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Prevalence of Premenstrual Dysphoric Disorder - A Cross Sectional Study

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Abstract: ***Premenstrual dysphoric disorder (PMDD), is a mood disorder characterized by severe emotional and physical symptoms and has a significant effect on various aspects of a women's life. Despite this, impact and burden of PMDD are still mostly unrecognized.250 females aged 18 - 45 years were included in the study and were administered Daily Record of Severity of Problems, for two consecutive menstrual cycles. Study reports a prevalence rate of 16%. PMDD has been shown to severely impact various aspects of life, added to which are daily stressors aggravating the pre - existing condition. And yet, these symptoms are repeatedly dismissed.***

Keywords: PMDD, Late luteal phase, Prevalence, DRSP, Menstrual cycle, Epidemiology

1. Introduction

Premenstrual dysphoric disorder (PMDD), is a mood disorder which is characterized by severe emotional and physical symptoms, occurring cyclically corresponding to the late luteal phase and early follicular phase of the Menstrual cycle ([1]). Irrespective of age, cyclic symptoms occurring during menstrual cycle is a common problem faced by women world - wide ([2]). The etiological factors for PMDD are abnormally high levels of oestrogen and its high ratio to progesterone. It has also been ascribed to other factors like hormonal changes, abnormalities in thyroid hormone, in levels of cortisol and prolactin, changes in prostaglandin levels, drugs and lifestyle causing abnormality in hypothalamo - pituitary gonadal (HPG) axis. A possible cause for PMDD could also be the societal and personal attitude towards menstruation. The Diagnostic and Statistical Manual of Mental Disorders (DSM) has always considered the existence of premenstrual symptoms since its evolution, but it still was not considered as a separate diagnostic entity. DSM 5 (2013) recognizes the symptoms of PMDD to be a valid diagnostic entity amongst various mood disorders and was added to the list numerous psychiatric illnesses, under Depressive Disorders due to its prevalence, validation of symptoms, and the functional impairment it causes ([2]). DSM - 5 diagnoses PMDD based upon the severity of premenstrual symptom pattern. To diagnose PMDD at least five symptoms out of eleven are at a severe level premenstrually, causing functional and social impairment and a recorded over at least two menstrual cycles ([3]). To diagnose PMDD the presenting symptoms should be established by prospective daily ratings for at least two symptomatic cycles which can be done through using various tools such as the Daily Record of Severity of Problems (DRSP), the Calendar of Premenstrual Experiences (COPE) ([4]). Hylan et al's. (1999) findings conclude that premenstrual symptoms (moderate and severe) had the greatest impact on functioning at home and impairment at work was remarkable. Considering the high prevalence of syndromal and subsyndromal PMS/PMDD, and the severe reported impairment at work with (3–16% absenteeism) it is possible that premenstrually there is decreased productivity at work as well as distress in work relationship. It is an issue which is regretfully a subject of numerous cartoons but still needs to be measured. According to the Global Burden of Diseases model, Comparing PMDD to other affective disorders, the severity weight of PMDD would approach that of unipolar major depression. The Disability Adjusted Life Years (DALY) due to PMDD should position PMDD among similar mental disorders. It has a significant effect on marital relationships, homemaking, social, occupational relationships and even on direct and indirect costs of healthcare. Hence, designing a study estimating the magnitude and significance of its impact requires consideration of several factors including the selection of a generalizable sample and identification of appropriate diagnostic criteria. Irrespective of age, every woman is affected by the premenstrual symptoms, and added to it are daily stresses of life. Despite a substantial segment of women's life is affected, impact and burden of PMDD are still mostly unrecognized. Hence, this study aims to find its prevalence ([5]).

2. Methodology

An observational study was conducted on 250 females with regular menstrual cycle. Participants were included in the study on the basis of inclusion and exclusion criteria. The inclusion criteria were: Females aged between 18 - 45 years (nulliparous, primiparous and multiparous woman), regular menstrual cycles ([6]) and patients who are willing to participate. The exclusion criteria were: Pregnancy ([6]), natural or induced menopause and Patients undergoing management of psychiatric illness. The included participants were administered Daily Record of Severity of Problems (DRSP) and were asked to fill in the questionnaire, for two consecutive menstrual cycle. Daily Record of Severity of Problem (DRSP) is a questionnaire with 21 items capturing the eleven DSM 5 symptoms. It was developed to help in the diagnosis and evaluation of PMDD. The subject rates the severity of her problems throughout the menstrual cycle (even on the days of spotting) on a 6 - point severity scale (1

- Not at all, 2 - Minimal, 3 - Mild, 4 - Moderate, 5 - Severe, 6 - Extreme) ([7]).

3. Results

The statistical analysis was done using SPSS version 23. This study included 250 university students. The age group included was 18 years to 45 years with the mean age being 23 years (19 - 30 years, 23.77±1.88). Baseline characteristics, such as BMI, weight, height, menstrual history and obstetric score were recorded, and their mean and SD were analysed.

The prevalence rate of premenstrual dysphoric disorder was found to be 16% that is 40 out 250 suffered from premenstrual dysphoric disorder.

Parity, Age, BMI, and Age at menarche were correlated to the DRSP questionnaire using Pearson's Correlation Analysis

Parity, Age, BMI, and Age at menarche and DRSP when correlated and were found statistically insignificant at 5% level for both the months. It could be ascribed to dominance of nulliparous women, mean age of population being 23 years and a smaller population size.

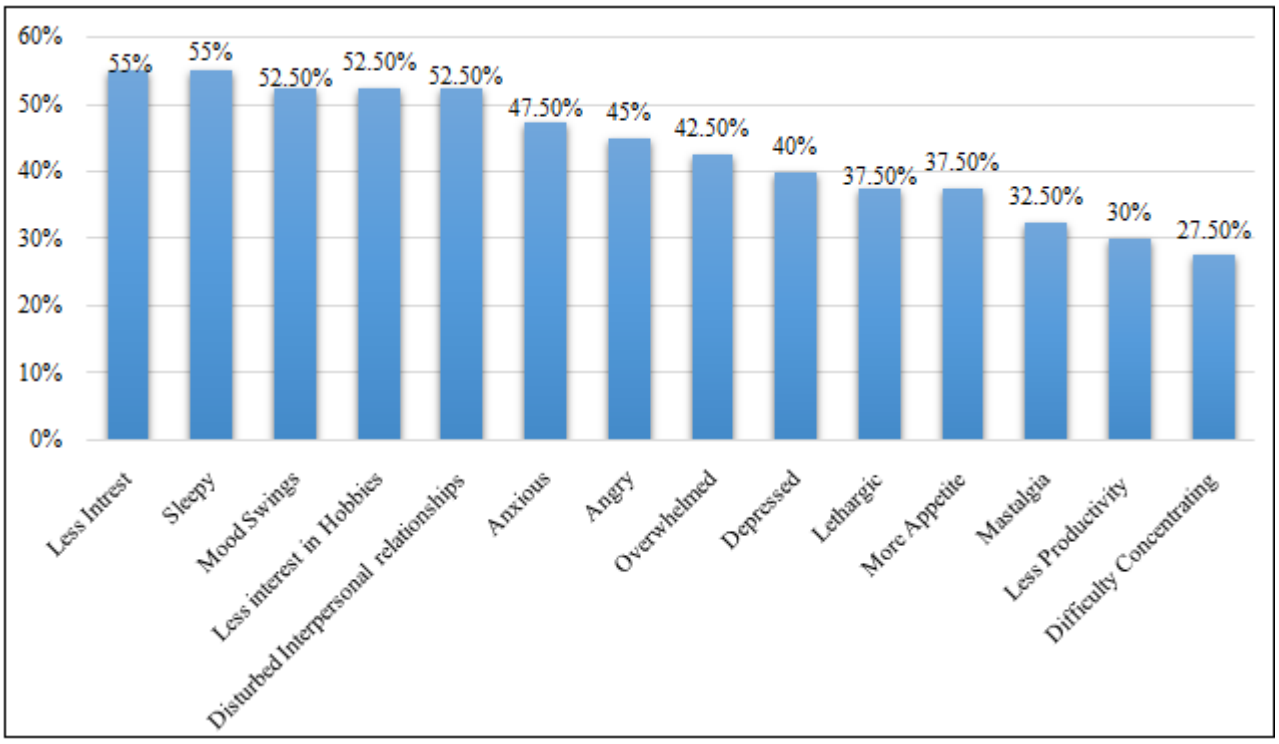

Figure 1: Graph representing percentage of participants affected by various symptoms

4. Discussion

Various epidemiological studies which were conducted to determine the prevalence of PMDD have produced mixed results, based on the diagnostic criteria and methodology. Researches which had broader survey questions about the general premenstrual symptoms (mood and physical symptoms) found greater prevalence [(8).] This study reports a prevalence rate of 16% within the age group of 18 - 45 years. Diagnosis was made using DSM - 5 criteria where the participants kept a prospective diary (the Daily Record of Severity of Problems) for a span of 2 months.

Onset of PMDD is prominently seen in early mid - twenties to late mid - twenties, though it has been observed to start at menarche in some cases [(9).] PMDD has multiple determinant factors and are grouped under biological, psychological and socio - cultural. A few factors which pose as potential risks for PMDD are: the essence of inter - personal relationship, self - esteem, how one perceives and manages premenstrual symptoms, stress, length of menses, number of pregnancies and a few other factors like marital status, occupation, profession, race, dietary habits, use of oral contraceptives, stimulants ([10).] In the present study we tried to find out if there existed any correlation between length of menses and PMDD, and number of pregnancies and PMDD. We observed that there was no significant correlation between these factors. It could be chalked up to dominance of nulliparous women in the sample.

Women suffering from PMDD have been known to show symptoms and episodes of depression. Some studies also report that majority of women suffering from PMDD gave a history of mood disorders, personality disorders, history of sexual abuse, high levels of anxiety and presence of significant life stresses [(11, 10).] The current study reports 40% of women feeling depressed which correlates with study conducted by Digiulio et al. reported that women with PMDD were more likely to give a history of depression and were more prone to develop episodes of Major Depressive Disorder. The correlation between the two disorders was found significant ranging anywhere from 30% to 70%. [(11)]

Premenstrual breast pain and tenderness is a repeated occurrence in some women during the late luteal phase of the menstrual cycle. In our study we found the presence of

mastalgia to be 32.5% which approximates to the value range of 40% - 70% as reported by a study conducted by Sukanya et al. The aetiology of cyclic mastalgia has not been well known. A few studies have found elevated prolactin levels, elevated oestrogen levels or abnormal oestrogen/progesterone levels [12]. Study conducted by Huo et al. demonstrated an allelic variation on the oestrogen receptor in women who were afflicted by PMDD which reported to cause abnormal oestrogen signalling during the late luteal phase leading to affective, cognitive and somatic symptoms [13]. Histologically, varied epithelial and connective tissue changes have been noted in breast tissue of women who had normal menstrual cycles during the luteal phase. The epithelial and connective tissue are more sensitized and the response of the organ to gonadal steroids is heightened. Individuals suffering from mastalgia demonstrate normal mid luteal E_2, significantly lower midluteal progesterone and prolactin's hyperresponsiveness to TRF which has underlying hypothalamic - pituitary - ovarian dysfunction causing the symptoms. This functional hyperprolactinemia is seen exclusively in patients with cyclic breast pain. Decreased progesterone levels fail to inhibit oestrogen receptor synthesis resulting in continued and unopposed stimulation of mammary ducts enlargement by oestrogen causing the symptoms [14].

Available data reports that mastalgia is not purely physiological but an interplay between psychological or social factors and physiological mechanisms produce symptoms. Psychological and social factors have been known to play a role in causing distress, which would then produce somatic symptoms ([15, 16]. Susan Colegrave et al. conducted a study which reported that women who reported breast pain had more psychological distress which could be due to underlying or deep - seated sexual abuse or trauma during the childhood. The study also confirmed elevated anxiety levels and depression in patients who had unexplained breast pain who even showed high levels of somatisation of pain ([16].

PMDD has also been reported to have substantial effect on marital relationships, social and occupational relationships and homemaking. Irrespective of age, any women suffering from PMDD is affected by it. The present study reports a percentage of 52.5 women who have been afflicted by it, while 27.5% experienced difficulty in concentration and 30% reported diminished productivity. Functional impairment as a result of PMDD is a vital DSM condition for a positive diagnosis of the condition. Reduced interest in hobbies, increased sleep, mood swings and disturbed interpersonal relationships are a few categories in which effects of PMDD have been noteworthy. The impact of moods and symptoms are significant enough to weaken social judgement, increase or intensify interpersonal difficulties and cause a decline in perception of quality of life. Evidence steadily points out to the fact that women who have been diagnosed with PMDD have undesirable consequences at work, school and inter - personal relation ([11]. In a study conducted by Chawla, Swindle, Long, Kennedy and Sterfled which included over 1100 women, found that women who were diagnosed with PMDD were less operative during the luteal phase when compared with women with nominal symptoms. About 8 - 16% of women skipped worked due to their symptoms and increment in number of sick leaves taken was observed ([17, 18]. There are innumerable negative beliefs surrounding menstrual changes and seeing through a perspective of biopsychosocial model many feminist theorists have reported gigantic influence of cultural beliefs, and socially learned behaviour on how young women perceived various menstrual changes [11].

Biologically, speaking studies also suggest that changes in the hormonal levels of oestrogen and progesterone induce these symptoms. A study conducted in postmenopausal women previously diagnosed with PMS, showed recurring psychological and somatic symptoms when they were put on cyclic progesterone therapy. Additionally, oestrogen and progesterone have a sizeable effect on serotonin and dopamine systems which could be attributed to fluctuating moods. Similarly, they also have an effect altering the renin - angiotensin - aldosterone system which might be a plausible explanation for bloating and swelling, but these hormones alone cannot fully help us understand premenstrual syndrome. Studies have shown that woman who suffer from PMDD do not have higher levels of hormones than the average population but that they are more sensitive to the hormonal fluctuations than most ([19].

A study conducted by Teng et al. reported the most common symptoms were of somatic in nature (75.9%), affecting liability (59.8%) and feeling of being angry and irritable (56.4%). The study also proposed that stress had a stronger association with PMDD but not with PMS. Our study produced a result of feelings of anxiety (47.5%), being angry (45%) and being overwhelmed (42.5%) ([20]. The reasons for this could be ascribed to stress eating, disrupted or imbalanced life rhythm, absence of healthy life practices and exercise. It has been shown that individuals with PMDD have higher proportions of remaining wakeful late at night (89.5%). Study conducted by Parry et al. documented that women suffering from PMDD have abnormal melatonin secretion and circadian rhythm abnormalities ([21]. It has also been anticipated that women with PMDD have altered affective information processing and regulation during the luteal phase and abnormal activation patterns were seen in specific regions of brain. It has also been stated that various abnormalities in the serotonin system were noted along with decreased levels of GABA during the late luteal phase ([12].

Our study mainly focused on student population and it has been documented that poor stress coping mechanism in students lead to greater and severe experience of premenstrual syndrome. Fontana and Palfai documented that women who suffered from PMDD found the daily life stress to be more unpleasant, stressful and unmanageable prior to the start of their menstrual cycle ([22, 19]. A reason for this could be that it is not because women with PMDD had more amount of stress, it was just that they had impaired coping strategies and their adverse perception towards stressors of life were greater during the luteal phase. It was also suggested that changes in the endocrine levels during premenstrual period and menstrual cycle led to lowered threshold of stress tolerance which triggered depression, anxiety or migraine ([9]. This level of impact and the severity of interference of symptoms dictates the need to fully

comprehend the complexities of the disorder which would result in achieving better levels of care and treatment ([11]).

Women distressed with PMDD often do not bring their symptoms to the notice of health care professional. Mainly, either because they think it is a part of being women and that it must be borne and endured or that their symptoms are dismissed. They are not to be taken lightly. If the individual consistently suffers from these symptoms or the symptoms have aggravated, it is recommended that the person seeks appropriate professional help either from a general practioner or even a psychologist when the need arises ([15, 23]).

Declaration of Conflict of Interest: The authors declare that there is no conflict of interest

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