| RESEARCH ARTICLE

The Association between Borderline Personality Disorder and Criminal Activity and Self-harm, Including Suicidal Behavior: A Systematic Review

Mafaz Mansoor[1] ✉ **Samia Rauf Butt[2], Travis Satnarine[3], Pranuthi Ratna[4], Aditi Sarker[5], Adarsh Srinivas Ramesh[6], Carlos Munoz Tello[7], Dawood Jamil[8], Hadrian Hoang-Vu Tran[9], and Safeera Khan[10]**
[1][2][3][4][5][6][7][8][9][10]*California Institute of Behavioral Neurosciences & Psychology LLC, 4751 Mangels Blvd, Fairfield, CA 94534*
Corresponding Author: Mafaz Mansoor, **E-mail**: mafazmansoor@gmail.com

| **ABSTRACT**

Borderline Personality Disorder (BPD) is an extraordinarily complex and least-understood mental disorder. It is currently known that BPD is related to aggression and anger. However, fewer studies focused on the prevalence of BPD symptoms among criminal offenders and their association with crime. This systematic review act per Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) 2020 guidelines. We searched PubMed, PubMed Central (PMC), Medical Literature Analysis and Retrieval System Online (MEDLINE), and Science Direct for appropriate studies and research. Screening of articles was performed based on relevance and inclusion and exclusion criteria. To check for bias, we used relevant quality appraisal tools. Initially, we found 10026 articles. After removing duplicates and irrelevant papers, we finalized 18 studies based on titles, abstracts, and reading entire articles. We excluded eight studies because of poor quality, and the remaining ten papers were included in this review. BPD was related to criminal activities and suicidal and non-suicidal acts. Adverse childhood experiences positively predicted self-injurious behavior. There is a positive linkage between BPD symptoms and general offense, Inter-Partner Violence (IPV), and Child Abuse Potential (CPA).

1. Introduction

Jun Lin, a university student in Montreal, Canada, was stabbed and murdered by Luka Rocco Magnotta in May 2012 [Talbot, 2012]. Magnotta made the video while dismembering the body and posted it online [Talbot, 2012]. He also mailed the body parts to schools and public offices [Talbot, 2012]. He was convicted of the murder and received a life sentence in December 2014 [Michael, 2014]. He was diagnosed with borderline personality disorder (BPD) with Histrionic features by Dr. Renee Roy, his forensic psychiatrist, during the preliminary hearing and murder trial [DiManno, 2014].

According to a study conducted in 2008, the approximate lifetime prevalence of borderline personality disorder (BPD) among the American population is 5.9% [Grant, 2008]. BPD accounts for almost 20% to 22% of psychiatric hospitalizations and 10% to 12% of outpatient psychiatric clinical visits [Ellison et al. 2018]. Borderline personality disorder (BPD) is a mental health illness characterized by unstable interpersonal relationships and self-identity with significant impulse, affecting regulation issues [American Psychiatric Association, 2013]. There are nine criteria from which at least five or more must be present in an individual to diagnose BPD [American Psychiatric Association, 2013]. Clinical manifestations and symptoms of BPD overlay with many other disorders; therefore, it is imperative to recognize those diseases as every condition is, managed separately [Paris, 2018]. It is crucial

to distinguish BPD from mood disorders, Schizophrenia, Attention deficit hyperactive disorder (ADHD), Post-traumatic stress disorder (PTSD), and substance abuse, among others [Paris, 2018].

Individuals with BPD depict signs of behavioral and emotional instability that predispose them to an increased risk for involvement in self-harm behaviors. One criterion to diagnose BPD is self-injury gestures, threats, and suicidal behaviors [American Psychiatric Association, 2013]. Although self-mutilating acts and suicidal attempts are well-developed risks among BPD patients, modern studies suggest that these individuals are more likely to show aggression and violent behaviors towards others. One study even showed that 73% of BPD-diagnosed patients were involved in such fierce acts over one year [Newhill, 2009]. In addition, an epidemiology survey of a metropolitan area county jail in 2010 revealed a 31.7% to 44.7% prevalence rate of BPD among prisoners [Conn, 2010].

However, still, there are not many studies focusing on offensive and impulsive behavior among BPD patients. Most individuals like Luka Magnotta, who perform horrendous crimes, show criminal activities and behaviors; at an early age. He was also involved in fraud and impersonation seven years ago before committing homicide [Renata, 2012]. Could Jun Lin's life be saved if there was a well-established association between BPD patients and crime? Would that be possible with early diagnosis and proper treatment?

This paper aims to write a systematic review to analyze whether BPD is linked to criminal behavior like intimate partner violence, misconduct among prisoners, child abuse potential, and other such activities. Another objective is to explore the relation of self-harm, including suicide, especially among army soldiers. Plus, identify if childhood traumatization plays a role in developing BPD features.

2. Methods

This systematic review follows the guidelines and principles of the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) 2020 [Page, 2021].

2.1 Search Strategy

PubMed, PubMed Central (PMC), Medical Literature Analysis and Retrieval System Online (MEDLINE), and Science Direct were used extensively as research databases and search engines to conduct this systematic review. We explored PubMed on March 29, 2022. The research utilized "Borderline Personality Disorder, Crime, and Suicide." We used the Boolean term 'OR 'to combine the relevant concepts with specific keywords, as shown in Table 1.

Concept	Keywords	PubMed Search Builder
Borderline Personality Disorder	Borderline Personality Disorder (BPD), Emotionally Unstable Personality Disorder (EUPD)	Borderline personality disorder OR emotionally unstable personality disorder
Crime	Crime, Criminal activities, Violence, Offence, Impulsiveness, Aggression	Crime OR Criminal activities OR Violence OR Offence OR Impulsiveness OR Aggression
Suicide	Suicide, Self-harm, Self-Injury	Suicide OR Self-harm OR Self Injury

Table 1: PubMed Search Strategy with regular Keywords

Similarly, the same concepts were used as the keywords to create the following Medical Subject Headings (MeSH) Strategy. We selected subheadings like analysis, epidemiology, psychology, complications, etc. The final results are shown in Table 2.

Keywords	MeSH Strategy
Borderline Personality Disorder	("Borderline Personality Disorder/analysis"[Majr] OR "Borderline Personality Disorder/complications"[Majr] OR "Borderline Personality Disorder/mortality"[Majr] OR "Borderline Personality Disorder/psychology"[Majr])
Crime	("Crime/analysis"[Majr] OR "Crime/complications"[Majr] OR "Crime/epidemiology"[Majr] OR "Crime/etiology"[Majr] OR "Crime/methods"[Majr] OR "Crime/mortality"[Majr] OR "Crime/psychology"[Majr] OR "Crime/statistics and numerical data"[Majr] OR "Crime/trends"[Majr])
Suicide	("Suicide/analysis"[Mesh] OR "Suicide/methods"[Mesh] OR "Suicide/mortality"[Mesh] OR "Suicide/pathology"[Mesh] OR "Suicide/psychology"[Mesh])

Table 2: MeSH Strategy

The advanced search strategy is displayed in Table 3 below.

Advanced Search Strategy	("borderline personality disorder"[MeSH Terms] OR ("borderline"[All Fields] AND "personality"[All Fields] AND "disorder"[All Fields]) OR "borderline personality disorder"[All Fields] OR (("emotionality"[All Fields] OR "emotionally"[All Fields]) AND ("unstability"[All Fields] OR "unstable"[All Fields]) AND ("personality disorders"[MeSH Terms] OR ("personality"[All Fields] AND "disorders"[All Fields]) OR "personality disorders"[All Fields] OR ("personality"[All Fields] AND "disorder"[All Fields]) OR "personality disorder"[All Fields])) OR ("borderline personality disorder/analysis"[MeSH Major Topic] OR "borderline personality disorder/complications"[MeSH Major Topic] OR "borderline personality disorder/mortality"[MeSH Major Topic] OR "borderline personality disorder/psychology"[MeSH Major Topic])) AND ("crime"[MeSH Terms] OR "crime"[All Fields] OR "crimes"[All Fields] OR "crime s"[All Fields] OR (("criminal behavior"[MeSH Terms] OR ("criminal"[All Fields] AND "behavior"[All Fields]) OR "criminal behavior"[All Fields] OR "criminality"[All Fields] OR "criminalization"[All Fields] OR "criminalize"[All Fields] OR "criminalized"[All Fields] OR "criminalizes"[All Fields] OR "criminalizing"[All Fields] OR "criminally"[All Fields] OR "criminals"[MeSH Terms] OR "criminals"[All Fields] OR "criminal"[All Fields]) AND ("activable"[All Fields] OR "activate"[All Fields] OR "activated"[All Fields] OR "activates"[All Fields] OR "activating"[All Fields] OR "activation"[All Fields] OR "activations"[All Fields] OR "activator"[All Fields] OR "activator s"[All Fields] OR "activators"[All Fields] OR "active"[All Fields] OR "actived"[All Fields] OR "actively"[All Fields] OR "actives"[All Fields] OR "activities"[All Fields] OR "activity s"[All Fields] OR "activitys"[All Fields] OR "motor activity"[MeSH Terms] OR ("motor"[All Fields] AND "activity"[All Fields]) OR "motor activity"[All Fields] OR "activity"[All Fields])) OR ("violence"[MeSH Terms] OR "violence"[All Fields] OR "violence s"[All Fields] OR "violences"[All Fields]) OR ("offence"[All Fields] OR "offences"[All Fields]) OR ("impulsation"[All Fields] OR "impulse"[All Fields] OR "impulses"[All Fields] OR "impulsive behavior"[MeSH Terms] OR ("impulsive"[All Fields] AND "behavior"[All Fields]) OR "impulsive behavior"[All Fields] OR "impulsive"[All Fields] OR "impulsivities"[All Fields] OR "impulsivity"[All Fields] OR "impulsively"[All Fields] OR "impulsiveness"[All Fields] OR "impulsives"[All Fields]) OR ("aggress"[All Fields] OR "aggressed"[All Fields] OR "aggressing"[All Fields] OR "aggression"[MeSH Terms] OR "aggression"[All Fields] OR "aggressions"[All Fields] OR "aggressive"[All Fields] OR "aggressiveness"[All Fields] OR "aggressively"[All Fields] OR "aggressives"[All Fields] OR "aggressivity"[All Fields]) OR ("crime/analysis"[MeSH Major Topic] OR "crime/complications"[MeSH Major Topic] OR "crime/epidemiology"[MeSH Major Topic] OR "crime/etiology"[MeSH Major Topic] OR "crime/methods"[MeSH Major Topic] OR "crime/mortality"[MeSH Major Topic] OR "crime/psychology"[MeSH Major Topic] OR "crime/statistics and numerical data"[MeSH Major Topic] OR "crime/trends"[MeSH Major Topic])) AND ("suicid"[All Fields] OR "suicidal ideation"[MeSH Terms] OR ("suicidal"[All Fields] AND "ideation"[All Fields]) OR "suicidal ideation"[All Fields] OR "suicidality"[All Fields] OR "suicidal"[All Fields] OR "suicidally"[All Fields] OR "suicidals"[All Fields] OR "suicide"[MeSH Terms] OR "suicide"[All Fields] OR "suicides"[All Fields] OR "suicide s"[All Fields] OR "suicided"[All Fields] OR "suiciders"[All Fields] OR ("self injurious behavior"[MeSH Terms] OR ("self injurious"[All Fields] AND "behavior"[All Fields]) OR "self injurious behavior"[All Fields] OR ("self"[All Fields] AND "harm"[All Fields]) OR "self harm"[All Fields]) OR ("self injurious behavior"[MeSH Terms] OR ("self injurious"[All Fields] AND "behavior"[All Fields]) OR "self injurious behavior"[All Fields] OR ("self"[All Fields] AND "injury"[All Fields]) OR "self injury"[All Fields]) OR ("suicide/analysis"[MeSH Terms] OR "suicide/methods"[MeSH Terms] OR "suicide/mortality"[MeSH Terms] OR "suicide/pathology"[MeSH Terms] OR "suicide/psychology"[MeSH Terms]))

Table 3: Advance Search Strategy and Number of Articles

2.2 Screening of Articles

Duplicates were removed after collecting all the relevant articles. After that, the relevant papers were screened based on title, abstract, and reading full-text articles. Finally, 18 research papers were finalized and put through quality assessment tools.

2.3 Inclusion and exclusion criteria

The research is conducted to recognize whether there is any connection between BPD and criminal activities and self-damage. The papers focused on the population between six and 65 years old and were published as full-text articles in the English language in the last ten years. The exclusion criteria were studies conducted on people over 65 years old, unpublished, and grey literature. The articles based on the disabled population were also excluded.

2.4 Quality Assessment

This systematic review included cross-sectional, case-control, and cohort studies. During selecting papers, appropriate quality appraisal tools were utilized to check for bias. Only those articles were chosen that satisfied > 70% of the criteria. The quality of selected papers is displayed in Figure

Author	Type of Study	Quality Appraisal Tool	1	2	3	4	5	6	7	8	9
Fruhbauerova et al[12].	Cross-Sectional	The Joanna Briggs Institute (JBI)	✔	✔	✔	✔	✔	?	✔	✔	✔
Merza et al[13].	Case-Control	The Newcastle-Ottawa Scale	✔	✔	✘	?	✔	✔✔	✔	✔	✔
Cavelti el at[14].	Cross-Sectional	The Joanna Briggs Institute (JBI)	✔	✔	✔	✔	✔	✔	✔	✔	✔
Scott et al[15].	Cohort	The Newcastle-Ottawa Scale	✔	✔	✔	?	✔✔	✔	✔	✔	✔
Robitaille et al[16].	Cohort	The Newcastle-Ottawa Scale	✔	✔	✔	✔	✔✔	✔	?	✔	✘
Moore et al[17].	Cross-Sectional	The Joanna Briggs Institute (JBI)	✔	✔	✔	✔	✔	✔	✔	✔	✔
Weinstein et al[18].	Cross-Sectional	The Joanna Briggs Institute (JBI)	✔	✔	?	✔	✔	✔	✔	✔	✔
Armenti et al[19].	Cross-Sectional	The Joanna Briggs Institute (JBI)	✔	✔	?	✔	✔	✔	✔	✔	✔
Peters et al[20].	Cross-Sectional	The Joanna Briggs Institute (JBI)	✔	✔	?	✔	✔	✔	✔	✔	✔
Hiraoka et al[21].	Cross-Sectional	The Joanna Briggs Institute (JBI)	✔	✔	✘	✔	✔	✔	✔	✔	✔

JBI CHECKLIST
1-were the criteria for inclusion in the sample clearly defined?
2-were the study subjects and the setting described in detail?
3-was the exposure measured in a valid and reliable way?
4-were objective, standard criteria used for measurement of the condition?
5-were confounding factors identified?
6-were strategies to deal with confounding factors stated?
7-were the outcomes measured in a valid and reliable way?
8-was appropriate statistical analysis used?

NEWCASTLE OTTAWA COHORT CHECKLIST
1-Representativeness of the exposed cohort
2-Selection of the non-exposed cohort
3-Ascertainment of exposure
4-Demonstration that outcome of interest was not present at the start of the study
5- Comparability of cohorts on the basis of the design or analysis. a-Study controls for - the most important factor, b-study controls for any additional factor
6-Assessment of outcome
7-was follow-up long enough for outcomes to occur?
8-Adequacy of follow up of cohorts

NEWCASTLE OTTAWA CASE-CONTROL CHECKLIST
1-Is the case definition adequate?
2-Representative of the cases?
3- Selection of Controls?
4-Definition of controls
5-Comparability of cases and controls on the basis of the design or analysis
6-Study controls for a-most important factor b-any additional factor
7-Ascertainment of exposure
8-The same method of ascertainment for cases and controls
9-Non-Response rate-same for both groups

YES = ✔ NO = ✘ UNCLEAR = ?

1.

Figure 1: Quality assessment of selected papers.
Figure created by the author on Keynote.

3. Results

We searched four databases electronically to look for relevant studies. Initially, we found 10,026 articles related to our topic. Afterward, 88 duplicates and 5377 papers were removed by automation tools because of ineligibility. This number was further reduced to 18 after screening based on inclusion/exclusion criteria and relevant title, abstract, and full-text reading. Finally, the bias in the studies was assessed by the quality appraisal tools. Ultimately, we finalized ten articles and removed the remaining eight due to poor quality. Figure 2 exhibits the search strategy used to conduct this review in a PRISMA flowchart [Page, 2021].
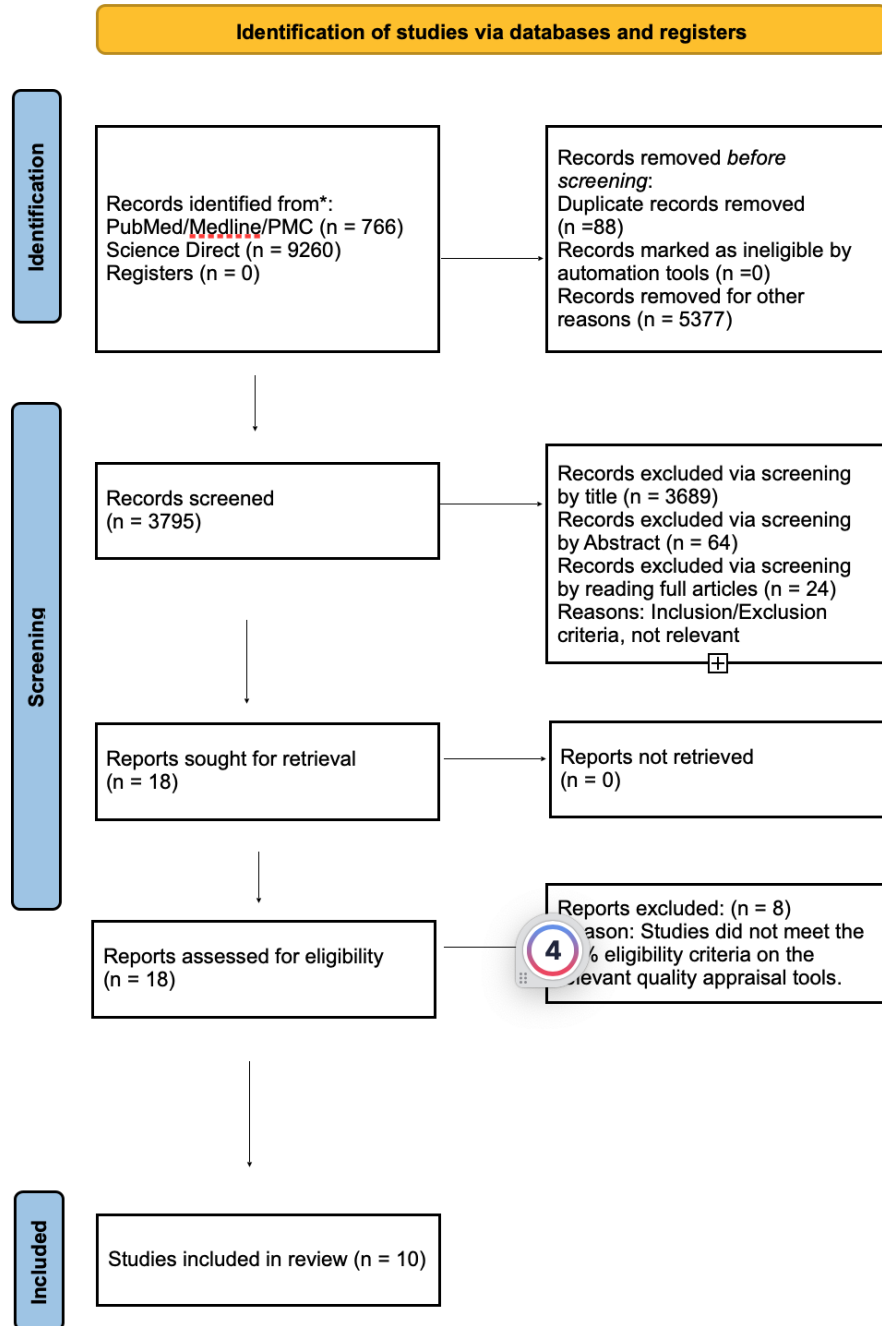
Figure 2: PRISMA flowchart
PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses

The summary of the final ten articles is displayed in Table 4.

Author and Year of Publication	Purpose of Study	Number of patients	Type of Study	Result	Conclusion
Fruhbauerova et al., 2021[12]	Measure self-injury behaviors among army soldiers.	148	Cross-Sectional	27.7% of soldiers involved in suicidal activities fulfill the criteria of BPD.	A significant ratio of army personnel having a history of self-directed violence depicted features of BPD.
Merza et al., 2016[13]	Study different traits of BPD patients involved in non-suicidal self-injury.	80	Case-Control	Self-harm behavior among BPD patients is associated with an adverse childhood history.	The number of self-inflicted attempts can indicate childhood experiences like sexual and physical abuse.
Cavelti et al., 2021[14]	BPD patients and risk of involvement in Criminal offense.	492	Cross-Sectional	Patients diagnosed with BPD had a higher risk of displaying violent and non-violent criminal behaviors.	The more BPD features present in a patient, the more likelihood of him being charged with a criminal offense.
Scott et al., 2014[15]	Study risk of emotional dysregulation and impulsive behavior in BPD patients over one year.	150	Cohort	BPD features predicted emotional overactivity and dysregulation.	BPD patients exhibit more significant difficulties controlling emotions, eventually leading to physical and psychological aggression.
Robitaille et al., 2017 [16]	To understand criminal behavior in BPD and comorbid disorder. In addition, psychological traits and childhood exposures in a community sample.	311	Cohort	Criminals with BPD and ASPD have been involved in around four times more violent crimes than criminals with ASPD alone and approximately seven times more than criminals with neither disorder.	BPD alone is less likely to lead to criminal activities than BPD comorbid with antisocial personality disorder (ASPD).

Author and Year of Publication	Purpose of Study	Number of patients	Type of Study	Result	Conclusion
Moore et al., 2018 [17]	Evaluate the risk of wrongdoings and behavioral disturbances among prisoners diagnosed with BPD.	184	Cross-Sectional	88% of BPD inmates were also diagnosed with ASPD. A positive correlation was found between BPD and Institutional misconduct.	Patients diagnosed with BPD were more likely to involve in disciplinary incidents and infractions.
Weinstein et al., 2012 [18]	Evaluate the association between personality disorders, physical violence, and psychological aggression toward a partner.	1630	Cross-Sectional	BPD was positively correlated with self-reported violent behavior toward a partner among various personality disorders.	BPD patients were more likely to be related to partner aggression than other disorders like antisocial personality disorder.
Armenti et al., 2018 [19]	Rejection sensitivity and anger contribute to BPD and Inter partner violence (IPV).	218	Cross-Sectional	BPD symptoms were significantly related to rejection sensitivity, anger, physical abuse, and aggression.	Scenarios that involve rejection can stimulate physical and psychological aggression in BPD patients.
Peters et al., 2016 [20]	The underlying mechanism of association between BPD and Inter partner violence (IPV).	193	Cross-Sectional	A positive association was found between BPD and Violent behaviors.	BPD patients are more impulsive and have a significantly higher risk of involvement in violent criminal activities.
Hiraoka et al., 2015 [21]	Establishing a link between BPD and child abuse potential.	133	Cross-Sectional	33.3% of the population who has a substantial risk for child physical abuse had elevated BPD features.	There was a positive correlation between BPD symptoms and child abuse potential.

Table 4: Summary of the included articles

4. **Discussion**

4.1 BPD and Self-Harm

Around 10% of patients diagnosed with BPD died by committing suicide [Paris, 2001]. One study estimated that 72.6% of BPD patients had a history of at least one suicide attempt in their lifetime [Soloff, 1994]. Fruhbauerova et al. organized research to estimate the prevalence of BPD features in army personnel involved in suicidal behaviors [Fruhbauerova, 2019]. Around 27.7% of suicidal army soldiers fulfilled the criteria of BPD. The study also examined that BPD-diagnosed soldiers were younger and most likely unmarried than those without BPD features [Fruhbauerova, 2019]. Non-suicidal self-injury (NSSI) involves any intended direct damage or changes in the body's tissues without a conscious plan to commit suicide [Favazza, 1998]. Merza et al. studied 80 psychiatric inpatients diagnosed with BPD [Merza, 2017]. They estimated that 78.8% had a history of non-suicidal self-harm behavior. To understand self-injurious behavior better, they divided the participants into three groups: non-injuring patients, moderate self-injuring patients, and the super self-injuring patients. There were no noteworthy differences in age, marital status, or education level among the different groups. However, the results depicted a considerable difference in employment history, with super self-injurers having high odds of being unemployed compared to moderate self-injurers and non-injurers. Adverse childhood experiences such as neglect, separation, family violence, and emotional, physical, and sexual abuse were associated with NSSI [Merza, 2017]. Merza et al. demonstrated that super self-injurers showed the highest number of childhood traumatization events compared to the remaining two groups [Merza, 2017].

4.2 BPD and General Criminal Activities

BPD patients are not just engaged in suicidal behaviors but also display violent behaviors toward others [Newhill, 2009]. Cavelti et al. tried to estimate the risk of criminal behavior in BPD individuals aged 15 to 25 [Cavelti, 2021]. They recruited 492 individuals and categorized them into four groups: Depressive Disorders, Anxiety Disorders, Substance Use Disorders, and Other Disorders. Afterward, they collected the criminal record from the relevant Police Station and performed the statistical analysis. They adjusted for covariates like sex and substance use. They analyzed that patients with BPD features predicted a high likelihood of being involved in violent and non-violent criminal activities compared to those without a diagnosis of BPD. They have also evaluated that number of BPD features was positively linked with the number and severity of offenses [Cavelti, 2021]. Scott et al. researched distinguishing the role of emotional regulation problems and aggression in BPD patients [Scott, 2014]. They recruited 150 individuals with BPD symptoms and analyzed their dynamic behaviors. The results showed that emotional dysregulation was positively correlated with aggressive offenses in BPD individuals over one year.

They have concluded that impulsivity has no significant role in violent behaviors displayed by BPD patients. In addition, ASPD symptoms were not related to emotional dysregulation or impulsive behavior. Even though the study has utilized self-report measures to record impulsivity and aggression, it nevertheless predicts a significant association between mental and physical violence with emotional regulation difficulties in BPD patients [Scott, 2014]. Robitaille et al. conducted a longitudinal study to understand the role of comorbid disorders in BPD, especially ASPD. They recruited 311 males, of which 4% were diagnosed with BPD, 16% with ASPD, 8% with BPD and ASPD, and 72% with Neither Disorder (ND) [Robitaille, 2017]. They also presented anxiety disorders, post-traumatic stress disorder (PTSD), and drug dependence. Robitaille et al. also examined their criminal records, divided into violent and non-violent crimes. Violent crimes included physical assaults, sexual offenses, homicides, robbery, and any illegal activities that physically hurt others. The remaining crimes cataloged in Canadian Criminal Code are categorized under non-violent crimes. The results showed no considerable difference between the prevalence of BPD only symptoms in criminals and non-criminals. However, unlike Scott et al., who suggested no significant association between ASPD and impulsivity and emotional difficulties, demonstrated that the prevalence of BPD and ASPD both were substantial in criminals (17.7%) as compared to non-criminals (1.7%) [Robitaille, 2017].

Similarly, Moore et al. evaluated the risk of behavioral difficulties and misconduct in inmates diagnosed with BPD [Moore, 2018]. It shows that prisoners diagnosed with BPD were more probably involved in physical and psychological aggression and violence. Consequently, they received more disciplinary punishments like isolation time in prison. This study has a few limitations, such as the inmates recruited for research were also diagnosed with Major Depressive Disorder (MDD). In addition, the results demonstrated by this paper may not apply to the general population who are not serving any sentence in prisons. However, it provides the first step toward the apprehension of BPD patients' emotional and behavioral reactions during incarceration [Moore, 2018].

4.3 BPD and IPV

The Federal Bureau of Investigation estimated that 30% of women murdered in 1996 in the United States were killed by their partner or ex-partner [Saltzman, 2002]. One epidemiological study revealed that around 1.3 million women were victims of physical assault in a year, and approximately 200,000 women were raped by their current or former spouses annually [Saltzman, 2006]. Intimate partner violence (IPV) features any form of physical abuse, sexual violence, and psychological aggression by a present or

an ex-partner [Lutgendorf, 2019]. There has been a significant association between personality disorders and intimate partner violence, including physical and mental abuse [Mauricio, 2007]. Weinstein et al. conducted a study to evaluate the association between partner abuse and features of histrionic, antisocial, narcissistic, and borderline personality disorders [Weinstein, 2012]. They concluded that BPD demonstrated a significant correlation among these personality disorders and positively predicted partner violence [Weinstein, 2012]. Upon analysis, the study revealed that women were more prone to become victims of abuse. In addition, education level and alcohol dependence also contribute to the potential of IPV [Weinstein, 2012]. Armenti et al. tried to recognize specific mechanisms among individuals diagnosed with BPD that can trigger violence against their partner [Armenti, 2021]. They hypothesized that increased sensitivity to rejection and anger in BPD patients set off physical abuse against intimate-partner [Armenti, 2021]. They recruited 218 undergraduate students and assessed them for BPD features to test the hypothesis. Afterward, reliable questionnaires and scales were utilized to look for rejection sensitivity and trait anger. Upon proper analysis, the investigation revealed a strong correlation between rejection sensitivity and state and trait anger with BPD, physical assault, and psychological abuse [Armenti, 2021]. Another research to understand the underlying mechanism between BPD and IPV was conducted by (Peters et al. 2017). This study aimed to develop the relationship between impulsivity, BPD features, general violence (GV), and IPV. They identified that BPD symptoms were notably linked with GV and IPV. However, only IPV was associated with negative urgency [Peters, 2017]. Mostly, BPD features are linked with Antisocial Personality Disorder (APD). It is assumed that BPD and APD often co-occurred, and antisocial features could also be the reason for physical and psychological aggression. However, Weinstein et al. identified that BPD is positively correlated with violence against a partner, while on the contrary, APD is not [Weinstein, 2012]. Armenti et al. and Peters et al.'s investigations can be crucial in managing violent behavior, especially IPV, in BPD-diagnosed patients [Armenti, 2012]. Intervention, like Dialectical Behavioral Therapy, may show positive results in reducing violent and aggressive events by focusing on rejection sensitivity and increasing self-control [Armenti, 2012].

4.4 BPD and Child Abuse Potential
In the United States, in 2020, in 1975, children died because of abuse and neglect. Many cases are usually not reported. However, according to an estimate, around one in seven children have suffered abuse or neglect in 2021 in the US [Centers for Disease Control and Prevention, 2022].

When individuals with BPD become parents, they face many issues. Mostly, find parenting hard and frightening [30]. Hiraoka et al. conducted a study to understand the association between BPD and Child Physical Abuse (CPA) potential [Hiraoka, 2016]. They hypothesized that BPD features are positive predictors of CPA risk. To test this theory, they recruited 133 parents from the general population. After excluding a few for various reasons, they evaluated their CPA risk, BPD symptoms, and emotional dysregulation with the help of questionnaires. The results displayed that around 33% of CPA offenders had significant BPD features. It also demonstrated that emotional regulation difficulties are crucial to child abuse [Hiraoka, 2016]. In addition, previously, studies have been done that primarily focused on mothers diagnosed with BPD and child abuse [Perepletchikova et al. 2012]. However, Hiraoka et al. evaluated CPA risk in both mother and father, which allows us to understand the association in a better way [Hiraoka, 2016]. The study has a few limitations, like a lack of generalizability while recruiting a sample for research. Moreover, they did not observe child abuse directly; however, the correlation between BPD symptoms and CPA potential is notable and significant [Hiraoka, 2016]. Therefore, studies should be conducted to evaluate it further.

4.5 Limitations
All research papers included in this review are observational studies. The articles that were not in the English language or not published within the last ten years were excluded. Therefore, it might lead to leaving out of few relevant studies. The sample recruited by a few research articles has the absence of generalizability.

5. Conclusion
This systematic review suggests a remarkable association between BPD and Crime and suicidal behaviors. Adverse childhood experiences can be crucial in suicidal and non-suicidal self-injury behaviors. Moreover, several studies exhibited a positive correlation between BPD and general offenses. Inter-Partner Violence is more prevalent in individuals diagnosed with BPD, and women are more likely to suffer abuse than men. In addition, alcohol dependence and education level play a significant role in the risk of physical and psychological partner abuse. Parents suffering from BPD are also highly likely to involve in child abuse and maltreatment. Emotional regulation difficulties, rejection sensitivity, trait anger, and impulsivity can be a few reasons responsible for criminal activities in BPD patients.

Now that we have developed a noteworthy link between BPD and criminal behaviors, our next step should be focused on ways to reduce crime so that people's lives like Jun Lin can be saved. Studies must further evaluate the causal relation between BPD and violent behaviors toward others and the self. Furthermore, it is imperative to perform randomized controlled trials (RCT) to examine the role of behavioral and drug therapies in reducing emotional dysregulation and aggression in BPD, which may help reduce the crime rate.

ORCID ID: Mafaz Mansoor, 0000-0003-1640-8783

References

[1] American Psychiatric Association (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). American Psychiatric Publishing. ISBN 978-0-89042-555-8.

[2] Armenti NA, Babcock JC. (2021). *Borderline Personality Features, Anger, and Intimate Partner Violence: An Experimental Manipulation of Rejection.* J Interpers Violence. 36(5-6): NP3104-NP3129. DOI: 10.1177/0886260518771686. Epub (2018, April 19). PMID: 29673305.

[3] Cavelti M, Thompson K, Betts J, Fowler C, Luebbers S, Cotton SM, Chanen AM. (2021). *Borderline Personality Disorder Diagnosis and Symptoms in Outpatient Youth as Risk Factors for Criminal Offenses and Interpersonal Violence.* J Pers Disord. *35*(Supple C):23-37. DOI: 10.1521/pedi_2021_35_503. Epub (2021 January 21). PMID: 33779276.

[4] Centers for Disease Control and Prevention: Preventing Child Abuse & And Neglect. (2022). Last reviewed (April 6, 2022). Available at: https://www.cdc.gov/violenceprevention/childabuseandneglect/fastfact.html. Accessed April 11, 2022.

[5] Conn C, Warden R, Stuewig J, Kim EH, Harty L, Hastings M, Tangney JP. (2010). *Borderline Personality Disorder Among Jail Inmates: How Common and How Distinct?* Correct Compend. 35(4):6-13. PMID: 27065512; PMCID: PMC4825675.

[6] DiManno, R (November 3, 2014). "*DiManno: A strange trip through Luka Magnotta's medical history*". The Toronto Star. Archived from the original on December 11, 2018. Retrieved December 29, 2014.

[7] Ellison WD, Rosenstein LK, Morgan TA, Zimmerman M. (2018). *Community and Clinical Epidemiology of Borderline Personality Disorder.* Psychiatr Clin North Am. (2018 Dec);41(4):561-573. DOI: 10.1016/j.psc.2018.07.008. Epub 2018 October 16. PMID: 30447724.

[8] Favazza AR. (1998). *The coming of age of self-mutilation*. J Nerv Ment Dis.186(5):259-68. doi: 10.1097/00005053-199805000-00001. PMID: 9612442.

[9] Fruhbauerova M, DeCou CR, Crow BE, Comtois KA. (2019). *Borderline personality disorder and self-directed violence in a sample of suicidal army soldiers*. Psychol Serv. (2021 Feb);18(1):104-115. DOI: 10.1037/ser0000369. Epub. PMID: 31180691; PMCID: PMC6901805.

[10] Grant BF, Chou SP, Goldstein RB, Huang B, Stinson FS, Saha TD, Smith SM, Dawson DA, Pulay AJ, Pickering RP, Ruan WJ. (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*. J Clin Psychiatry. (2008 Apr);*69(4):533-45*. DOI: 10.4088/JCP.v69n0404. PMID: 18426259; PMCID: PMC2676679.

[11] Hiraoka R, Crouch JL, Reo G, Wagner MF, Milner JS, Skowronski JJ. (2016). *Borderline personality features and emotion regulation deficits are associated with child physical abuse potential.* Child Abuse Negl. 52:177-84. DOI: 10.1016/j.chiabu.2015.10.023. Epub (2016 January 2). PMID: 26754570.

[12] Lutgendorf MA. (2019). *Intimate Partner Violence and Women's Health*. Obstet Gynecol;134(3):470-480. DOI: 10.1097/AOG.0000000000003326. PMID: 31403968.

[13] Merza K, Papp G, Molnár J, Szabó IK. (2017). *Characteristics and Development of Nonsuicidal Super Self-Injury among Borderline Inpatients.* Psychiatr Danub.(4):480-489. DOI: 10.24869/psyd.2017.480. PMID: 29197206.

[14] Michael W (December 23, 2014). "*Canadian guilty of killing, dismembering Chinese student.*" Archived June 25, 2018, at the Wayback Machine USA Today. Retrieved (December 24, 2014).

[15] Moore KE, Gobin RL, McCauley HL, Kao CW, Anthony SM, Kubiak S, Zlotnick C, Johnson JE. (2018) *The relation of borderline personality disorder to aggression, victimization, and institutional misconduct among prisoners*. Compr Psychiatry; 84:15-21. DOI: 10.1016/j.comppsych.2018.03.007. Epub (2018, March 21). PMID: 29660674; PMCID: PMC6002930.

[16] Mauricio AM, Tein JY, Lopez FG. (2007). *Borderline and antisocial personality scores as mediators between attachment and intimate partner violence.* Violence Vict. 22(2):139-57. DOI: 10.1891/088667007780477339. PMID: 17479552.

[17] Newhill CE, Eack SM, Mulvey EP. (2009). *Violent behavior in borderline personality.* J Pers Disord. 23(6):541-54. DOI: 10.1521/pedi.2009.23.6.541. PMID: 20001173.

[18] Newman, L and Caroline S (2005). *Parenting and Borderline Personality Disorder: Ghosts in the Nursery.* Clinical Child Psychology and Psychiatry, 103. 385–394, doi:10.1177/1359104505053756.

[19] Peters JR, Derefinko KJ, Lynam DR. (2017). *Negative Urgency Accounts for the Association Between Borderline Personality Features and Intimate Partner Violence in Young Men.* J Pers Disord. 31(1):16-25. DOI: 10.1521/pedi_2016_30_234. Epub (2016 February 4). PMID: 26845532; PMCID: PMC4974142.

[20] Paris J, Zweig-Frank H. (2001). *A 27-year follow-up of patients with a borderline personality disorder. Compr Psychiatry*.42(6):482-7. DOI: 10.1053/comp.2001.26271. PMID: 11704940.

[21] Paris J. (2018). *Differential Diagnosis of Borderline Personality Disorder*. Psychiatr Clin North Am. (2018 Dec) ;41(4):575-582. DOI: 10.1016/j.psc.2018.07.001. Epub 2018 October 16. PMID: 30447725.

[22] Perepletchikova F, Ansell E, Axelrod S. (2012). *Borderline personality disorder features and history of childhood maltreatment in mothers involved with child protective services.* Child Maltreat. 17(2):182-90. DOI: 10.1177/1077559512448471

[23] Page MJ, McKenzie JE, Bossuyt PM (2021): *The PRISMA 2020 statement: an updated guideline for reporting systematic reviews.* Syst Rev. 10:89. 10.1186/s13643-021-01626-4

[24] Robitaille MP, Checknita D, Vitaro F, Tremblay RE, Paris J, Hodgins S. (2017) *A prospective, longitudinal study of men with borderline personality disorder with and without comorbid antisocial personality disorder*. Borderline Personal Disord Emot Dysregul. 4:25. DOI: 10.1186/s40479-017-0076-2. PMID: 29225887; PMCID: PMC5719590.

[25] Renata D (July 27, 2012). *"A glimpse inside Magnotta's mind"*. The Globe and Mail. Toronto. Archived from the original on (August 28, 2016). Retrieved (September 4, 2017).

[26] Scott LN, Stepp SD, Pilkonis PA. (2014). *Prospective associations between features of borderline personality disorder, emotion dysregulation, and aggression.* Personal Disord. 5(3):278-88. DOI: 10.1037/per0000070. Epub 2014 March 17. PMID: 24635753; PMCID: PMC4099305.

[27] Soloff PH, Lis JA, Kelly T, Cornelius J, Ulrich R. (1994). *Risk factors for suicidal behavior in borderline personality disorder. Am J Psychiatry*. 151(9):1316-23. DOI: 10.1176/ajp.151.9.1316. PMID: 8067487.

[28] Saltzman L, Fanslow J, McMahon P, Shelley G. (2002). *Intimate partner violence surveillance: uniform definitions and recommended data elements.* Version 1.0 Centers for Disease Control and Prevention, National Center for Injury Prevention and Control; Atlanta (GA). https://stacks.cdc.gov/view/cdc/7537 [Google Scholar]

[29] Talbot, M (December 26, 2012). *"CityNews Rewind 2012: The worldwide manhunt for Toronto's Luka Magnotta"*. CityNews. Archived from the original on (October 17, 2013). Retrieved (March 21, 2013)

[30] Winchel RM, Stanley M. (1991). *Self-injurious behavior: a review of the behavior and biology of self-mutilation.* Am J Psychiatry. 148(3):306-17. DOI: 10.1176/ajp.148.3.306. PMID: 1847025.

[31] Weinstein Y, Gleason ME, Oltmanns TF. (2012) *Borderline but not antisocial personality disorder symptoms are related to self-reported partner aggression in late middle age.* J Abnorm Psychol. ;121(3):692-8. DOI: 10.1037/a0028994. Epub (2012 June 25). PMID: 22732005; PMCID: PMC3419275.