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The Bipolar Brain: How Bullying Affects Mental Health

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Abstract. Bipolar disorder is a complex mental health condition that can affect brain structure and function. Bullying can be a significant stressor that can exacerbate bipolar symptoms and affect mental health. This paper aims to explore the impact of bullying on brain structure and function in individuals with bipolar disorder. This is a narrative literature review. Articles were retrieved from PubMed, Google Scholar, and ScienceDirect. The publication date is within 5 years (2020-2025). It is shown that the volume of the hippocampus may be reduced due to bullying. This condition affects learning, memory, and mental regulation. Hyperactivation of the amygdala might be found after bullying, resulting in stress and anxiety. The altered function of the anterior cingulate cortex and the prefrontal cortex may be involved after bullying. Emotional processing and behaviour could occur. Therefore, patients with bipolar disorder are prone to deterioration of mental health after bullying due to changes in some brain structures and functions. It is essential to implement early and effective interventions to prevent bullying and reduce its negative impact on mental health. In conclusion, bullying might affect mental health in bipolar patients by hyperactivation of the amygdala, the altered function of the cingulate cortex and the prefrontal cortex, also reduce the volume of the hippocampus.

Keywords: bipolar, brain, bullying, mental health

1. Introduction

Bipolar disorder is a complex mental health condition that can affect brain structure and function. Bullying can be a significant stressor that can exacerbate bipolar symptoms and affect mental health. Adverse childhood experiences, including bullying victimization and childhood maltreatment, can significantly impact the clinical expression of bipolar disorder (BD). While research has primarily focused on childhood maltreatment, bullying victimization has been largely overlooked, despite its known negative effects on psychiatric illnesses. This study investigates the relationship between bullying victimization, childhood maltreatment, and the clinical expression of BD, including their combined impact (Acosta et al., 2020; Manoli et al., 2023; Osman et al., 2001; Özer et al., 2024; Park et al., 2020).

BD is a severe psychiatric illness characterized by extreme mood fluctuations, affecting up to 2% of the population, and is associated with significant morbidity,

mortality, and reduced quality of life. Based on the World Health Organisation, approximately 40 million individuals suffer from bipolar disorder (BD), experience discrimination and stigma. Adverse childhood experiences, including bullying and maltreatment, can lead to worse clinical outcomes, such as psychosis, anxiety disorders, and suicidal behavior. Research suggests that multiple adverse childhood experiences can have a cumulative effect on BD clinical expression. This study aims to elucidate the individual and combined effects of bullying victimization and childhood maltreatment on BD clinical expression, which can inform effective interventions and treatment strategies (Acosta et al., 2020; Manoli et al., 2023; Osman et al., 2001; Özer et al., 2024; Park et al., 2020).

Bullying is a global problem in the world for most adolescents. Bullying means persistent violence or harm to others who cannot defend themselves. The forms of bullying are verbal (calling by falsifying name), physical (beating, tripping, hitting), social (leaving, spreading rumors), cyberbullying, and sexual (unwanted gestures and touching). Bullying may cause health problems. This condition may affect academic performance, increase the depression incidence, and antisocial. The perpetrator is usually triggered by envy or resentment towards the victim. The victim suffers from mental health problems and anxiety. The incidence of bullying in some cities in Indonesian junior and high schools were varies, with the highest included Yogyakarta, Surabaya, and Jakarta. The most common type was verbal bullying. The reasons for bullying are seniority, having experience as a victim before, a broken home, and social media impacts. Sharing confidential matters of the victims is categorized as bullying. Bullying may occur at schools, work places, or online (cyberbullying) (Hidayati et al., 2025; Maharani et al., 2023; Özer et al., 2024).

Cyberbullying is done by electronic means (emails, online chat rooms, social networking media, or text messages) associated with higher cases of manic disorder. It has become a significant concern due to its impact on youth mental health. Research suggests that nearly one in 10 early adolescents in the USA has reported being victims of cyberbullying. This can lead to adverse psychological outcomes, including anxiety, depression, and suicidal ideation. However, the relationship between cyberbullying and manic symptoms, particularly among early adolescents, remains underexplored. Mania and hypomania, key features of bipolar-spectrum disorders, involve periods of abnormally elevated or irritable mood. Adolescence is a critical period for the emergence of bipolar-spectrum disorders, and earlier onset is associated with worse functional outcomes and greater symptomatic burden. Cyberbullying may induce significant psychological stress, triggering or amplifying affective disturbances, including manic symptoms, in vulnerable adolescents (Albikawi, 2023; Arnon et al., 2022; Betts et al., 2022; Hu et al., 2021; Nagata et al., 2025; Nesin et al., 2025).

Cyberbullying may disrupt circadian rhythms and sleep patterns, increasing the risk of manic episodes. Cyberbullying is considered a potential risk factor for manic symptoms in adolescents. The outcomes of cyberbullying, such as emotional stress and reduced self-esteem, may create a cycle that further exacerbates stress and amplifies the risk of developing manic symptoms. Additionally, excessive screen time, which has been linked to symptoms of anxiety, depression, and disruptive behaviors, is a crucial factor to consider in mental health research. By understanding the relationship between cyberbullying and manic symptoms, healthcare professionals and parents can develop targeted strategies to support vulnerable adolescents and mitigate the risk of developing bipolar-spectrum disorders (Albikawi, 2023; Arnon et al., 2022; Betts et al., 2022; Hu et al., 2021; Nagata et al., 2025; Nesin et al., 2025).

Females usually use verbal bullying rather than physical. Female groups often use verbal bullying on others who do not match their styles. Bullying tends to happen more in the junior high school and attenuates at the end of adolescent phase. The higher level of economic status students tend to be perpretators of their poor friends in some studies of bullying cases. However, more study is needed to confirm this condition. Victims of physical bullying have a higher possibility of experiencing verbal bullying before. The impacts of verbal bullying are lost concentration, decreased motivation, and lower self-confidence. Most of the victims have unusual physical appearances and are weak. Verbal bullying that involves family name is more serious than other types of bullying. Bullying is a serious matter for public health because the effects may still be felt into adulthood. Victims who have experienced verbal bullying previously are susceptible to other types of bullying. Therefore, comprehensive prevention and management are needed. An anti-bullying program should be socialized to the schools. The school, government, and parents should provide a safe environment for the children. Parents and teachers must be good role model for children in learning empathy and respect to others. When any bullying occurs, students have to talk to their parents and teachers (Hidayati et al., 2025; Johansson & Englund, 2021).

Research on pediatric bipolar disorder (BD) shows a significant link between bullying victimization, psychosis, and suicidal behaviors. We found that adults with BD who experienced bullying victimization had more severe suicidality and psychotic symptoms. Notably, individuals who experienced both bullying victimization and childhood maltreatment had higher suicidality rates than those who experienced one or neither. These results highlight the importance of considering bullying victimization when assessing predictors of BD clinical expression. Our study's findings have implications for research and clinical practice, suggesting that assessing bullying victimization history can help identify individuals who may benefit from targeted interventions to improve clinical outcomes. While there are methodological limitations, our study contributes to the understanding of the long-term effects of bullying victimization on severe mental illnesses like BD. Future research should focus on replicating these findings, exploring underlying mechanisms, and examining potential intervention targets (Agnew-Blais & Danese, 2016; Geoffroy et al., 2023; Manoli et al., 2023; Simon et al., 2021).

This paper aims to explore the impact of bullying on brain structure and function in individuals with bipolar disorder.

2. Method

This is a narrative literature review. Articles were retrieved from PubMed, Google Scholar, and ScienceDirect. The publication date is within 5 years, from 2020 until 2025.

3. Results and Discussion

Bullying is a specific form of aggression characterized by repeated harm, a power imbalance, and intent to cause harm. It is recognized globally as a social justice issue. Bullying is a risk factor foor depression and anxiety. Therefore, bullying is a serious problem because it gives a significant impact on someone’s mental health and life domain. The most extreme impacts of bullying are self-harm, suicide, substance use, reduced physical health, and poor educational performance (Erskine et al., 2025; Giannakopoulos et al., 2025; Zhao et al., 2024).

Erskine et al. in 2025 studied the prevalence and impact of bullying victimization and perpetration among adolescents in Kenya, Indonesia, and Vietnam. The study used data from the National Adolescent Mental Health Surveys (NAMHS) and found that the prevalence of bullying victimization and perpetration varied across countries, with Kenya having the highest prevalence of bullying victimization (4.1%) and perpetration (3.1%). Bullying victimization and perpetration were significantly associated with mental disorders in all three countries. The study found that adolescents who experienced bullying victimization or perpetration had higher odds of having a mental disorder. The study highlights the need for effective bullying interventions in low- and middle-income countries (LMICs) to address the significant burden of mental disorders among adolescents. The authors suggest that whole-of-school and multi-tiered approaches, which have been effective in high-income countries, may be useful in LMICs. However, more research is needed to determine the effectiveness of such interventions in different cultural contexts. The study's findings have important implications for policymakers, educators, and healthcare professionals working with adolescents in LMICs. They emphasize the need for increased awareness and attention to bullying and its impact on mental health, as well as the development of evidence-based interventions to prevent and address bullying in these settings (Cosma et al., 2022; Erskine et al., 2025; Liu et al., 2025).

Workplace bullying is a pervasive issue that affects employees' mental health and well-being. Research has shown that employees who experience bullying are more likely to develop psychological illnesses. Bullying is defined as hostile and systematic behavior directed towards an individual over a prolonged period, typically six months or more. Studies have reported varying prevalence rates of bullying in European countries, ranging from 4.6% to 29%. Theorists suggest that bullying may stem from work conditions, individual characteristics, or a combination of both. Work environment factors such as role conflicts, workload, and job ambiguity can contribute to bullying, while absent leaders can escalate conflicts and increase bullying incidents. Individual differences, such as personality traits like neuroticism and low conscientiousness, can also play a role in bullying. Bullying can start as a work conflict and progress subtly, with targets experiencing work-related or person-related bullying. This can lead to stress, helplessness, psychological distress, and physical health problems. The consequences of bullying can be severe, resulting in sickness absence, presenteeism, and disability pensions. Workplace bullying is a significant risk to employees' mental and physical health, and its adverse effects can be exacerbated by a vicious cycle of poor mental health (Aghababaei et al., 2022; Özer et al., 2024).

A type of personality that may be a perpetrator is dark personalities. This kind of personality refers to a set of socially aversive traits, including spitefulness, greed, sadism, narcissism, psychopathy, and Machiavellianism. These traits have garnered significant attention in recent research due to their impact on psychosocial outcomes. Dark Triad Traits (Machiavellianism, narcissism, and psychopathy) have distinct relationships with well-being. Machiavellianism and psychopathy tend to be negatively associated with well-being, while narcissism shows a positive association. Conceptions of happiness play a crucial role in mediating the relationship between Dark Triad traits and well-being. Individuals with high levels of Machiavellianism and psychopathy value happiness but doubt its consequences and their control over it. The Dark Triad traits can negatively impact work behaviors, such as information sharing and reporting unethical conduct. However, these traits can also be linked to forms of organizational commitment that drive positive work behaviors. Furthermore, emotional intelligence

can partly mediate the relationship between the Dark Triad traits and cyberbullying. It can also buffer the effects of grandiose narcissism on cyberbullying. Cultural differences can shape how people perceive and experience dark personality traits. Understanding these cultural nuances is essential for developing effective strategies to address the negative outcomes associated with these traits. One of the mitigation strategies is minimizing the negative consequences of dark personality traits in various contexts, including the workplace and online interactions (Aghababaei et al., 2022).

It is shown that the volume of the hippocampus may be reduced due to bullying. This condition affects learning, memory, and mental regulation. Hyperactivation of the amygdala might be found after bullying, resulting in stress and anxiety. The altered function of the anterior cingulate cortex and the prefrontal cortex may be involved after bullying. Emotional processing and behaviour could occur. Therefore, patients with bipolar disorder are prone to deterioration of mental health after bullying due to changes in some brain structures and functions. It is essential to implement early and effective interventions to prevent bullying and reduce its negative impact on mental health. In conclusion, bullying might affect mental health in bipolar patients by hyperactivation of the amygdala, the altered function of the cingulate cortex and the prefrontal cortex, also reduce the volume of the hippocampus (Thomson, 2024). Cyberbullying may cause changes in neural activity, in the brain part related to reward processing, empathy, and emotional regulation. However, there is a lack of research regarding the emotional and cognitive changes after cyberbullying (Nesin et al., 2025).

Cyberbullying has severe and far-reaching effects on mental health, with victims reporting higher levels of anxiety, depression, and suicidal ideation compared to those who experience traditional bullying. The emotional toll of cyberbullying can include feelings of annoyance, fear, frustration, anger, sadness, and anxiety, ultimately leading to negative impacts on self-esteem. Research has consistently shown that cyberbullying is associated with lower self-esteem, sleep disturbances, and bedwetting in young victims. The psychological impact of cyberbullying is significant, with victims experiencing increased stress, loneliness, depression, and social anxiety. Furthermore, traditional and cyberbullying victims often exhibit similar behaviors, such as avoidance and fear of being harmed. The lack of emotional clarity and regulation in victims can lead to maladjustment behaviors and unhealthy coping strategies (Nesin et al., 2025).

Studies have also explored the characteristics of cyberbullies, finding that they often exhibit low empathy and use maladaptive emotional regulation strategies. Childhood maltreatment has been linked to an increased risk of becoming a cyberbully later in life, with aggression and anger rumination contributing to bullying behavior. Understanding the neurobiology of emotional regulation in bullies and victims can inform strategies to provide support and reduce bullying behavior. Research suggests that victims may use more maladaptive emotional regulation strategies initially, but adapt over time. In contrast, bullies tend to exhibit lower empathy and more maladaptive emotional regulation (Nesin et al., 2025).

The consequences of cyberbullying can be severe, including increased risk of stress-related disorders, concentration and school problems, emotional disorders, and even suicide. Overall, the evidence indicates that children who experience cyberbullying are more likely to experience psychological discomfort, including depression and anxiety symptoms, and worse subjective well-being. Emotional regulation involves recognizing emotional stimuli, appreciating the need for regulation, and implementing strategies. The brain's cortex, striatum, and limbic system are key areas for emotional regulation (Nesin et al., 2025).

Some key brain regions that are essential for emotion processing and regulation are as follows (Nesin et al., 2025):

a. Prefrontal Cortex (PFC): involved in decision-making, cognitive control, and executive functions
b. Amygdala: processes emotional stimuli, with the basolateral amygdala (BLA) and central amygdala (CeA) playing crucial roles in emotional regulation.
c. Ventral Striatum: participates in reward and motivation, with the nucleus accumbens (NAc) playing a key role in "liking" and "wanting" stimuli
d. Anterior Cingulate Cortex (ACC): involved in conflict monitoring, error detection, and emotional regulation

The emotional regulation comprises some strategies as follows (Nesin et al., 2025):

a. Cognitive Reappraisal (CR): a beneficial strategy for managing emotions, associated with activity in the dorsomedial PFC, dorsolateral PFC, and ventrolateral PFC
b. Expressive Suppression (ES): a strategy that may lead to depressive symptoms, associated with activity in the ventrolateral PFC, inferior frontal gyrus, insula, and amygdala

Impacts of Cyberbullying on Emotional Regulation are as follows (Nesin et al., 2025):

a. Cyberbullying can lead to increased activity in brain regions associated with emotional processing, social cognition, and emotional regulation, such as the amygdala, ACC, and insula.
b. Victims of cyberbullying may exhibit heightened neural activity in response to social exclusion, which can predict depressive symptoms and suicidal ideation.
c. Adolescents are particularly vulnerable to the negative effects of cyberbullying due to ongoing brain development and emotional regulation maturation.

More research is needed to understand the neural mechanisms underlying emotional dysregulation in adolescents following cyberbullying (Nesin et al., 2025).

Some recommendations to minimize bullying are fair and equal treatment. Training to fight bullying should be given. Sanctions for the perpetrator must be established. A stable organization and schools which uphold their vision will protect their students and workers from bullying threats and toxic relationships (Özer et al., 2024). Employers have a financial incentive to promote employees' mental health, but investment in mental health is often low, and stigma associated with mental illness persists. According to the World Health Organization, one in six working-age people has a mental condition, highlighting the need for government programs and workplace initiatives to support mental health (Aghababaei et al., 2022).

4. Conclusion

In conclusion, bullying might affect mental health in bipolar patients by hyperactivation of the amygdala, the altered function of the cingulate cortex and the prefrontal cortex, also reduce the volume of the hippocampus.

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