

Premenstrual dysphoric disorder: Review of the available literature

Quratulain Javaid

ABSTRACT

Premenstrual dysphoric disorder is a medical condition that is severe in intensity than premenstrual syndrome. The disorder has both somatic as well as behavioral domain symptoms. The disorder in particular has effects on mood. There are various co-morbid conditions associated which include depression and anxiety. The aim of this review article is to highlight the effects of premenstrual dysphoric disorder on the lives of females in reproductive age groups and to ascertain possible treatment. Premenstrual dysphoric disorder negatively affects social, interpersonal and work lives of the females. Selective serotonin reuptake inhibitors are considered to be the gold standard in treating the condition. Psychotherapy is also found to be useful in alleviating the symptoms.

Keywords: Premenstrual dysphoric disorder, Prevalence, Symptoms, Treatment, Mood, Luteal phase

How to Cite This:

Javaid Q. Premenstrual dysphoric disorder: Review of the available literature. *Isra Med J.* 2020; 12(3): 159-163.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-Noncommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Introduction

Premenstrual dysphoric disorder (PMDD) is a type of medical condition affecting in particular mood. It is considered to be a severe form of premenstrual syndrome¹. Menstrual cycle has features that are inconstant for every female². Premenstrual syndrome is a condition in which the females experience variable symptoms. The symptoms include certain physical ones like headache, mastalgia, acne/dermatological problems, bloating of abdomen. The psychological component of the condition relates to symptoms including anger outbursts, irritability/tetchiness, anxiety, change in the appetite (increase or decrease), feeling of depression, disturbance in the sleep pattern and fluctuation of mood³. Like premenstrual syndrome, PMDD similarly presents with the combination of both affective as well as physical symptoms but the resulting functional impairment is considered to be more severe than premenstrual syndrome¹. Episodes of depression, anxiety and irritability are the most prominent features. It is also associated with changes in the mood⁴.

PMDD occurs in response to hormones fluctuation levels during the menstrual cycle¹. Feeling of stress and negative mood have been observed to be more in the late luteal phase of the

menstrual cycle^{4,5}. An ecological momentary assessment study revealed that females experience different mood changes during menstrual, follicular, ovulatory and the late luteal phases of the cycle⁵. A recent study published in 'The International Journal of Environmental Research and Public Health' revealed that those females who suffer from generalized anxiety disorder develop symptoms of PMDD more as compared to the females without any anxiety disorder⁶.

The involved physiological mechanism may interfere with the sensitivity level of neurotransmitters like gamma-amino butyric acid (GABA) and serotonin. The disease also affects the receptors of allopregnanalone. This results in modifications in the brain circuits resulting in disruption of cognitive functions and emotional stability¹. A research study published in 'Neurobiology of Stress' has revealed the weakening of GABA and allopregnanalone receptor activity to be the underlying cause of the disease. This consequences impairment in the body's response to stress and thus results in increase level of stress during the luteal phase of menstrual cycle⁴. World over, the prevalence rate of PMDD varies from 3 to 8 percent. According to Diagnostic and Statistical Manual of Mental Disorders (DSM-V), premenstrual dysphoric disorder is among the list of depressive disorders¹.

The development and predisposition of premenstrual syndrome can be linked to the genetic linkage among the females of the family⁷. There are different factors, which can contribute towards the development of premenstrual dysphoric disorder. A research conducted among the females of United Arab Emirates observed psychological and functional impairment by the help of Sheehan Disability Scale. It has revealed that family history of psychological illness, high education, dysmenorrhea, any crucial stressful event in life and use of psychotropic medications are associated with occurrence of PMDD⁸.

PMDD is a troublesome and distressing disorder that leads to low quality of life and yet it remains undiagnosed due to

Correspondence:

Quratulain Javaid

Senior Lecturer of Anatomy, Bahria University Medical and Dental College, Karachi

Email: docannie2010@gmail.com

Received for Publication: May 08, 2020

1st Revision of Manuscript: May 22, 2020

2nd Revision of Manuscript: August 30, 2020

Accepted for Publication: September 08, 2020

unawareness regarding the presentation and possible treatment. The purpose of this review article is to highlight the negative manifestations of this syndrome in the females' lives and to throw light on the pharmacological and non-pharmacological treatment options available which can help reduce the suffering of the female individuals as well as devastating impact on their families, workplace and society on the whole.

Search Criteria: The relevant articles were searched through Google, Google Scholar and PubMed databases from 2015 to 2020. The study duration was of two months from February 2020 to April 2020. The inclusion criteria was to include articles in which females in the reproductive age (12-50) were included in the study and the language was English. Articles in which methodology was not mentioned clearly and other than in English were excluded.

Epidemiology: Over the world, variable prevalence rate can be witnessed. A research conducted on the Bulgarian females in age range of 18 to 50 years revealed the prevalence of PMDD to be 3.3%⁹. Corresponding results were mentioned in a research conducted in India; the prevalence was reported to be 8%¹⁰. Analogous results were displayed by a study conducted on students studying in Tokyo Women's Medical University, Japan with prevalence reported as 8.8%¹¹. Comparable results were documented in a researches conducted in Tehran, India and Brazil with prevalence of 10.2%, 12% and 17.6% respectively¹²⁻¹⁴. A study conducted using MINI-Plus scores criteria reported the prevalence to be 18.6%⁸. Matching results were documented in a research conducted on the medical students studying in Karnataka, India. The prevalence of PMDD as calculated by Hamilton Depression Rating Scale in the cross sectional study was 20.9%¹⁵. Another research conducted on the females' students of Kermanshah, Iran has revealed the prevalence to be 25.5%¹⁶. Research study conducted on the female students of Ethiopia has revealed that 26.8% were observed to have PMDD symptoms¹⁷. On the contrary, there are studies in which the prevalence of PMDD was documented to be on a much higher side. A study conducted on the students of Umm-Al Qura University, KSA has documented the prevalence rate to be 36.6%¹⁸ while a study published in 'International Journal of Medicine and Medical Sciences' has stated that prevalence of premenstrual dysphoric disorder was observed to be 42.2%¹⁹. The increase in prevalence rate of PMDD among students could be attributed to increase in the academic load leading to high stress in their lives¹⁶. The differences in the prevalence rate could be also be due to dissimilarities in socioeconomic background and lifestyle among females living in various regions of the world¹⁷.

LITERATURE REVIEW

Worldwide researches on PMDD has revealed that there exists variation in the presentation of symptoms. In some persons, the somatic symptoms are more common while in the others the psychological ones persist and present more. According to the

study conducted in Saudi Arabia, 81.9% suffered from weakness/lethargy. Other symptoms include headache (63.9%), 58.5% complained of pain in the breast while 29.5 % suffered from muscular and joint pain. In comparison between the females with PMDD and those without it, markedly difference in symptoms magnitude was observed. Mood swings were present in 91% of PMDD females as compared to 68.1% in the other group. Similarly, irritability was found in 83.6%, difficulty to concentrate during working was present in 74.6%, thoughts of self-harming were found in 20.9% while feeling of hopelessness was found in 71.6% in the females having PMDD¹⁸. A study revealed that out of those females who were found positive for PMDD, 4.1% were declared as having severe symptoms, 5.7% moderate while 8.7% had mild symptoms⁸.

A study conducted in Tokyo Medical University, Japan documented that the symptoms increased during examination period, any stressful event, decreased duration of sleep hours, before sport matches and during busy schedule¹¹. In a research conducted in Iran, it was documented that fatigue and tiredness were among the most common symptoms and were present in 92.5% of the participants. Other symptoms were lack of interest in the daily routine activities (80.5%), anxiety (79.1%) and irritable mood (74.6%). When sleep quality was compared between the females with PMDD and those without, 25.3% suffered from disturbed sleep pattern as compared to 10.2% in those without PMDD symptoms¹⁶. A research published in 'Journal of Psychiatry' documented dysmenorrhea and irregularity in the menstrual cycle to be associated with PMDD¹⁷. A research on students of Nigeria revealed various symptoms including problems in maintaining concentration during the class (57%), decreased interest in the school activities (54.9%), pain in the breast (54.5%), sleep issues (47.8%) and disruption of routine activities (41.5%)¹⁹.

The disease is also associated with the feeling of negative emotions. When participants were compared for neuroticism, it was found to be more in patients with premenstrual dysphoric disorder than in the ones who suffered from premenstrual syndrome¹². A research study revealed that the prevalence of PMDD was highest among the patients suffering from depression (96.4%), followed by ones with bipolar disorder (38.5%) while it was 4.5% in those suffering from anxiety²⁰. A study conducted at Nijalingappa Medical College, India has revealed that in females who suffered from PMDD, mild anxiety was observed in 60.3%, moderate in 34.9% while severe anxiety was observed in 4.8% of females. Another associated comorbidity found was depression. Symptoms of mild depression were found in 46%, 28.6% of the study participants showed moderate while 7.9% had severe depression¹⁵. A research conducted in Kaohsiung Medical University, Taiwan mentioned that females having generalized anxiety disorder had 7.65 times odd of developing premenstrual dysphoric disorder than the control group participants. The scores of depression and irritability were also found to be more in females with PMDD than the controls⁸. A study conducted in India documented that females suffering from premenstrual dysphoric disorder suffer from other psychiatric disorders like depression and anxiety. The research participants were

observed to have high scores on different scales including Beck Depression Inventory and Max Hamilton Anxiety Rating Scale¹⁰.

Cyclic changes and premenstrual dysphoric disorder

There are various predictors and factors associated with premenstrual dysphoric disorder. Duration of flow of menstruation is associated with the occurrence of symptoms of PMDD. Out of the female participants who had duration of cycle of more than 28 days, 69.2% developed symptoms of PMDD as compared to 39.3% of females having menstrual cycle duration of less than 28 days. Menstrual pain is also associated with the occurrence of PMDD. The females with PMDD were associated significantly with dysmenorrhea as compared to the non-PMDD research subjects¹⁹. Similar findings were documented in students from Assosa Technical and Vocational College in terms of painful menstruation. Those females who suffered from dysmenorrhea are 1.4 times more likely to develop PMDD than those who do not. In addition to that it was observed that PMDD was more in those females who do not use family planning methods and also the ones having irregular menstrual cycle patterns¹⁷. Premenstrual dysphoric disorder can have variability in the occurrence according to different age groups. A study mentioned that the frequency of PMDD was highest at the age of 19 years (30.2%) while lower percentage was documented at the age of 24 years (3.2%)¹⁵. Contradictory results in terms of age were documented in a study conducted in Ethiopia. It was found that premenstrual dysphoric disorder was most common in between the ages of twenty three to twenty five years while it was least common in age ranging from twenty six years and above²⁰.

Disruption of quality of life

The premenstrual dysphoric disorder effects the lives of the females in many ways. The disorder is associated with functional impairment which can vary from 26 days up to the period of 6 months in a year²¹. Researches have documented that PMDD has negative effects on the professional, personal and social lives of the females^{19,22}. Hardy C documented the detrimental effects of PMDD on the work lives of the females. According to the study, the females during the late luteal phase of the cycle suffer from symptoms like disruption of daily routine work, irritability, anxiety, paranoia, self-doubt, lethargy and decrease social and interpersonal connection. The diverse symptoms can be so challenging that they lead to absence from work. Once the symptoms are over at the start of menstruation, the females develop guilt because of inefficiency in terms of workplace assignments and tasks. The self-guilt can be so extreme in nature that it can lead to them resigning the jobs²³. Thomas documented in a research study that PMDD can be treated but majority of the females do not seek any kind of treatment and therefore diagnosis of 90% cases cannot be done²².

Premenstrual dysphoric disorder has undesirable effects on the emotional stability of the women. Peterson in his study used 'Difficulties in Emotion Regulation Scale' and mentioned that females suffering from PMDD do not have control over their emotions. They find difficulty in management of emotional disruption. Additionally, they were observed to have behavioral

impulsivity. The perceived stress during the luteal phase of the menstrual cycle is far more present in the females suffering with premenstrual dysphoric disorder than the healthy controls. The social lives of the females are effected due to the burden of stress²⁴.

The craving for different types of diet differ during the phases of menstrual cycle. A research conducted in Taiwan studied the preference of food choices in the participants suffering from Premenstrual Dysphoric Disorder. It was documented that the craving of sweetened food increases during the late luteal phase of the menstrual cycle. This was due to the occurrence of impulsive desire among the females during the last part of the menstrual cycle. When fatty and salty food cravings were compared between the women suffering from PMDD and controls, no significant variations were found²⁵. International Journal of Eating Disorders has documented a research stating that females with PMDD are more likely to be associated with bulimia nervosa as compared to females of premenstrual syndrome. The females were found to have indulged in binge eating. The urge to eat more food is due to the development of the psychological disturbances in the behavior and mood that results in compulsion of eating more²⁶. A research study published in 'Psychoneuroendocrinology' has documented comparison between calorie intake of females with PMDD and controls. It was observed that the females with PMDD had high caloric intake in the late luteal phase as compared to the control group. The eating crave was observed be due to emotional influence on the body²⁷.

Treatment strategies to combat PMDD

Females who develop premenstrual dysphoric disorder adopt different strategies to treat the symptoms. According to Peterson et al, mindfulness based therapies are suggested to counter the detrimental effects of PMDD²⁴. Discussing with others and social support can be of great help in alleviating the condition of premenstrual dysphoric disorder. The greater the support provided, greater will be the effect of social help in decreasing the intensity of symptoms¹². Among the pharmacological treatment options, selective serotonin reuptake inhibitors (SSRI) are considered to be the first line treatment. Cognitive psychotherapy also has a potential role in combating the disorder.²¹ Sleep disturbances are one of the features of premenstrual dysphoric disorder. The use of sleep medications was more by the females having premenstrual dysphoric disorder (16.4%) as compared to the controls (7.6%)¹⁶. A research conducted on the medical students of Japan has revealed symptoms that females suffering from PMDD used medicines and non-pharmacological treatments. Medicines used for the symptoms relief and alleviation included non-steroidal anti-inflammatory drugs, Ibuprofen, Desogestrel-ethinyl estradiol, Loxoprofen sodium hydrate, aspirin, acetaminophen, Chinese medications and diclofenac sodium. Among the non-pharmacological treatment methods, study subjects mentioned exercise/body stretching, application of heat, sleeping, intake of coffee, eating sweetened food, intake of favorite food and taking shower. Others mentioned that they avoided the intake of alcohol and caffeine. There were 4.8% of

the females who did not use any sort of treatments¹¹. In a research conducted in India, it was documented that for dealing with the symptoms only 6% of the participants consulted the doctors, while 45% took help from mothers, 28% from the friends and 21% reported others¹³. A study conducting on nursing students has revealed that majority of the females use pain alleviating medicines (71.6%) followed by anti-inflammatory drugs (57%) and selective serotonin reuptake inhibitors (9.6%)¹⁹. Another study documented the use of serotonin reuptake inhibitors as first line therapy. Other treatment options/medications may include contraceptives with dospirenone, ovulation suppression therapy, calcium supplementation, usage of chasteberry and psychological rehabilitation¹.

Recommendations: Premenstrual dysphoric disorder negatively effects the females of reproductive age group. The awareness about the disorder is lacking. There is a strong need to include this topic in the book chapters where menstruation is mentioned¹⁵.

- Once the females have knowledge about the disease, they would be able to seek treatment. There needs to be more research done in the fields of factors associated with symptoms and severity of PMDD^{15,19,22}.
- Societal support plays a vital role in alleviating the symptoms of PMDD, henceforth there is a need to construct platforms available both in the hospital setup as well as on social media where females of reproductive age can discuss their issues with ease and confidentiality.

CONCLUSION

Premenstrual dysphoric disorder negatively effects social, interpersonal and work lives of the females. Selective serotonin reuptake inhibitors are considered to be the gold standard in treating the condition. Psychotherapy is also found to be useful in alleviating the symptoms.

REFERENCES

1. DTL, Pearlstein T. Premenstrual dysphoric disorder. *Psychiatr*. 2017;40(2):201-216.
2. Lithgow BJ, Moussavi Z. Physiological differences in the follicular, luteal, and menstrual phases in healthy women determined by electrovestibulography: depression, anxiety, or other associations? *Neuropsychobiology*. 2017;76(2):72-81.
3. Mohib A, Zafar A, Najam A, Tanveer H, Rehman R. Premenstrual syndrome: existence, knowledge, and attitude among female university students in Karachi. *Cureus* 2018;10(3):1-10.
4. Hantsoo L, Epperson CN. Allopregnanolone in premenstrual dysphoric disorder (PMDD): Evidence for dysregulated sensitivity to GABA-A receptor modulating neuroactive steroids across the menstrual cycle. *Neurobiol Stress*. 2020;12:1-8. DOI: 10.1016/j.ynstr.2020.100213
5. Beddig T, Reinhard I, EU, Kuehner C. Reciprocal effects between cognitive and affective states in women with Premenstrual Dysphoric Disorder: An Ecological Momentary Assessment study. *Behav Res Ther*. 2020: 103613. DOI: 10.1016/j.brat.2020.103613
6. Yen JY, Lin PC, Huang MF, Chou WP, Long CY, Ko CH. Association between Generalized Anxiety Disorder and Premenstrual Dysphoric Disorder in a Diagnostic Interviewing Study. *Int J Environ Res Public Health*. 2020;17(3):988-999.
7. Ullah A, Long X, Mat WK, Hu T, Khan MI, Hui L, et al. Recurrent Copy Number Variations in GABRB2 Associated With Schizophrenia and Premenstrual Dysphoric Disorder. *Front. Psychiatry*. 2020;11:572-580. Website [https://doi.org/10.3389/fpsyt.2020.00572]
8. Osman OT, Sabri S, Zoubeidi T, Alharbi AI, Rizk D, Narchi H, et al. Prevalence, Severity, and Correlates of Premenstrual Dysphoric Disorder Symptoms Among Women in the Arabian Peninsula. *Prim Care Companion CNS Disord*. 2017;19(4):1-5. DOI: 10.4088/pcc.17m02112.
9. Chumpalova P, Iakimova R, SM, Aptalidis D, Pandova M, Stoyanova M, et al. Prevalence and clinical picture of premenstrual syndrome in females from Bulgaria. *Ann Gen Psychiatry*. 2020;19(1):3-7.
10. Singh C, Jain M, Jain J, Solanki RK, Chaudhary A, Singh K, et al. A study of psychiatric profile of premenstrual dysphoric disorder (PMDD) in college girls. *Indi J of Healt and Wellbeing*. 2017;8(11):1320-1324.
11. Yokota J, Shinozaki A, Kamo T, Horiguchi F, Uchida K. A Questionnaire Study on the Prevalence of Premenstrual Syndrome, Premenstrual Dysphoric Disorder, and Related Coping Mechanisms among Female Medical Students. *Tok Women's Med Uni J*. 2017;1:1-7. DOI:10.24488/TWMUJ.2017001
12. Izadi M, Amiri S. Personality characteristics in female students with premenstrual dysphoric disorder and premenstrual syndrome. *Advan in Nurs & Midwifery*. 2019;28(3):40-45.
13. Shamnani G, Gupta V, Jiwane R, Singh S, Tiwari S, Bharti SS, et al. Prevalence of premenstrual syndrome and premenstrual dysphoric disorder among medical students and its impact on their academic and social performance. *Natl J Physiol Pharm Pharmacol*. 2018;8(8):1205-1208.
14. DAB, DCT, MTC, DRA, MLD, SPV, et al. Prevalence and factors associated with Premenstrual Dysphoric Disorder: A community sample of young adult women. *Psychiatry Res*. 2018;268:42-5. DOI: 10.1016/j.psychres.2018.06.005
15. Choudhari S, Rajshri SI, Mutalik N, Akasalli V, Mara B. A study of co-morbid depression and anxiety in pre-menstrual dysphoric disorder (PMDD) among undergraduate medical students: a descriptive study. *Medica*. 2017;6(1):13-18.
16. Khazaie H, Ghadami MR, KB, Chehri A, Nasouri M. Sleep quality in university students with premenstrual dysphoric disorder. *Shanghai Arch. Psychiatry*. 2016;28(3):131-138.
17. Jember D, Duko B, Mihretie G. Premenstrual Dysphoric Disorder Among Female Students at Assosa Technical Premenstrual & Vocational Education Training School,

- Assosa, Ethiopia. Prevalence. 2017;16:17-21. DOI: 10.4172/2378-5756.1000402
18. Goweda RA, Alkot MM, Alturkistani FA, Alhajaji RJ, Aljebali SS, Baashr ZA, et al. Prevalence of Premenstrual Dysphoric Disorder among Medical Students of Umm Al-Qura University, Makkah Al-Mukaramah, Kingdom of Saudi Arabia. *World Family Medicine Journal: Incorporating the Middle East J Fam Med*. 2016;99(3177):1-7.
19. Bakare AT, Panti AA, Yunusa MA, Obembe A. Correlates and self-management strategies of premenstrual dysphoric disorder (PMDD) among nursing students in a Nigerian teaching hospital. *Int J Med Sci*. 2019;11(3):20-26.
20. Sehlo MG, Youssef UM, Mahdy RS, EH. Prevalence and symptoms of premenstrual dysphoric disorder in a sample of psychiatric patients at Zagazig University Hospitals. *Egypt J Psychiatr*. 2018;39(2):83.
21. Hantsoo L, Epperson CL. Premenstrual Dysphoric Disorder: Epidemiology and Treatment. *Curr. Psychiatry Rep*. 2015; 17:25. DOI:10.1007/s11920-015-0628-3
22. Thomas E. Premenstrual Dysphoric Disorder can turn your world upside down-but treatment can bring relief. *Mental Health Matters*. 2016;3(4):20-22.
23. Hardy C, Hardie J. Exploring premenstrual dysphoric disorder (PMDD) in the work context: a qualitative study. *J Psychosom Obstet Gynecol*. 2017;38(4):292-300.
24. Petersen N, London ED, Liang L, Ghahremani DG, Gerards R, Goldman L, et al. Emotion regulation in women with premenstrual dysphoric disorder. *Arch. Womens Ment Health*. 2016;19(5):891-898.
25. Yen JY, Liu TL, Chen IJ, Chen SY, Ko CH. Premenstrual appetite and emotional responses to foods among women with premenstrual dysphoric disorder. *Appetite*. 2018;125:18-23. DOI: 10.1016/j.appet.2018.01.029
26. Nobles CJ, Thomas JJ, Valentine SE, Gerber MW, Vaewsorn AS, Marques L, et al. Association of premenstrual syndrome and premenstrual dysphoric disorder with bulimia nervosa and binge-eating disorder in a nationally representative epidemiological sample. *Int J Eat Disord*. 2016;49(7):641-650.
27. Ko CH, Yen CF, Long CY, Kuo YT, Chen CS, Yen JY, et al. The late-luteal leptin level, caloric intake and eating behaviors among women with premenstrual dysphoric disorder. *Psychoneuroendocrinology*. 2015;56:52-61. DOI: 10.1016/j.psyneuen.2015.03.002