AUCTORES
Globalize your Research

Psychology and Mental Health Care

Juliet Ifeoma Nwufo *

Open Access

Research Article

Self-Injurious Behavior and Adverse Childhood Experiences as Factors in Premenstrual Dysphoric Disorder among In-school Adolescents in Sub-Saharan Africa

Juliet Ifeoma Nwufo

Department of Psychology, University of Nigeria, Nsukka

***Corresponding Author**: Juliet Ifeoma Nwufo, Department of Psychology, University of Nigeria, Nsukka.

Received date: February 11, 2026; Accepted date: February 26, 2026; Published date: March 06,2026

Citation: Juliet I. Nwufo, (2026). Self-Injurious Behavior and Adverse Childhood Experiences as Factors in Premenstrual Dysphoric Disorder among In-school Adolescents in Sub-Saharan Africa, *Psychology and Mental Health Care*, 10(2): **DOI**:10.31579/2637-8892/364

Abstract

This study investigated the risk factors of Premenstrual Dysphoric Disorder (PMDD) among adolescents in Nsukka Urban, Nigeria. PMDD is a common group of symptoms occurring during the menstrual cycle's luteal phase, affecting both physical and psychological well-being. Despite PMDD's global recognition, little is known about its risk factors in this specific adolescent population. Two hypotheses were formulated, and a cross-sectional design was adopted in the study while 303 adolescent females from secondary schools in Nsukka Urban were selected through convenience sampling. The data was collected through structured questionnaires covering demographic information, the Ottawa Self-Injury Inventory, Premenstrual Symptoms Screening Tool Revised for Adolescents, and Childhood Trauma Questionnaire–Short Form. Pearson's correlation (r) and hierarchical multiple regression analysis were conducted to test the research hypotheses. The findings showed a positive relationship between self-injurious behavior and PMDD, (β = .82, $p<.001$), and a positive relationship between adverse childhood experiences and PMDD, (β = .65, $p<.001$), emphasizing the need for increased awareness and intervention strategies. This study could enhance mental health support for adolescents and promote the awareness of PMDD and its associated risk factors.

Keywords: social stigma; social isolation; adverse childhood experience; depression; adolescents living with hiv/aids

Introduction

Premenstrual Disorders (PMDs), which include premenstrual syndrome (PMS) and premenstrual dysphoric disorder, are a frequent collection of physical and psychological symptoms that occur cyclically during the luteal phase of the menstrual cycle. The worrisome part is that research studies have also revealed a concerning prevalence of PMDs (PMDD, McNulty, 2020). PMDs are associated with a multitude of negative outcomes, including mental health co-morbidities including sadness and anxiety, a markedly lower quality of life, and negative health outcomes like hypertension and suicidal ideation. It is estimated that the prevalence of PMDs among women of reproductive age is between 5 and 8% worldwide (Carlini et., 2022); and similar prevalence rates of PMDs are seen in adolescent girls as well; 70% of them report that their symptoms started during adolescence, which may indicate that early life factors are the primary cause. During the luteal phase of their menstrual cycle, a very small percentage of women who menstruate suffer from premenstrual dysphoric disorder (PMDD, McNulty, 2020). Physical and mental symptoms that characterize PMDD include mood swings, anxiety, irritability, bloating, and breast tenderness. (Cirillo et al., 2014). These symptoms can be severe enough to interfere with daily functioning and may even increase the risk of suicidal thoughts or attempts (Osborn et al., 2021; Yan et al., 2021). Hormonal abnormalities during the menstrual cycle may be connected to PMDD, a disorder that causes irregular periods and affects neurotransmitters including serotonin and GABA (Epperson et al., 2012). Usually, PMDD symptoms appear during the menstrual cycle's luteal phase (Osborn et al., 2021), exhibiting at least five of the eleven main symptoms, which include exhaustion, changes in appetite, hypersomnia, intense emotions, somatic symptoms, emotional instability, anxiety, depression, and a diminished interest in daily activities. The symptoms must cause clinically significant impairment in social media, occupational functioning, or other essential areas of functioning, and they must not be associated with any other medical condition, substance misuse, or mental illness. The first-line treatment for PMDD is a type of antidepressant medications called selective serotonin reuptake inhibitors

(SSRIs, Cirillo et al., 2014). These medications work by increasing serotonin levels in the brain, which can help regulate mood and reduce PMDD symptoms. It has been shown that some SSRIs, including fluoxetine (Prozac), sertraline (Zoloft), and paroxetine (Paxil), are helpful for PMDD (Pearlstein et al., 2005). In addition to medicine, cognitive-behavioral therapy (CBT) has been shown to be a successful talk treatment for controlling mood disorders, according to Shams-Alizadeh et al. (2018). Cognitive behavioral therapy (CBT) can be used alone or in conjunction with prescription medications to help people identify and replace negative ideas with positive ones. Lifestyle modifications like stress management and exercise can also help manage PMDD symptoms (Shams-Alizadeh et al., 2018). Natural remedies like omega-3 fatty acids, which are essential for human health, growth, development, and brain function, help lessen PMDD symptoms. Studies show that taking omega-3 supplements can help reduce PMDD symptoms like melancholy, anxiety, and irritability, according to Sohrabi et al. (2013). Because of their anti-inflammatory qualities, omega-3s—which are present in fatty fish, nuts, seeds, flaxseed oil, and St. John's Wort—may lessen the symptoms of PMDD (McNulty, 2020). It has been discovered that St. John's Wort effectively lowers PMDD symptoms like irritability, anxiety, and despair, according to Canning et al (2010; Golbidi et al., 2017). Women with PMDD are encouraged to engage in moderate exercise, such as brisk walking, cycling, or swimming, for at least 30 minutes a day. Dietary changes may also help alleviate PMDD symptoms. Example, reducing salt intake may help reduce bloating and water retention, which are common symptoms of PMDD (Golbidi et al., 2017). Consuming a nutrious, well-ballenced diet full of fruits, vegetables, and whole grains may also lower inflammation and enhance general health. According to recent studies, women with PMDD have emotional and behavioural symptoms as a result of their heightened sensitivity to progesterone and estrogen (Carlini et al., 2022). Research suggests that women with postmenopausal depression (PMDD) may react differently to stress and have higher Cortisol level than women without PMDD (Girdler et al., 2014). This might contribute to the mood disorder and emotional dysregulation linked to PMDD. To fully comprehend the precise processes via which dysregulation of the HPA axis contributes to PMDD symptoms, more research is needed. Women who have experienced trauma or high levels of stress are more vulnerable to or have more severe symptoms of PMDD, which can be made worse by environmental factors, genetics, and hormonal impacts (Shams-Alizadeh et al., 2018). Despite earlier research focusing on risk factors in adults like smoking and obesity, lifestyle factors like substance misuse, poor eating, and inactivity may contribute to the development of PMDD. Understanding the effects of PMDs on teenagers requires research on risk factors for the disorders in infancy and adolescence, such as self-harming behavior and traumatic childhood experiences. Abuse, neglect, and dysfunctional households are examples of adverse childhood experiences (ACEs), which are stressful events that can have a detrimental effect on an adult's physical and mental health. Research indicates that ACEs can result in PTSD, anxiety, and depression, which can impact one's physical and emotional well-being (Azoulay et al., 2020; Kulkarni et al., 2022; Soydas et al., 2014). However, there is scanty evidence that ACEs and PMDs are related. Furthermore, past data indicates a positive association between premenstrual symptoms and childhood neglect, as well as between PMDs and childhood maltreatment, particularly emotional and physical abuse (Kulkarni et al., 2022; Soydas et al., 2014). Premenstrual symptoms in those exposed to Aces may be influenced by early-life neuroendocrine activity, such as disruption of the hypothalamic-pituitary-adrenal axis. This has been connected to adult depression, anxiety, and PMDD. These disorders are also associated with self-injurious behavior (SIB), a maladaptive coping mechanism. Adults and adolescents with SIB, a physical and psychological disease, frequently need therapy to address underlying problems and create good coping strategies (Csorba et al., 2008). Research indicates that women with post-menopausal depression (PMDD) are more likely to engage in non-suicidal self-injury (NSSI), which is defined as intentional physical harm without suicidal intent (McNulty, 2020). In addition to reporting more severe premenstrual symptoms, mood swings, and frequent suicide thoughts, women with PMDD who engage in SIB are also more likely to have a history of childhood trauma and self-harming behaviors. (Osborn et al., 2021). The study raises the possibility of a connection between self-harming behavior and Premenstrual Dysphoric Disorder (PMDD), but more investigation is required to properly comprehend the relationship because doing so may result in more successful interventions and treatment strategies. The prevalence of self-harming behavior in women with PMDD raises concerns because it indicates a high risk of psychological distress and suicide. A recent international survey found that 34% of women with PMDD had attempted suicide at least once in their lives, and 72% had actively considered suicide (Eisenlohr-Moul et al., 2022). Additionally, the study discovered that among women with PMDD, lifetime active suicide thoughts and attempts were predicted by factors such as nulliparity, lower income, older age, and a history of borderline personality disorder or post-traumatic stress disorder (Eisenlohr-Moul et al., 2022). These findings highlight the need for adequate resources and care for those suffering with PMDD, as well as for routine screening and assessment of suicide risk in women with the disorder. This research is essential because it will provide light on the risk variables that connect self-harming behavior (SIB) and adverse childhood experiences (ACEs) to teenage Premenstrual Dysphoric Disorder (PMDD). Additionally, this study will aid in the creation of prevention and intervention plans that can cater to the unique requirements and difficulties faced by this susceptible group. It will also increase the literature on the knowledge of PMDD. This study aims to improve the quality of life and well-being of adolescent girls who suffer from PMDs by determining the early-life risk factors of this crippling disorder. The relationship between PMDD, self-harming behavior (SIB), and adverse childhood experiences (ACEs) among teenagers in Nsukka Urban, Nigeria, is little understood, despite the fact that PMDD is becoming better recognized. This study aims to understand the existing relationship; and provide insights into their mental health needs. The results may guide targeted treatments and identify variables influencing PMDD occurrence in this demographics. Thus, the following questions are the focus of this study:

1. Will Self-injurious behaviour significantly be associated with premenstrual dysphoric disorder among adolescents in Nsukka Urban?

2. Will adverse childhood experiences significantly be associated with premenstrual dysphoric disorder among adolescents in Nsukka Urban?

Literature Review

The Cognitive-Behavioral Theory by Beck (1996), serves as the theoretical foundation for this investigation. The way that a person's ideas, attitudes, and beliefs affect their emotions and behaviors is highly valued in this psychological approach. It argues that negative or flawed thought patterns can contribute to the development and persistence of mental health problems and that altering these patterns can improve emotional well-being. The cognitive-behavioral approach can be used to examine

how self-harming behavior and traumatic childhood experiences contribute to adolescent premenstrual dysphoric disorder. CBT maintains that thoughts, feelings, and behaviors are interconnected and that unpleasant thoughts can lead to harmful behaviors. Adolescents who self-harm may have negative feelings and thoughts that they are not prepared to deal with. In premenstrual dysphoric disorder, the hormonal changes that occur during the menstrual cycle may exacerbate negative thoughts and feelings, which may lead to an increase in self-harming behavior.

Empirical review

Self-injurious Behavior and Premenstrual Dysphoric Disorder

Research examining the connection between SIB and PMDD seems to be lacking. Nonetheless, there are studies that connect both to other relevant variables, indicating a potential correlation between the two. For example, prior research by Csorba et al. (2008) found that the majority of teenagers who engage in self-harming behavior experience a major depressive disorder (MDD) episode, which is a symptom of PMDD. In a related study, Soydas et al. (2014) found a link between female participants' PMDD and suicide attempts. Seventy women with PMDD (DSM-IV-TR criteria) who were admitted to the outpatient psychiatry clinic of Yenimahalle State Hospital in Ankara, Turkey, between December 2012 and December 2013 were included in the cross-sectional study. In addition, the study included 78 healthy controls. The Childhood Trauma Questionnaire (CTQ) and the Premenstrual Syndrome Scale (PMSS) were given to each participant. Compared to the healthy control group, the PMDD group had a higher history of attempted suicide (7.1%) (P =.001, P =.003, and P =.024, respectively). Shams-Alizadeh et al. (2018) investigated the potential correlation between PMDD and self-harm or suicidal thoughts in a different study. A matched control group of 120 women chosen from among those accompanying other patients in other wards was compared to 120 fertile women with regular menstrual cycles who attempted suicide and were hospitalized to a general hospital as part of a case-control study. To diagnose PMDD, a psychiatric interview using the DSM-5 criteria was performed. The result showed that while the frequency of premenstrual syndrome (PMS) did not substantially differ between the two groups (P = 0.294), suicide attempt was not associated with the menstrual cycle (P = 0.52), and the frequency of PMDD was significantly greater in suicide attempters than in the controls (P = 0.001). In a systematic review of the literature, Osborn et al. (2021) sought to describe (a) the risk profile for self-harm in women diagnosed with Premenstrual Dysphoric Disorder (PMDD), a disorder marked by severe physical and psychological changes that take place during the luteal menstrual phase, and (b) the implications of these findings for clinical practice. Five databases were used in a comprehensive literature review to find any peer-reviewed works released between 1989 and 2019. Ten studies were found to be eligible for inclusion: two on both cognitions and attempts, five on suicide attempts, and three on suicide cognitions. Results indicated that experiences of PMDD were significantly correlated with suicidal thoughts and ideation, as well as self-harm, and that these correlations were true regardless of mental co-morbidities. However, compared to suicide attempters without PMDD, women with PMDD did not exhibit more severe risk profiles for suicide attempts (in terms of frequency, impulsivity, and lethality) or attempt suicide more frequently during the luteal menstrual phase. The researchers came to the conclusion that women with PMDD should be regarded as a high-risk category for self-harm; therefore, preventing suicide attempts requires recognizing and treating symptoms.

Adverse Childhood Experiences and Premenstrual Dysphoric Disorder

In their research, Younes et al. (2021) looked at how childhood abuse affected premenstrual dysphoric disorder (PMDD). During the COVID-19 pandemic in February and March of 2021, a cross-sectional investigation was carried out. An auto-administered online survey was used to recruit Lebanese students from all national universities in Lebanon using a snowball technique. To investigate the structural connection between PMDD and childhood maltreatment, structural equation modeling was used. The results of their investigation showed that higher levels of psychological abuse (Beta = 0.11; p = 0.040) and sexual abuse (Beta = 0.11; p = 0.021) were strongly linked to higher levels of PMDD. In a related investigation, Azoulay et al. (2020) sought to ascertain whether heightened premenstrual symptoms are linked to childhood trauma. For the study, 112 teenagers who were Hebrew University of Jerusalem students were enlisted. The Childhood Trauma Questionnaire (CTQ) and the Premenstrual Symptoms Screening Tool (PSST) were filled out by the participants. Sixteen adolescents (13.6%) and twenty-two adolescents (18.6%) satisfied the criteria for PMDD and premenstrual syndrome, respectively. More childhood trauma was associated with both more and more severe premenstrual symptoms (r =.282). In particular, premenstrual symptoms were substantially correlated with emotional neglect (r =.198) and sexual abuse exposure (r =.243). While neglect did not predict increased emotion dysregulation, abuse did (r =.33). In a different study, Yang et al. (2022) assessed the relationships between PMDs and the total number and kinds of adverse childhood experiences (ACEs). Using a subsample of menstruation women from the Stress-And-Gene-Analysis (SAGA) cohort, they performed a cross-sectional analysis and evaluated them for ACEs and PMDs (N=11,973). A modified ACE-International Questionnaire was used to assess the cumulative and individual exposure to 13 different types of ACEs. To find likely cases of PMDs, which were then further divided into PMS and PMDD, a modified version of the Premenstrual Symptom Screening Tool was employed. Poisson regression was used to assess the prevalence ratios (PRs) of PMDs in respect to different ACEs. Among those who satisfied the criteria for suspected PMDs, 3235 (27%) had a mean age of 34.0 years (standard deviation (SD) 9.1), with 2501 (21%) having PMS and 734 (6%) having PMDD. The number of ACEs was linearly associated with PMDs (fully-adjusted PR 1.12 per ACE, 95% CI 1.11–1.13). Specifically, the PR for PMDs was 2.46 (95% CI 2.21–2.74) for women with 4 or more ACEs compared with women with no ACEs. A stronger association was observed for probable PMDD compared to PMS (p for difference <0.001). The results imply that negative childhood experiences have a dose-dependent relationship with PMDDs. A descriptive study by Kulkarni et al. (2022) sought to identify the type and age of trauma exposure as well as the prevalence of early childhood trauma in women with PMDD. The Monash Alfred Women's Mental Health Clinic Database was used to retrieve information for 100 women who had been diagnosed with PMDD. Four types of early life trauma were identified, along with four age groups (0–5, 6–10, 11–14, and/or 15–18 years old): physical abuse, sexual abuse, emotional abuse, and/or neglect. Early life trauma prevalence was computed and contrasted with population estimates from Australia. Early childhood trauma was encountered by 83% of women with PMDD, with emotional abuse accounting for 71% of these cases. Compared to the overall Australian population, PMDD women experienced trauma of all kinds more frequently. The prevalence of trauma ranged from 59 to 66% for all four age groups. Notably,

throughout all age categories, 51.8% of women reported having experienced trauma. The findings point to a substantial link between PMDD and early life trauma. The researchers hypothesize that the strongest correlation between PMDD and emotional abuse and/or chronic childhood trauma may exist. Soydas et al. (2014) examined childhood abuse in PMDD patients and contrasted them with female volunteers in good health. Seventy women with PMDD (DSM-IV-TR criteria) who were admitted to the outpatient psychiatry clinic of Yenimahalle State Hospital in Ankara, Turkey, between December 2012 and December 2013 were included in the cross-sectional study. In addition, the study included 78 healthy controls. The women's sociodemographic, family, and reproductive period characteristics were noted. All subjects were administered the Premenstrual Syndrome Scale (PMSS) and the Childhood Trauma Questionnaire (CTQ). Significant differences were found between PMDD and healthy controls in PMSS score (P = .001), CTQ total scores (P = .002), and subscale scores including emotional abuse and emotional neglect (P = .004), physical abuse (P = .009), and sexual abuse (P = .012).

Following the review of literature, the following hypotheses were tested in this study:

Hypotheses

1. Self-injurious behavior will have a positive relationship with premenstrual dysphoric disorder among adolescents in Nsukka Urban.

2. Adverse childhood experiences will have a positive relationship with premenstrual dysphoric disorder among adolescents in Nsukka Urban.

Figure 1. Explains the expected associations between self-harm, Adverse Childhood Experiences, and Premenstrual Dysphoric Disorder among in-school adolescents.

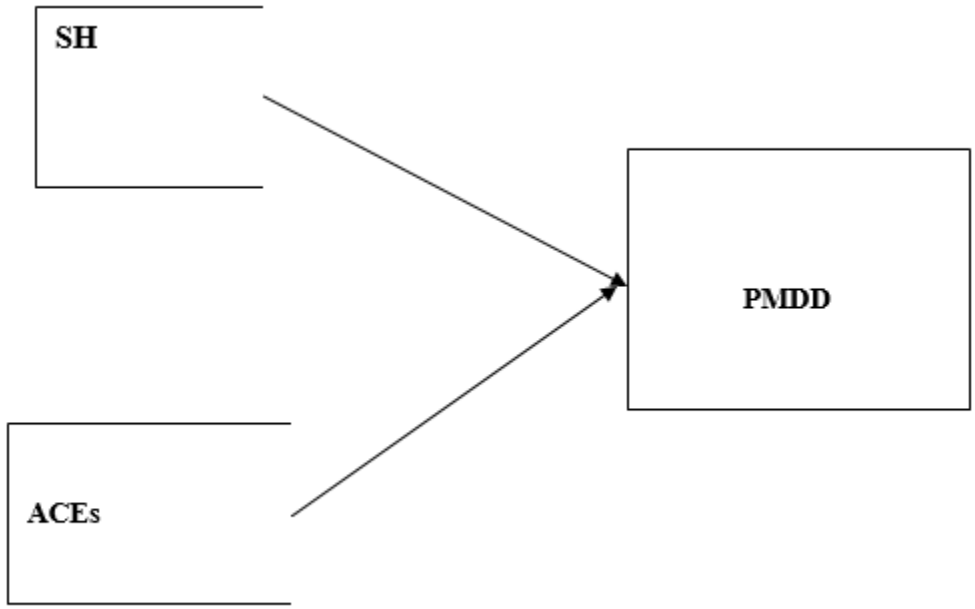

Figure 1: The hypothetical model of the study variables

Participants and Methods

Study design

This study was a descriptive cross-sectional design conducted in Nigeria in 2024. The STROBE guidelines for reporting observational studies were strictly followed.

Participants and setting

A sample of 303 teenage girls from two coeducational secondary schools in Nsukka, which is in the Southeast area of Nigeria, was chosen using a convenience sampling technique. The participants ranged in age from 10 to 18 years old and were enrolled in both junior and senior classes (M=13.41, SD=1.85). JSS1 comprised 34% of the participants (n = 103), JSS2 comprised 25.1% (n = 76), JSS3 comprised 9.9% (n = 30), SS1 comprised 13.5% (n = 41), SS2 comprised 2.6% (n = 8), and SS3 comprised 2.6% (n = 8). Among the participants, 290 were Christians (95.7%), while three were Muslims (1%). Three percent (n=1) belonged to other religious groupings. Of the 283 individuals, 93.4% belonged to the Igbo ethnic group.1.7% were Yoruba (n=5), and 7% were Hausa (n=2). Other ethnic groups accounted for 7% (n=2).

Measures

The Ottawa Self-Injury Inventory (OSI; Nixon et al., 2008)

A self-report tool called the Ottawa Self-Injury Inventory (OSI) provides a thorough evaluation of non-suicidal self-injury (NSSI), including measurements of its addictive characteristics and functions. It was developed by Nixon et al. (2008) and has been validated in different samples of adolescents and young adults. The scoring of the OSI is based on two main scales: the Functions scale and the Addictive Features scale. The Functions scale has 24 items that measure the reasons for engaging in NSSI. Each item is rated on a 5-point Likert scale from 0 (never) to 4

(always). To calculate the scores for each factor, the ratings of the items belonging to that factor are summed. Highest score indicates the primary function of NSSI for the individual. The Addictive Features scale has 12 items that measure the degree to which NSSI is experienced as addictive. Each item is rated on a 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). The sum of all the components yields the overall raw score, which ranges from 12 to 84. Higher levels of addictive qualities are indicated by higher scores. Numerous studies have looked at the OSI's psychometric qualities, and they have demonstrated sufficient validity and reliability (Brown et al. 2018; Nixon et al. 2015). To validate the scale, the current researcher used a sample of 100 secondary school students in a pilot study. An acceptable reliability coefficient of.65 was attained by the scale.

The premenstrual Symptoms Screening Tool Revised For Adolescents (PSST-A; Steiner et al., 2011)

A modified version of the PSST, the premenstrual symptoms screening instrument updated for adolescents (PSST-A) was created by Steiner et al. (2003) to screen adult women for severe PMS and PMDD in accordance with the DSM-IV criteria. Steiner et al. (2011) piloted the PSST-A, which measures 14 premenstrual symptoms, in 578 girls across three international sites. The PSST-A has a similar scoring pattern as the PSST, which requires the presence of at least five moderate or severe symptoms, including at least one core symptom (tension/anxiety, irritability/anger, depressed mood/hopelessness, or tearful/increased sensitivity to rejection), as well as significant impairment in at least one functional domain (work, home, social activities, relationships, or school). Items are rated as “not at all,” “mild,” “moderate,” or “severe.” The PSST-A has been shown to be a fast and reliable tool to screen for severe PMS and PMDD in adolescents, with a prevalence rate of 29.6% in the pilot study. To validate the scale in a sample of 100 secondary school pupils, the current researcher carried out a pilot study. The scale's reliability coefficient of.78 was deemed adequate.

The Childhood Trauma Questionnaire–Short Form (CTQ-SF; Bernstein & Fink, 1998)

Basically, emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect are the five categories of childhood maltreatment that are evaluated by the 28-item Childhood Trauma Questionnaire–Short Form (CTQ-SF; Bernstein & Fink, 1998; Hagborg et al. 2022). It is scored on a 5-point Likert scale ranging from 1 (never true) to 5 (very often true). The total score ranges from 28 to 140, with higher scores indicating more severe trauma. The subscale scores range from 5 to 25, with cut-off points for low, moderate, and severe levels of maltreatment. When employed with adolescents, the CTQ-SF has high psychometric qualities and is acceptable, according to a recent study by Hagborg et al. (2022). They used a community sample of adolescents (n=1885) in four waves (from 13 or 14 to 17 years old) and a clinical sample (n=74, mean age 18), both from Sweden. They discovered that the CTQ-SF had significant or good internal consistency for every scale in the clinical sample and for every scale in the community sample, with the exception of physical neglect. Additionally, they discovered that the subscales' one-year test-retest consistencies grew from early to mid-adolescence and were significant or almost perfect (Hagborg et al. 2022).They showed that the CTQ-SF had convergent validity with measures of family climate, parental relations, and emotional health. They also reported that the CTQ-SF had moderate discriminatory ability between clinical and community samples. Another study by Cruz (2023) also evaluated the factor structure and measurement invariance of the CTQ-SF in a large, nationally representative sample of US adults (N=863). They verified that the five-factor model was generally invariant by gender and racial/ethnic group and that it suited the data well. Additionally, they discovered a positive correlation between the CTQ-SF subscales and aberrant inflammatory biomarker activity, anxiety, and sadness. To validate the scale in a sample of 100 secondary school pupils, the current researcher carried out a pilot study. The scale's reliability coefficient of.93 was deemed adequate.

Data Collection

The data was collected using a structured questionnaire consisting demographic information; age, gender, class, ethnicity and religion; and self report measures of the Ottawa Self-Injury Inventory, the Premenstrual Symptoms Screening Tool Revised for Adolescents, the and Childhood Trauma Questionnaire–Short Form. The study was conducted between June and September 2024. The University of Nigeria, Nsukka, Enugu state, Nigeria's Department of Psychology provided the researcher with an introductory letter, which she delivered to the schools where the study was carried out. The researcher and three research assistants—teachers in the school—administered the questionnaires to the participants who consented to participate in the study during break time after receiving approval from the administration of the various secondary schools. Every participant was made aware that there would be no financial or in-kind compensation for their involvement in the study, and that both participation and questionnaire completion were entirely voluntary. Three hundred and eighty (380) questionnaires were sent to the respondents, and 326 were gathered; of these, 23 were not accurately answered. As a result, only 303 responses were accurate and utilized for the data analysis. This amounts to a return rate of 79.74%.

Ethical considerations

Approval for the study was granted by the Ethical Committee Board, Department of Psychology, University of Nigeria, Nsukka (D.PSY.UNN/REC/2024-07-1RB000025). Informed consent was obtained from the participants. All the ethical standards according to the Helsinki Declaration of 1975, as revised in 2000 concerning human experimentation (institutional and national), were followed.

Statistical analysis

Pearson’s correlation (r) was conducted to test the relationship among the study’s variables; while hierarchical multiple regression was used for data analysis. Mendenhall et al (2009) posited that hierarchical multiple regression analysis allows researchers to concurrently use several independent or predictor variables. By using more than one independent variable, one should do a better job of explaining the variation in the criterion (dependent variable) and hence be able to make more accurate predictions. Hence, hierarchical multiple regression was used to test the hypotheses.

Results

Table 1 shows the correlations between the demographic variables and the main study variables. Table 2 is the regression results for the test of hypotheses.

Variables		M	SD	1	2	3	4	5	6	7
1	Age	13.41	1.85							
2	Class	-	-	.54**	-					
3	Religion	-	-	-.02	.15*	-				
4	Ethnicity	-	-	.06	.04	.23**	-			
5	Self-injury	11.07	2.81	.04	.04	-.07	-.07	-		
6	Trauma	83.20	8.37	.03	.05	.00	-.00	.74**	-	
7	Premenstrual	32.20	7.87	.00	.04	-.02	-.02	.82**	.90**	-

Table 1: Pearson's correlations of demographics, self-injurious behaviour, adverse childhood experiences and premenstrual dysphoric disorder among adolescents.

Note: **<.01; *p<.05.

Table 1 showed that age was positively related to class(r = .54, p<.01). Class positively related to religion(r = .14, p<.05). Religion positively related to ethnicity(r = .24, p<.01). Self-injury was positively related to adverse childhood experiences(r = .74, p<.01) and premenstrual dysphoric disorder (r = .82, p<.01). Premenstrual dysphoric disorder positively related to adverse childhood experiences(r = .90, p<.01).

Predictors	Step 1			Step 2		
	B	β	T	B	β	t
Age	-.14	-.03	-.14	-.15	-.04	-.15
Self-injury	2.29	.82	2.29***	.97	.35	.96
Adverse Experiences				.60	.65	.60***
R^2		.68			.87	
$R^2\Delta$		.68			.19	
F	308.81(2, 293)***			635.08(3, 292)***		
*F*Δ	308.81(2, 293)***			414.98(1, 292)***		

Table 2: Hierarchical Multiple Regression for Predictors of Premenstrual Dysphoric Disorder among Adolescents.

Note: ***p<.001.

Results of the hierarchical multiple regression analyses are shown in Table 2. In step 1, age was added as a control variable. Age was not a significant predictor of premenstrual dysphoric disorder among adolescents. Self-injury was a significant positive predictor of premenstrual dysphoric disorder among adolescents, (β = .82, p<.001). The B shows that for each one unit rise in self-injury, premenstrual dysphoric disorder among adolescents increases by 2.29 units. The model was significant, F(2, 293) = 308.81, R2Δ = .68. The R2Δ of .68 shows that 68% of the variance in premenstrual dysphoric disorder among adolescents was explained by all the variables in step 1. Adverse childhood experiences was added in step 2, and it was a significant positive premenstrual dysphoric disorder among adolescents, (β = .65, p<.001). The B shows that for each one unit rise in adverse childhood experiences, premenstrual dysphoric disorder among adolescents' increases by .60 units. The model was significant, F(1, 292) = 414.98, R2Δ = .19. The R2Δ of .19 shows that 19% of the variance in premenstrual dysphoric disorder among adolescentswas explained by adverse childhood experiences. 87% of the variance in premenstrual dysphoric disorder among adolescentswas explained by all the variables under study.

Discussion

This study looked at the relationships between premenstrual dysphoric disorder, negative childhood experiences, and self-harming behavior in teenagers in Nsukka Urban, Nigeria. The study examined two hypotheses: (1) that among adolescents in Nsukka Urban, self-harming behavior would be positively associated with premenstrual dysphoric disorder; the findings of the hierarchical multiple regression analysis confirmed this hypothesis, showing that among adolescents in school in Nsukka Urban, self-harming behavior was a significant positive predictor of premenstrual dysphoric disorder. In line with earlier research that found a connection between self-harm and premenstrual symptoms (e.g., Shams-Alizadeh et al., 2018; Soydas et al., 2014), the results showed that self-harming behavior was positively associated with premenstrual dysphoric disorder. What could account for this positive correlation may be that self-harming activity may be a coping strategy for teenagers who are experiencing extreme emotional discomfort during the premenstrual stage. Negative emotions including despair, anxiety, and irritability that are typical of premenstrual dysphoric disorder may be momentarily alleviated by self-harm (Nixon et al., 2015). Self-harming behavior could also be a sign of a deeper susceptibility to mood dysregulation, which is made worse by hormonal changes that occur during the menstrual cycle. Self-harm may be a sign of a lack of adaptive emotion management abilities, which are necessary to manage the stressors of premenstrual dysphoric disorder and the difficulties of puberty. The second hypothesis was that among teenagers enrolled in school in Nsukka Urban, negative childhood experiences would positively correlate with premenstrual dysphoric disorder. Both hypotheses were supported by the hierarchical multiple regression analysis's findings, which showed that among teenagers in

Nsukka Urban, negative childhood experiences were a substantial positive predictor of premenstrual dysphoric disorder. The discovery that negative childhood experiences were positively linked to premenstrual dysphoric disorder is also consistent with earlier research that linked premenstrual symptoms to childhood trauma (e.g., Younes et al., 2021; Azoulay et al., 2020). The development of the hypothalamic-pituitary-adrenal (HPA) axis, which controls the stress response and the reproductive hormones, may be hampered by traumatic childhood experiences, which could account for this positive correlation. Chronic HPA axis activation brought on by adverse childhood events might result in dysregulation of cortisol and other hormones that affect mood and behavior during the menstrual cycle. The development of the brain areas responsible for regulating emotions, including the hippocampus, prefrontal cortex, and amygdala, may also be impacted by adverse childhood experiences. Stress and hormonal fluctuations might cause these brain areas to become hypersensitive or hypoactive, which increases susceptibility to premenstrual dysphoric disorder (Bernstein et al., 2003).

Implications of the findings

The findings of this study have several implications for the mental health of adolescents in Nsukka Urban. First, they posit that a considerable proportion of adolescents in this demographic suffer from premenstrual dysphoric disorder, a common and dangerous ailment. The quality of life, academic achievement, interpersonal connections, and physical health of adolescents with premenstrual dysphoric disorder can all be negatively impacted. Premenstrual dysphoric condition must thus be better understood and acknowledged by teenagers, parents, educators, medical professionals, and legislators in Nsukka Urban. Second, they suggest that among teens in Nsukka Urban, self-harming behavior and adverse childhood experiences are important risk factors for premenstrual dysphoric disorder. These risk factors may indicate a history of trauma, abuse, neglect, or violence that has not been adequately addressed or cared for. Teens who hurt themselves or who had traumatic events as children must therefore be eligible for screening, evaluation, intervention, and preventative services from Nsukka Urban. Third, they suggest that a combination of bad childhood experiences, self-harming behavior, and hormonal changes during the menstrual cycle may exacerbate the symptoms of premenstrual dysphoric disorder among teenagers in Nsukka Urban. Therefore, it is necessary to consider the biological, psychological, and social factors that influence the onset and presentation of premenstrual dysphoric disorder in teenagers in Nsukka Urban.

Limitations of the study

It is important to recognize the limitations of this study. Firstly, the cross-sectional design of this study makes it difficult to determine the causal links between negative childhood experiences, self-harming behavior, and premenstrual dysphoric disorder among teenagers in Nsukka Urban. To examine the chronological sequence and directionality of these interactions, a longitudinal design would be more appropriate. Second, this study used self-report measures, which may introduce biases such recall errors, social desirability, or response preferences. Objective techniques such as behavioral observations, clinical interviews, or hormone testing would be more reliable and valid for assessing the elements of interest. Third, because this study used a convenience sample of teens who attended secondary schools in Nsukka Urban, its findings might not be as generalizable to other groups or locations. A representative sample of teenagers from different regions, nationalities, or backgrounds would be more varied and educational.

Conclusion

This study examined the relationships between self-harming behavior, ACEs and PMDD in teens in Nsukka Urban, Nigeria. The results supported the hypotheses that self-harming behavior and adverse childhood experiences were significant predictors of premenstrual dysphoric disorder among teens in Nsukka Urban. Given the implications for the mental health of teens in Nsukka Urban, the findings point to the need for increased awareness, recognition, screening, assessment, intervention, and prevention of premenstrual dysphoric disorder and associated risk factors. The findings further highlight the need for more research using representative, objective, and longitudinal methodologies to better understand the onset and presentation of premenstrual dysphoric disorder in adolescents in Nsukka urban.

References

1. Azoulay, M., Reuveni, I., Dan, R., Goelman, G., Segman, R., Kalla, C., ... & Canetti, L. (2020). Childhood trauma and premenstrual symptoms: the role of emotion regulation. *Child Abuse & Neglect*; 108; 104-637.
2. Beck, A. T. (1996). Beyond belief: A theory of modes, personality, and psychopathology. In P. M. Salkovskis (Ed.), *Frontiers of cognitive therapy* (pp. 1-25). New York: Guilford Press.
3. Bernstein, D. P., & Fink, L. (1998). Childhood Trauma Questionnaire. A retrospective self-report. Manual. San Antonio. *TX: The Psy¬chological Corporation*. Harcourt Brace & Company
4. Canning, S., Shenton, D., & Perry, P. (2010). The efficacy of Hypericumperforatum (St John's wort) for the treatment of premenstrual syndrome: a randomized, double-blind, placebo-controlled trial. Central Nervous System Drugs; 24(3); 207-225. https://doi.org/10.2165/11530120-000000000-00000
5. Carlini, S. V., Lanza di Scalea, T., McNally, S. T., Lester, J., & Deligiannidis, K. M. (2022).
6. Management of premenstrual dysphoric disorder: a scoping review. *International Journal of Women's Health*; 1783-1801.
7. Cirillo, P. C., Passos, R. B., López, J. R., & Nardi, A. E. (2014). Will the DSM-5 changes in
criteria for premenstrual dysphoric disorder impact clinical practice?. *Revista Brasileira de Psiquiatria*; 36(3); 271-271.
8. Csorba, J., Ferencz, E., Palaczky, M., Pali, E., Nagy, E., Horvath, A., &Vados, M. (2008). P0183-Clinical diagnoses and behavioural symptoms of Hungarian adolescent outpatients suffering from self-injurious behaviour. *European Psychiatry*; 23(52); 246-248.
9. Cruz, D. (2023). Childhood Trauma Questionnaire-Short Form: evaluation of factor structure and measurement invariance. *Journal of Child and Adolescent Trauma*; 16(4); 1099-1108.
10. Eisenlohr-Moul, T., Divine, M., Schmalenberger, K., Murphy, L., Buchert, B., Wagner-Schuman, M., ... & Ross, J. (2022). Prevalence of lifetime self-injurious thoughts and behaviors in a global sample of 599 patients reporting prospectively confirmed diagnosis with premenstrual dysphoric disorder. *BMC Psychiatry*; 22(1); 199-220.

11. Epperson C.N., Steiner M., Hartlage S.A., Eriksson E., Schmidt P.J., Jones I., & Yonkers K.A.(2012). Premenstrual dysphoric disorder: Evidence for a new category for DSM-5. American Journal of Psychiatry; 169(5); 465-475 https://doi.org/10.1176/appi.ajp.2012.11081302
12. Girdler S.S., Klatzkin R.R., Pedersen C.A.(2014).Hypothalamic-pituitary-adrenal axis dysfunction in premenstrual dysphoric disorder: Current insights. *Psychology Research and Behavior Management*; 7(1); 201-212 https://doi.org/10.2147/PRBM.S47669
13. Golbidi S., Laher I.(2017).Exercise-induced modulation of neuroinflammation in models of Alzheimer's disease. *ActaNeuropathologica Communications*; 5(1); 51-66 https://doi.org/10.1186/s40478-017-0451-y
14. Hagborg, J. M., Kalin, T., &Gerdner, A. (2022). The Childhood Trauma Questionnaire—Short Form (CTQ-SF) used with adolescents – methodological report from clinical and community samples. *Journal of Child & Adolescent Trauma*; 15; 1199–1213. https://link.springer.com/article/10.1007/s40653-022-00443-8https://link.springer.com/article/10.1007/s40653-022-00443-8
15. Kulkarni, J., Leyden, O., Gavrilidis, E., Thew, C., & Thomas, E. H. (2022). The prevalence of early life trauma in premenstrual dysphoric disorder (PMDD). *Psychiatry Research*; 308; 114-381.
16. McNulty K.L.(2020).Premenstrual dysphoric disorder: Current perspectives. Psychology Research and Behavior Management; 13(1); 1233-1244 https://doi.org/10.2147/PRBM.S240600
17. Nixon, M. K., Cloutier, P. F., &Jansson, S. M. (2008). The Ottawa Self-Injury Inventory (OSI): Assessment of nonsuicidal self-injury in an inpatient sample of adolescents. *Psychological Assessment*; 20(2); 196–205. https://doi.org/10.1037/1040-3590.20.2.196
18. Osborn, E., Brooks, J., O'Brien, P. M. S., &Wittkowski, A. (2021). Suicidality in women
with Premenstrual Dysphoric Disorder: a systematic literature review. *Archives of Women's Mental Health*; (24); 173-184.
19. Osborne, M. C., Self-Brown, S., & Lai, B. S. (2022). Child maltreatment, suicidal ideation, and in-home firearm availability in the US: findings from the longitudinal studies of child abuse and neglect. *International Journal of Injury Control and Safety Promotion*; 29(1); 56-65.
20. Shams-Alizadeh, N., Maroufi, A., Rashidi, M., Roshani, D., Farhadifar, F., & Khazaie, H.
(2018). Premenstrual dysphoric disorder and suicide attempts as a correlation among women in reproductive age. *Asian Journal of Psychiatry*; 31; 63-66.
21. Steiner M.MacdougallM.Brown E.(2003).The premenstrual symptoms screening tool (PSST) for clinicians. Archives of Women's Mental Health; 6(3); 203-209 https://doi.org/10.1007/s00737-003-0176-z
22. Steiner M, Peer M, Palova E, Freeman EW, Macdougall M, Soares CN (2011). The premenstrual symptoms screening tool revised for adolescents (PSST-A): prevalence of severe PMS and premenstrual dysphoric disorder in adolescents. *Archive of Womens Mental Health*; 14(1); 77-81. https://link.springer.com/article/10.1007/s00737-010-0202-2
23. SoydasA.E.ErdoganA.TokmakA.YilmazN.MoroydorDerunE. Savas .H.A.(2014).Premenstrual dysphoric disorder in patients with posttraumatic stress disorder. *Psychiatry.* Research,220(1–2), 283-287. https://doi.org/10.1016/j.psychres.2014.07.057
24. Yan Y.ZhangY.LiX.ZhangX.LiX.ZhangL.Zhang Z.(2021).Association between suicidal ideation and premenstrual syndrome/premenstrual dysphoric disorder among Chinese female college students: The mediating role of sleep quality. *Journal of Affective Disorders*; 282(1); 1050-1055 https://doi.org/10.1016/j.jad.2020.12.164
25. YangY.C.LinC.C.ChangC.L.ChenC.H.ChenC.P.HuangS.Y.Lu R.B.HongJ.S.Yang H.C.(2022).Association between childhood trauma and premenstrual symptoms: The mediating role of the hypothalamic-pituitary-adrenal axis. *Journal of Psychiatric Research*; 136(1); 1-7 https://doi.org/10.1016/j.jpsychires.2020.12.048
26. Younes, Y., Hallit, S., & Obeid, S. (2021). Premenstrual dysphoric disorder and childhood maltreatment, adulthood stressful life events and depression among Lebanese university students: a structural equation modeling approach. *BMC Psychiatry*; 21(1); 1-10.

DOI:10.31579/2637-8892/364