($F(7,242) = 9.19$, $p < 0.001$, $R = 0.46$). In the second analysis, sexual abuse ($\beta = 0.22$, $p < 0.001$), witnessing violence ($\beta = 0.25$, $p < 0.001$), and seeing a psychiatrist/counselor ($\beta = 0.28$, $p < 0.05$) significantly predicted SHI scores ($F(7,242) = 13.45$, $p < 0.001$, $R = 0.53$) (Sansone, 2011). The study's analysis through multiple regression reveals that sexual abuse emerges as the core, independent predictor of borderline personality symptomatology, emphasizing its substantial influence when compared to other forms of trauma. Empathizing that sexual abuse does affect the development of BDP.

The study's reliance on closed-ended questionnaires to assess borderline personality symptomatology was identified as a weakness. These questionnaires limited participants to responding with a simple "yes" or "no," which restricted the collection of detailed and qualitative data. This limitation hindered the ability to produce in-depth results. Consequently, this weakness in data collection reduced the overall reliability of the study due to its lack of depth and nuance. This does not support the argument that sexual abuse contributes to the developemnt of BDP which is aligns with the thesis. Conversely, the study featured 250 participants, a significant number that strengthens the argument. This larger participant pool enhances the study's generalizability, making it a more reliable representation of the target population. The increased sample size not only bolsters the study's credibility but also increases the likelihood of the findings being applicable to a wider range of individuals, which can have practical implications in real-world scenarios.

There is a significant correlation between CSA and BPD symptoms in patients. (Saldanha, 2016) A study that shows the link between BPD and childhood sexual abuse is Saldanha et al (2016). The aim of the research was to investigate the occurrence of CSA and its parameter in BPD patients. (Saldanha, 2016)

36 consecutive patients with BPD drawn from outpatients and inpatients department who were between 18 and 65 years old. All the participants were given a witten informed consent and went through a two-stage interviewing process to reduce the chance of bias being introduced. All of the necessary sociodemographic information about the subject was gathered in the initial stage of the interview, and the diagnosis of BDP according to the DSM-VI-TR criteria was independently confirmed by two psychiatrists. The second intervierw was carried by another interviewer who did know the subject's diagnosis and all the other previously obtained information. Information about CSA was obtained through the interviews using semi structured interviews, they used open ended to question to explore the situation further rather than a 'yes or not' response. The collected data was analysed using SPSS software. Chi-square test was applied to analyse the quantitative data ($P \leq 0.05$). (Saldanha, 2016)

A total of 16 of the 36 people with Borderline Personality Disorder (BPD) disclosed a history of definite childhood sexual abuse (CSA). The prevalence of CSA was higher in females, where 13 out of 31 patients reported having experienced it, compared to 3 out of 5 patients who were male. CSA has a major formative role in the development in later life atleast in the subset of patients. The disclosed history of CSA appears to play a significant and potentially formative role in the later life development of at least a subset of these BPD patients. (Saldanha, 2016)

Considering the second interview they constructed was carried by interviewer who did not know the past diagnosis of the participants and therefore reduces researcher bias. As research bias increasing the reliability of the study. This strengthen the support to the argument that chidlhood sexual abuse does play a key role the development of BPD. There were only 36 participants that took part in this study reducing the generalizability as it is not representable of the target population. This weaken the support to the argument that childhood sexual abuse does play a key role in the development of BPD. Lastly, the study used open ended questions in their interview. This helped to not only provide a 'yes' and 'no' response but allowed a deeper and more detailed answer which allowed for in-depth data. This inreases the validity of the study and therefore strengthens the support to the argument. (Saldanha, 2016)

IMPACT OF BIOLOGICAL FACTORS ON BPD DEVELOPMENT

One study that demonstrates the impact of genes on the development of borderline personality disorder was Ni et al. The researchers aimed to test for a possible association between the 5-HTT gene and BPD through the means of genotyping and statistical analyses. (NI, 2006)

89 diagnosed BPD individuals, all of whom were Caucasian, were recruited from Canada alongside a control group of healthy individuals. Trained research assistants conducted a structured interview using the International Personality Disorder Examination (IPDE) to determine a DSM-IV diagnosis of BPD and other personality disorders for each patient. Additionally, a structured clinical interview for DSM-IV Axis I disorders (SCID-I) was employed. Control participants were carefully screened for significant psychiatric disorders/substance abuse, and were excluded if either condition was identified, whether presently or in their past medical history. All participants provided informed consent before the investigation, after which their DNA was extracted from blood samples using a high-salt extraction method. Then, a polymerase chain reaction (PCR) was used to examine the 5-HTT variations. The genetic variants were differentiated via the use of a high-resolution agarose gel, identifying its distinct forms. Several statistical analyses were then conducted to identify a relationship between BPD symptomatology and the presence of 5-HTT variants. (NI, 2006)

Results indicated no significant differences in the gene variations between BPD patients and healthy controls, except for a trend in the intron 2 VNTR genotypes, where a significant link was observed when comparing those with and without 10 repeats, resulting in an odds ratio (OR) of 2.02. There were also differences in allele frequencies, with BPD patients having more of the 10 repeat and less of the 12 repeats, with respective ORs of 1.65 and 0.61. The study also discovered that certain combinations of 5-HTT gene variations, called haplotypes, were linked to BPD. BPD patients were more likely to have one type (S-10) and less likely to have another (LA-12), with ORs of 2.61 and 0.64, respectively. These findings were confirmed through statistical analyses and remained significant even after correcting for multiple tests. (NI, 2006)

Hence, the study's findings imply that specific variations in the 5-HTT gene, particularly those related to the VNTR marker and haplotypes, may be associated with borderline personality disorder (BPD) (NI, 2006). In essence, certain genetic patterns within the 5-HTT gene could potentially play a role in the development or expression of BPD. However, it's important to note that this association isn't a guarantee that these genetic variations directly cause BPD. Instead, it suggests a link that may contribute to the risk or expression of the disorder. Further research is needed to understand the exact nature of this relationship and its implications for the diagnosis and treatment of BPD.

The serotonergic neurotransmitter system is involved in the regulation of a wide range of psychological, behavioral, and biological functions— the level of serotonin in the synaptic cleft is primarily controlled by the activity of the presynaptic serotonin transporter. This transporter has become a primary target for commonly used antidepressants (selective serotonin reuptake inhibitors, SSRIs), as well as psychostimulants, drugs of abuse, and neurotoxins (Lesch KP, 2005) (Schloss, 1998) (Tamminga, 2002). Therefore, numerous studies have consistently linked the 5-HTT gene to a broad spectrum of behavioral disorders, such as neuroticism, anxiety, bipolar disorder, and symptoms of depression (NI, 2006). BPD may also seem to be a part of this list according to the results of this study. The study also indicated that individuals with BPD may exhibit reduced transcriptional activity of 5-HTT. This outcome aligns with research establishing a genetic link between the low-expression S allele and aggressive behavior (Cadoret, 2003) and

neuroticism, a trait marked by negative emotional characteristics such as anxiety, depression, vulnerability, and hostility (Sen, 2004)

Case-control studies such as this one, while valuable for examining potential associations between exposures and outcomes, have several inherent limitations. One critical challenge is the potential for selection bias, where the choice of cases and controls may not accurately represent the broader population. Furthermore, establishing a temporal sequence of events can also be problematic, as case-control studies look backward in time.

While they can suggest associations, these studies are less effective at proving causality. The choice of suitable controls who closely match cases in all aspects except the exposure is a complex and resource-intensive task. Further, factors such as confounding variables, data quality, and generalizability can influence the accuracy and interpretation of results. Despite these limitations, the study was essential for the initial explorations of potential associations between genetics and BPD etiology, with its findings serving as a basis for more rigorous study designs.

Another study that explored the potential contributions (Martín-Blanco., 2014) of genetics to the development of BPD was Martín-Blanco et al. (2014). The study's aim was to investigate the epigenetic alterations linked to BPD. 26 BPD patients (2 males, 24 females), alongside a control group of 11 healthy females, were recruited for this study. (Martín-Blanco., 2014)

Researchers examined 14 neuropsychiatric genes which may play a role in the development of borderline personality disorder (BPD). Some of these genes, such as GABRA1, HTR2A, NR3C1, NOS1, and soluble COMT, were selected based on reported epigenetic irregularities in conditions, like schizophrenia or depressive disorders. Bisulfite pyrosequencing was utilized to analyze the DNA methylation patterns of these genes. (Martín-Blanco., 2014)

Their data demonstrated that the mean methylation levels in five distinct regions (HTR 2A, NR 3C1, MAOA, MAOB, and S-COMT) were notably higher in the blood samples obtained from individuals with BPD in comparison to the control group. Numerous CpG sites displayed significantly increased methylation in individuals with BPD, suggesting that an elevated methylation of CpG sites may bring about changes in the epigenetic characteristics of certain neuropsychiatric genes in individuals with BPD.

To summarize, researchers established methylation patterns in various promoter regions, and observed a significant 1.7% increase in average methylation in the blood samples of individuals with BPD ($p < 0.0001$). The data suggests that the disordered epigenetic regulation of neuropsychiatric genes may contribute to the onset of BPD. (Martín-Blanco., 2014)

Using a sample of 26 individuals, with 24 of them being female, for a psychology experiment poses several limitations. The significant gender imbalance, with only 2 males, introduces gender bias and may not accurately represent psychological responses across genders. Furthermore, this sample's limited diversity in terms of age, ethnicity, socioeconomic status, and education level can restrict the generalizability of findings to a more heterogeneous population. A sample of this size may lack statistical power, making it difficult to detect significant effects and increasing the risk of both Type I and Type II errors (Martín-Blanco., 2014). Moreover, psychological phenomena, often multifaceted and nuanced, may not be fully captured by such a small sample. To mitigate these limitations, researchers commonly opt for larger, more diverse samples to enhance the reliability and applicability of their results, aligning them with the complexity of human psychology. The choice of sample size and composition should be guided by the study's research question and objectives. (Martín-Blanco., 2014)

BIOLOGICAL AND ENVIRONMENTAL INTERPLAY IN BPD DEVELOPMENT

There is a relationship between the genetic variants and childhood sexual abuse in patiants with Borderline Personality Disorder. (Martín-Blanco, 2015) One study that demonstrates this is Martín-Blanco et al (2015). The study's objective was to assess the influence of genetic variations within the HPA axis and to examine how childhood trauma might interact with these genetic factors. (Martín-Blanco, 2015)

481 participants with BPD and 442 ethically matched controls from 2 hospitals in Spain took part in this study. A subset of the individuals in the BPD sample completed the Child Trauma Questionnaire Short Form. The assessment instruments for this study was a structured clinical interview for DSM-IV axis II Personality disorder (SCID-II) (according to DSMI-IV criteria), revise diagnostic interview for borderlines (DIB-R) (to diagnose BPD within the last two years and presents the severity of the disorder) and childhood trauma questionnaire short term which presents a clear understanding of the abuse and neglect experienced by the participant. Upon admission to the unit, blood samples

were methodically obtained using standard techniques, and then genomic DNA was extracted from peripheral leukocytes through the employment of a salty out procedure. (Martín-Blanco, 2015)

The study revealed that several CRHR2 variants, such as rs4722999, showed higher prevalence in patients who had experienced childhood sexual abuse ($p = 0.05$). Furthermore, in the broader context, the risk allele was relatively more prevalent in BPD patients who reported childhood abuse or neglect compared to those without any history of trauma. Notably, our findings suggest that polymorphic variants within the FKBP5 and CRHR genes may be linked to a diagnosis of BPD, with these associations becoming more pronounced when accounting for the presence of childhood traumas. (Martín-Blanco, 2015)

The inclusion of a control group in the study enhances its reliability by providing valuable opportunities for detailed and accurate comparisons, thereby bolstering the argument that there may be an interaction between biological factors and childhood sexual abuse. However, it's important to note that the study's limited participant selection from just three hospitals in Spain compromises its generalizability to the broader population, thus weakening the support for the notion of an interaction between biological factors and childhood sexual abuse. Furthermore, the absence of psychiatric evaluations in the control group raises concerns about the study's validity as it cannot be guaranteed that no subjects with Borderline Personality Disorder (BPD) were included in this sample. (Martín-Blanco, 2015)

CONCLUSION

In conclusion, the interplay of genetics and the traumatic experience of sexual abuse is a multifaceted and intricate aspect of understanding borderline personality disorder (BPD). This essay has explored the roles of genetics and sexual abuse in the development and manifestation of BPD and has highlighted the complex relationships between these factors. On the genetic front, studies like Ni et al. (2006) and Martín-Blanco et al. (2014) have shed light on potential genetic markers and epigenetic alterations associated with BPD. While these studies provide intriguing insights into the genetic aspects of the disorder, they also emphasize the need for further research to understand the precise nature of these genetic links. These studies present evidence that suggests certain genetic variations and epigenetic alterations may contribute to an increased risk of developing BPD, emphasizing the importance of genetic research in advancing our comprehension of the disorder. Turning to the realm of childhood sexual abuse, studies like Sansone et al. (2011) and Saldanha et al. (2016) have revealed the significant impact of sexual abuse on the development of BPD. These studies emphasize that childhood sexual abuse is a key factor in the onset of BPD symptoms, particularly self-harming behaviours. However, it's crucial to recognize that the experiences of individuals with BPD are diverse, and not all cases can be attributed to this factor alone. Nonetheless, these studies underscore the critical importance of addressing trauma and providing support to individuals who have experienced sexual abuse as part of BPD treatment. When considering the interaction between genetics and sexual abuse, Martín-Blanco et al. (2015) revealed potential connections between genetic variations and childhood trauma in individuals with BPD. This suggests that the genetic predispositions and environmental factors like sexual abuse may interact, influencing the risk and expression of the disorder. However, this interaction is a complex and nuanced phenomenon, which necessitates further investigation to fully understand its implications.

Yet, it is essential to account for the limitations of this investigation. One aspect to consider across several of these studies is their relatively small sample sizes. For instance, the study by Ni et al. (2006) included just 89 individuals diagnosed with BPD, and Saldanha et al. (2016) had a sample size of only 36 BPD patients. Small samples can undermine the generalizability of findings, as the results may not be representative of the broader population of individuals with BPD. BPD is a complex and heterogeneous disorder, and studies with larger and more diverse samples are essential to capture the full spectrum of the condition.

Furthermore, some of the studies, such as Sansone et al. (2011), relied on closed-ended questionnaires to assess borderline personality symptomatology. Closed-ended questions typically provide limited responses, such as "yes" or "no," which can restrict the depth of data collection. BPD is characterized by diverse and nuanced symptomatology, and a simplistic questionnaire format may not fully capture the complexity of the disorder. This limitation might not provide a comprehensive understanding of participants' experiences, hindering the accuracy of the study's findings.

Another crucial limitation is the lack of diversity in some of the studies. For instance, in the study by Saldanha et al. (2016), there was an underrepresentation of male participants. Additionally, the studies were often conducted in specific geographic regions, potentially limiting the applicability of their findings to a more diverse global population. BPD can manifest differently across cultural contexts, and failing to account for this diversity may constrain the broader understanding of the condition.

The potential for selection bias should be acknowledged. Some studies recruited participants from specific sources, such as outpatient and inpatient departments. These sources may not accurately represent the broader population of individuals with BPD, as those seeking treatment might have different experiences or characteristics compared to those who do not seek treatment. Selection bias can compromise the external validity of the research findings. Recall Bias: In studies that relied on participants' recall of past experiences, such as childhood sexual abuse, there is the potential for recall bias. Participants may not remember events accurately, and the emotional impact of their experiences may affect their recall. This can introduce inaccuracies into the data and affect the study's validity.

Acknowledging these limitations is vital when interpreting the results of these studies. Researchers, clinicians, and policymakers should consider these constraints when applying the findings to real-world scenarios. Further research that addresses these limitations, such as utilizing larger and more diverse samples, employing qualitative data collection methods, and minimizing bias, is essential to advance our understanding of the complex interplay between genetics, trauma, and BPD.

BIBLIOGRAPHY

1. Bornovalova, M. A. (2009). Stability, change, and heritability of borderline personality disorder traits from adolescence to adulthood: A longitudinal twin study. Development and Psychopathology, 21(4), 1335- 1353.
2. Cadoret, R. J. (2003, March). Associations of the serotonin transporter promoter polymorphism with aggressivity, attention deficit, and conduct disorder in an adoptee population. Comprehensive Psychiatry, 44(2), 88–101.
3. Holm, A. &. (2008). The emotional pain and distress of borderline personality disorder: A review of the literature. International Journal of Mental Health Nursing, 17, 27-35.
4. Kulacaoglu, F. &. (2018, November 18). Borderline Personality Disorder (BPD): In the Midst of Vulnerability, Chaos, and Awe. Brain Sciences, 8(11), 201.
5. Lesch KP, G. L. (2005, July 29). Pharmacogenetics of the serotonin transporter. Prog Neuropsychopharmacol Biol Psychiatry, 29(6), 1062-73.
6. Martín-Blanco., A. F.-M.-S. (2014). Association between methylation of the glucocorticoid receptor gene, childhood maltreatment, and clinical severity in borderline personality disorder. Journal of Psychiatric Research, 57, 34–40.
7. Martín-Blanco, .. A.-M.-M. (2015). The role of hypothalamus–pituitary–adrenal genes and childhood trauma in borderline personality disorder. European Archives of Psychiatry and Clinical Neuroscience, 307-316.
8. Nehls, N. (1999). Borderline personality disorder: The voice of patients. Research in Nursing & Health, 22(4), 285-293.
9. NI, X. C. (2006). Association between serotonin transporter gene and borderline personality disorder. Journal of Psychiatric Research, 448-453.
10. Sansone, R. A. (2011, September 13). The relationship between childhood trauma and borderline personality symptomatology in a consecutive sample of cardiac stress test patients. International Journal of Psychiatry in Clinical Practice, 15.
11. Saldanha, D. M. (2016). Childhood sexual abuse in adult patients with borderline personality disorder. Industrial Psychiatry Journal, 101.
12. Schloss, P. &. (1998). The serotonin transporter: a primary target for antidepressant drugs. Journal of Psychopharmacology, 12(2), 115-121.
13. Sen, S. B. (2004, January 13). Meta-analysis of the association between a serotonin transporter promoter polymorphism (5-HTTLPR) and anxiety-related personality traits. American Journal of Medical Genetics Part B: Neuropsychiatric Genetics, 127B(1), 85–89.
14. Stern, A. (1939). Psychoanalytic Investigation of and Therapy in the Border Line Group of Neuroses. The Psychoanalytic Quarterly, 467-489.
15. Tamminga, C. &. (2002, April 1). Partial Dopamine Agonists and Dopaminergic Stabilizers, in the Treatment of Psychosis. Current Drug Target -CNS & Neurological Disorders, 1(2), 141–147.