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Childhood Trauma Influences The Occurrence of Symptoms of Premenstrual Dysphoric Disorder

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Abstract

Background: Childhood trauma can cause anxiety, difficulty controlling yourself, sleep disorders, self-harm, suicide, problems in socializing, depression, and panic attacks. Symptoms that appear in patients with premenstrual dysphoric disorder (PMDD) are mood swings, irritability, feeling depressed and hopelessness, anxiety, difficulty concentrating, and somatic symptoms such as changes in diet and sleep, lethargy, breast pain or swelling, joint pain, muscle pain, and bloating. The number and severity of premenstrual symptoms are increasing in individuals with childhood trauma. This study aims to determine the relationship between childhood trauma and symptoms of premenstrual dysphoric disorder.

Methods: The study design in this study was cross-sectional. The population in this study are female students of Universitas Pelita Harapan, Indonesia, batch 2019-2022. Respondents will fill in their data after filling out the informed consent sheet. Childhood trauma measurements

were measured using the Childhood Trauma Questionnaire (CTQ), and premenstrual dysphoric disorder measurements were measured using the Carolina Premenstrual Assessment Scoring System (C-PASS).

Results: One hundred nine female students who met inclusion and exclusion criteria participated in this study. The age range of respondents ranged from 18 – 23 years, with 20-year-old respondents being the most significant sample of 46 people (42.20%). There were 72 respondents (66.06%) who experienced childhood trauma, while 37 (33.94%) did not experience childhood trauma. There were 51 respondents (46.79%) experiencing Premenstrual Dysphoric Disorder, 18 (16.51%) experiencing Menstrually Related Mood Disorders (MRMD), and 40 (36.70%) did not experience PMDD or MRMD. The chi-square analysis obtained $p = 0.018$ with Odds ratio (OR) = 2.955.

Conclusion: There is a significant relationship between childhood trauma and symptoms of premenstrual dysphoric disorder in Universitas Pelita Harapan students, with $p = 0.018$ and OR = 2.955. Students who experienced childhood trauma will have 2,955 times more odds.

Keywords: childhood trauma, premenstrual dysphoric disorder, female students.

Introduction

Trauma is an event or series of events experienced and perceived as harmful either physically or emotionally or life-threatening. It has long-term effects on a person's functioning mentally, physically, socially, emotionally, and spiritually.(1,2) According to research conducted on 40 university students in Yogyakarta, the most experienced traumatic events were physical and sexual violence (27.5%) and emotional violence (22.5%). (3) Children who experience traumatic events tend to experience behavioral changes, such as fears related or unrelated to the traumatic event, separation anxiety, sleep disturbances, frequent and recurrent sadness, loss of interest in activities, difficulty concentrating, unexplained anger, irritability, and somatic problems such as abdominal pain, headaches, and other physical complaints that have no natural cause.(4) Research on 911 students at Mugla Sitki Kocman University in Turkey found that students who experience physical, emotional, or sexual violence are more likely to form fearful, preoccupied, and dismissive attachment styles. While students who did not experience childhood trauma tend to have a secure attachment style.(5)

Premenstrual symptoms, including changes in mood, behavior, and physical symptoms that appear before the menstrual cycle, often occur in women of reproductive age with varying degrees of severity. Some experience mild symptoms that are not bothersome, but about 5% - 8% of women experience moderate to severe symptoms that can cause significant physical and psychological disorders. Women who experience symptoms severe enough to interfere with daily activities can be said to have premenstrual syndrome (PMS). In contrast, premenstrual dysphoric disorder (PMDD) is the most severe form of premenstrual syndrome, part of depressive disorders.(6) Premenstrual dysphoric disorder (PMDD) is a somatopsychic disease caused by changes in sex steroid hormone levels that occur about one week before the beginning of menstruation.(7) According to research on high school teenagers in Yogyakarta, it shows that there are 99 teenagers (42,5%) who experienced PMS symptoms and 55 adolescents (23.6%) who experienced PMDD symptoms. (8) Symptoms of PMDD include mood swings, irritability, feeling depressed and hopelessness, anxiety, difficulty concentrating, loss of interest, feelings of overwhelm, and somatic symptoms such as changes in diet and sleep, lethargy, breast pain or swelling, joint pain, muscle pain, and bloating.(9) PMDD can be diagnosed according to DSM V diagnosis criteria.(10)

The cause of premenstrual dysphoric disorder is not known with certainty. Still, some hypotheses explain its pathophysiology: the ovarian hormone hypothesis, serotonin hypothesis, psychosocial hypothesis, cognitive and social learning theory, and sociocultural theory. In addition, several risk factors are associated with premenstrual dysphoric disorder, such as traumatic events and anxiety disorders, smoking habits, and obesity. (6) Cross-sectional research conducted on college students in Lebanon showed that severe stress events, physical, sexual, and psychological violence were significantly associated with higher rates of depression. In addition, higher levels of sexual, psychological, and depressive violence are significantly associated with higher incidences of PMDD. Indirect links between psychological and sexual violence, depression, and PMDD suggest that depression mediates the relationship between psychological and sexual violence with PMDD.(11)

Some research on childhood trauma as a risk factor for premenstrual dysphoric disorder has been conducted, but further research is needed to get more valid results. In addition, the incidence of childhood trauma in Indonesia is quite a lot. According to a study on high school students in Denpasar, out of 104 female students who had trauma, namely physical violence 47.1%, were seriously ill/injured 41.3% , experienced sudden changes that changed personality 36.5%, were left behind by the closest person 27.9%, abandonment 27.9%,

changes in parental situation 15.4%, and sexual abuse 13.5%. (12) The incidence of premenstrual syndrome is also quite common among Indonesian women. In a study of 80 female students of SMAN 3 Tangerang City (2019), 43 people (53.8%) experienced severe premenstrual syndrome, while 37 people (46.2%) experienced mild premenstrual syndrome. Of 43 people who experienced severe premenstrual syndrome, 23 (72%) experienced stress, while 20 (42%) did not experience stress. (13) Childhood trauma and severe premenstrual syndrome are common in Indonesian adolescents. Therefore, research must be done to determine the relationship between childhood trauma and premenstrual dysphoric disorder.

Materials and Methods

The study design in this study was cross-sectional. The research was conducted on students of Universitas Pelita Harapan, Tangerang, Banten, Indonesia batch 2019 – 2022. Respondents were taken from 13 different faculties at Universitas Pelita Harapan. They are the Faculty of Economics & Business, Faculty of Science & Technology, Faculty of Design, Faculty of Tourism, Faculty of Music, Faculty of Law, Faculty of Psychology, Faculty of Computer Science, Faculty of Social and Political Sciences, Faculty of Medicine, Faculty of Health Sciences, Faculty of Nursing, and Faculty of Education. The sampling technique used is simple random sampling. The calculation of the number of samples in this study uses an unpaired categorical comparative analytical calculation formula. From the calculation results, the total minimum number of research samples needed is 106 respondents. The inclusion criteria in this study are: 1. Female students of Universitas Pelita Harapan batch 2019 – 2022, 2. Female students who were willing to become respondents in this study by filling out informed consent forms. The exclusion criteria in this study are: 1. Have a history or diagnosis of psychiatric disorders, 2. Have an account of neurological or endocrine disorders, 3. Using hormonal contraceptives, 4. Pregnant or breastfeeding.

The materials used in this study include documents provided online. The papers are informed consent sheets, the Childhood Trauma Questionnaire (CTQ) to measure childhood trauma, and the Carolina Premenstrual Assessment Scoring System (C-PASS) to measure the occurrence of premenstrual dysphoric disorder (PMDD). The questionnaires were created in the form of Google Forms.

Research data collected using Google Forms will be recapitulated in a Microsoft Excel table. The processing of data that has been collected was carried out using the Statistical Package

for the Social Sciences (SPSS) application version 23.0. The statistical analysis method used in this study is the chi-square method.

Results

Of the 132 respondents, as many as 109 met the inclusion and exclusion criteria and were willing to participate in the research. The age range of respondents ranged from 18 – 23 years, with 20-year-old respondents being the most significant sample of 46 respondents (42.20%). Most respondents came from the Faculty of Medicine, as many as 22 people (20.18%). Most respondents came from the 2020 batch, 51 people (46.79%). Full results can be seen in Table 1.

Table 1. Characteristics of Respondents

Variable	n	Percentage (%)
Age (years)		
18	14	12,84
19	22	20,18
20	46	42,20
21	19	17,43
22	6	5,50
23	2	1,83
Total	109	100
Faculty		
Faculty of Economics & Business	7	6,42
Faculty of Science & Technology	7	6,42
Faculty of Design	6	5,50
Faculty of Tourism	16	14,68
Faculty of Music	7	6,42
Faculty of Law	5	4,59
Faculty of Psychology	8	7,34
Faculty of Computer Science	8	7,34
Faculty of Social and Political Sciences	5	4,59

Faculty of Medicine	22	20,18
Faculty of Health Sciences	6	5,50
Faculty of Nursing	8	7,34
Faculty of Education	4	3,67
Total	109	100
Batch		
2019	7	6,42
2020	51	46,79
2021	22	20,18
2022	29	26,61
Total	109	100

Of the total 109 respondents, there were 72 (66.06%) respondents who experienced childhood trauma, while 37 (33.94%) other respondents did not experience childhood trauma. Full results can be seen in Table 2.

Table 2. Childhood Trauma

Childhood Trauma	Frequency	Percentage (%)
Experiencing childhood trauma	72	66,06
Not experiencing childhood trauma	37	33,94
Total	109	100

There were 51 respondents (46.79%) who experienced Premenstrual Dysphoric Disorder (PMDD), 18 respondents (16.51%) experienced Menstrually Related Mood Disorders (MRMD), and 40 respondents (36.70%) others did not experience PMDD or MRMD. Full results can be seen in Table 3.

Table 3. Premenstrual Dysphoric Disorder (PMDD)

<i>Premenstrual Dysphoric Disorder</i>	Frequency	Percentage (%)
PMDD	51	46,79

MRMD	18	16,51
Not experiencing PMDD or MRMD	40	36,70
Total	109	100

<i>Premenstrual Dysphoric Disorder</i>	Frequency	Percentag
PMDD	51	46,79
MRMD	18	16,51
No PMDD or MRMD	40	36,70
Total	109	100

From the results of statistical analysis using the *chi-square* method, the p-value was obtained at $p = 0.018$ (<0.05), with an odds ratio (OR) of 2,955 (95% CI: 1,270 – 6,874), which showed a significant relationship between childhood trauma and symptoms of premenstrual dysphoric disorder.

Table 4. Childhood Trauma and PMDD Symptoms

	<i>Premenstrual dysphoric disorder</i>		Total (%)	P Value	OR (95% CI)
	No PMDD	PMDD			
Childhood Trauma					
No Trauma	26 (70,3%)	11 (29,7%)	37 (100%)	0,018	2,955 (1,270 – 6,874)
Trauma	32 (44,4%)	40 (55,6%)	72 (100%)		
Total	58 (53,2%)	51 (46,8%)	109 (100%)		

Discussion

This study found that the prevalence of childhood trauma in female students in Universitas Pelita Harapan, Banten, Indonesia, was 66.06%, 72 out of 109 respondents. While 32 (33.94%) other respondents did not experience childhood trauma. This figure is higher than that found in some other studies. A meta-analysis study on substance abuse perpetrators showed that substance abuse perpetrators suffered from a history of childhood emotional abuse by 38% (95% CI: 0.28-0.48), physical abuse by 36% (95% CI: 0.27-0.45), sexual abuse 31% (95% CI: 0.23-0.41), emotional neglect by 31% (95% CI: 0.18-0.45) and physical neglect by 32% (95%

CI: 0.25-0.40). The study conducted a subgroup analysis by continent and found that the highest occurrence of emotional abuse was in North America and South America, at a prevalence of 45%. (14) Another study in Australia also showed a lower prevalence of childhood trauma, namely emotional, physical, and sexual abuse, by 54%, 23%, and 28%, respectively, while 49% and 42% experienced emotional and physical neglect. Female patients are more likely to have experienced emotional and sexual abuse in childhood. (15) However, the Asia Pacific study showed a prevalence rate of childhood trauma close to the prevalence rate found in this study. A study in Asia Pacific obtained prevalence rates of childhood trauma in men ranging from 59% (n = 478, 95% CI 54.0–63.3) in Indonesia to 92% (n = 791, 89.4–93.8) in Bougainville, Papua New Guinea. For women, prevalence rates range from 44% (n=272, 37.7–50.8) in Sri Lanka to 84% (n=725, 80.7–86.8) in Bougainville, Papua New Guinea.(16) This is in accordance with the prevalence rate of childhood trauma found in this study, which is 66.06% because Indonesia is included in the Asia Pacific area. From this data, we can also see that the prevalence of childhood trauma in the Asia Pacific region tends to be more significant.

The prevalence of premenstrual dysphoric disorder symptoms in Universitas Pelita Harapan, Banten, Indonesia, female students in this study was obtained at 46.79%. Metaanalytical research in India found that the prevalence of premenstrual syndrome in India was 43% (95% CI: 0.35-0.50), and the prevalence of premenstrual dysphoric disorder in India was 8% (95% CI: 0.60-0.10).(17) In other studies of female students in India found that the prevalence of premenstrual dysphoric disorder symptoms was 3.7% - 4.43% (18) , (19) The results of the studies in India are much lower than the results of the prevalence of premenstrual dysphoric disorder in this study. However, research on female students in Ethiopia shows that the incidence of premenstrual dysphoric disorder was 54.5% (95%CI 40.8–67.6).(20) Research in Indonesia found that the prevalence rate of premenstrual dysphoric disorder in women in disaster areas was 41.8%.(21) The low prevalence rate of premenstrual dysphoric disorder in India may be due to differences in research instruments used to measure the occurrence of premenstrual dysphoric disorder in India.

This study also showed that there was a significant relationship between childhood trauma and symptoms of premenstrual dysphoric disorder in Universitas Pelita Harapan female students, with p-value obtained at $p = 0.018 (<0.05)$ and odds ratio 2.955 (95% Confidence Interval 1.270 – 6.874). An odd ratio of 2.955 means that respondents who experienced childhood trauma will have 2.955 times greater odds of experiencing premenstrual dysphoric

disorder symptoms than respondents who did not experience childhood trauma. It follows the results obtained in a study conducted in Jerusalem in 2020. The study found a relationship between childhood trauma and premenstrual syndrome with $p = 0.015$. 28.9% of respondents reported experiencing at least 1 type of childhood trauma in the group suffering from premenstrual dysphoric disorder. In comparison, respondents who experienced childhood trauma in the group who did not suffer from premenstrual dysphoric disorder were only 10%. The total childhood trauma score was significantly associated with the premenstrual dysphoric disorder score, which showed a correlation between the two variables. (22) Research conducted in Lebanon in 2021 also gave similar results. There was an indirect association between childhood trauma of psychological abuse ($p = 0.001$) and sexual violence ($p = 0.004$) and premenstrual dysphoric disorder mediated by depression. (11) Another study in China in 2020 also supported a link between childhood trauma and the occurrence of depression and anxiety, which in turn affects emotional intelligence.(23)

Conclusion

There is a significant relationship between childhood trauma and symptoms of premenstrual dysphoric disorder. Childhood trauma has an essential influence on symptoms of premenstrual dysphoric disorder.

Acknowledgments

Limitations of the study

The age limitation of the result of this study is between 18 and 23 years old female students. There is no covariate nor possible confounder counted in this study to control the relationship between childhood trauma as an independent variable and the symptoms of premenstrual dysphoric disorder as a dependent variable.

Ethical considerations

The Ethics Committee of the Faculty of Medicine, Universitas Pelita Harapan, has approved this study through recommendation letter No. 066/K-LKJ/ETIK/I/2023.

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