

Premenstrual Syndrome and Its Historical Perspective

Rabia Malik¹ and Muzafar D.A. Bhat²

¹Dept. of Ilmu Qabalat wa Amraze Niswan, NIUM, Bangalore

²Dept. of Moalajat, NIUM, Bangalore

Publication Date: 31 December 2016

Article Link: <http://medical.cloud-journals.com/index.php/IJACTM/article/view/Med-337>



Copyright © 2016 Rabia Malik and Muzafar D.A. Bhat. This is an open access article distributed under the **Creative Commons Attribution License**, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract The reproductive years of many women are punctuated with distressing premenstrual symptoms that can disrupt their quality of life and relationships. Premenstrual Syndrome is a set of physical, emotional and behavioural symptoms that start during the week preceding menstruation and are alleviated when the menstrual flow begins. Its aetiology is yet not known, their prevalence varies widely across different cultural groups, and they appear to respond to placebos as effectively as to active preparations. Epidemiological surveys have estimated that the frequency of PMS symptoms is about 80-90% with impairment of functioning. In 1953 the term Premenstrual Tension was coined, thereby commencing an extensive biomedical inquiry into the relationship between women's menstrual cycle and the occurrence of its symptoms. This paper describes the development of the concept of premenstrual syndrome (PMS) through centuries.

Keywords *Premenstrual Dysphoric disorder (PMDD); Premenstrual Syndrome (PMS); Late Luteal Phase Dysphoric Disorder (LLPDD); international classification of diseases (ICD)*

Introduction

Premenstrual syndrome (PMS) is used to describe physical, cognitive, affective and behavioural symptoms [1]. The disturbing symptoms of PMS occur during the luteal (premenstrual) phase of ovulatory cycles (the last 14 days before menstruation) and disappear shortly after the onset of menstruation [2,3].

PMS has emerged as a twentieth century phenomenon [4]; many women are punctuated with distressing premenstrual symptoms that can disrupt their quality of life and relationships [5]. About 80% of women report mild symptoms, 20%-50% report moderate symptoms and about 5% report severe symptoms for several days with impairment of functioning [1,6,7,8]. PMS is prevalent in women of all ages causing substantial morbidity with obvious detriment to interpersonal relationships, social interactions, lifestyle, work performance, emotional well-being and overall health-related quality of life.

A working definition of premenstrual syndrome is 'a condition which manifests with distressing physical, behavioural and psychological symptoms, in the absence of organic or underlying

psychiatric disease, which regularly recurs during the luteal phase of each menstrual (ovarian) cycle and which disappears or significantly regresses by the end of menstruation [7,9]. In many women physical and behavioral symptoms are associated with high morbidity and impaired work performance on a monthly basis and substantially reduced quality of life. PMS likely involves the interaction of hormonal, neural, environmental and psychosocial factors [10].

Historical Perspective

The early teaching of obstetrics and gynaecology was written in hieroglyphics which were followed by the earliest form of the alphabet. The Kahun papyrus (1850 BC) is probably the first text book on gynaecology in medical history in which lower abdominal pain with swelling and their treatment is mentioned. In Ebers papyrus (1526-1505BC), various prescriptions are written for regulation of menstruation and various other gynaecological diseases [11].

Hippocrates (460-377 B.C) wrote: "The blood of females is subject to intermittent 'agitation' and as a result the 'agitated blood makes its way from the head to the uterus from which it is expelled". This is probably the first description of what is now referred to as premenstrual syndrome (PMS) or premenstrual dysphoric disorder (PMDD) [12,13].

Pliny (79AD) described the marked behavioural changes as follows: On approach of a woman in this state, grass withers away, garden plants are parched up, new wine becomes sour and the fruit will fall from the tree beneath which she sits. Hysterical symptoms are related to the woman's sexuality and conformity to her prescribed role as a wife is a theme that runs through the history of the disease category of PMS. Romans (200 AD) described the menses are about to appear when a woman feels uneasy on walking, some develop a torpor, yawning and pandiculation, while others develop nausea and a loss of appetite [14].

Haly Abass Majosi (930-994 AD) described the occurrence of symptoms like increase in body weight, food craving, abdominal bloating, headache and other symptoms few days before onset of menses [15].

A female scholar in Padua, Italy (1100 AD), described women's suffering before the onset of menses; the first academic description of PMS [12].

Trotula of Salerno (1100 AD), in her book *Passionibus Mulierum Curandorum*, (The Disease of Women), within the framework of humoral theory describes subjects such as the retention of menses, paucity of menses and the re-establishment of menstrual cycle after birthing; identifies the temporal relationship of symptoms to menstruation; in the section on breasts lesions, she writes: the pain which occurs in the breast of young women passes easily, for this distress is healed with the eruption of the menses [16].

Jacques Dubois (1478-1555) a Renaissance physician reported that many women, at the approach of menstruation, "develop strangulation from the uterus" presumably due to the local accumulation of peccant matter or the activation of the "expulsive faculty". But the actual process of excretion was equally burdensome [17].

Giambattista Da Monte (1489–1551) an Italian physician, clearly referenced premenstrual as well as menstrual discomfort and suggested that physicians could gain the trust of their female patients by correctly predicting the approach of menstruation. This could be achieved by close attention to symptoms that result from 'the blood, which wants to flow and descend to the uterus, beginning to

move and be agitated' causing heaviness, heat in the whole body and lassitude. Later head pain and heaviness occur due to the 'many ascending vapours' and 'make the whole belly swell, because of the accumulation of much matter'; Da Monte's confidence may suggest such symptoms were frequently encountered [5,17].

Albertino Bottoni (1598) pointed to "uneasiness" and a "certain mordacity of the passages" which accompanied the evacuation of the menstrual flux as evidence for the "malignity" and "venomous nature" of the flux. It was for this reason that woman, during the time that her "menstrual purgation" lasted, largely lost her blooming colour, that her body was weakened and in some way afflicted [17].

By the seventeenth and eighteenth centuries, Physicians interpreted premenstrual complaints as evidence of increasing plethora and mention prostration, heat, pain in the loins, hips and head, lack of appetite, swelling and pains in the breast, tinnitus, insomnia and bad dreams. Symptoms were seen as the result of the excess of blood in the circulation impinging on organs and therefore would be expected to be relieved by menstruation. Letters from women to their physicians in this era include some vivid descriptions of premenstrual symptoms and for the first time psychological symptoms are regularly recorded [5,17].

An English woman writing in 1783 mentioned mood change, irritability, insomnia and nervous attacks and described a premenstrual 'irritation of nerves' [5,17]. The historical records demonstrates the occurrence of premenstrual mastalgia in the eleventh century, a range of physical premenstrual symptoms recorded regularly since the sixteenth century and social and psychological symptoms regularly reported from the eighteenth century [5].

Antonine Volkmann (1831) maintained a diary in which detailed evidence of the existence of premenstrual symptoms was found; she recorded feeling 'irritable' with insomnia two days before menstruation [5,17].

Prichard (1835) wrote: some females, at the period of catamenia, undergo a considerable degree of nervous excitement; morbid dispositions of mind are displayed by them at these times, a wayward and capricious temper, excitability in the feelings, irritability, a proneness to quarrel with their dearest relatives, and sometimes a dejection of mind approaching to melancholia [18].

Dr. Ernst F. von Feuchtersleben (1847) wrote that "The menses in sensitive women is almost always attended by mental uneasiness, irritability, and sadness [19,20].

Henry Maudsley (1873) an English doctor, was the first who made the connection between PMS and cyclical ovarian activity [5].

Richard von Kraft-Ebing (1882) in *Psychosis Menstrualis*, considered menstruating women to experience: Abnormal irritability, attacks of melancholia, feelings of anxiety, inability to get along with the domestics, ill-treatment of otherwise tenderly cared for children, emotional explosions, libellous acts, breach of peace. This description is reminiscent of feelings and behaviours that occur in premenstrual dysphoric disorder [22].

Maria Tobler (1905) published a large survey; 524 of the 1020 women she interviewed experienced some kind of period-related psychological disorder and in 428 of these cases it affected the premenstrual phase [17].

Frank (1931) was the first modern physician to delineate a set of symptoms related to menstruation as a clinical entity [13,14,18,20,22]. He described intense personal suffering, restlessness, irritability, a feeling like "jumping out of their skin" combined with various somatic complaints [17]. He also reported seizures, bronchial asthma and indescribable tension occurring 7 to 10 days preceding menstruation [14]. Frank suggested an excess of circulating 'female hormone' was responsible for the symptom complex [13,23].

Karen Horney (1931) described 'premenstrual negative dispositions or maladaptations'. Like Frank, she noted both physical and psychological symptoms that ameliorated with the onset of menstruation and associated these with oestrogen [24].

Dr. Leon (1938) described the physical unrest, causeless irritability, hair trigger temper, insomnia, vertigo and headaches in addition to recurring episodes of depression and hebetude tax the endurance of both the patient and her family. A weight gain of 4 to 6 pounds is not unusual during the time of the symptoms. Occasionally, premenstrual tension is dramatized by nymphomania [25].

Raymond Green and Katharina Dalton (1953) coined the term premenstrual syndrome in a paper published in the British Medical Journal [18,20,22,26,27]. Katharina Dalton shaped the early aetiology and treatment rationale. In 1950s, she cast PMS as a deficiency of progesterone that could be resolved by HRT using natural progesterone [13,28]. "Part-Time Witches" was the picturesque description of many women used by Dr. Erie Henriksen, while describing women suffering from premenstrual tension. He did estimate that about one-half of all women patients between the age of thirty and menopause suffer from periodic witchiness [36]. PMS research during the 1950s and 1960s had a national focus, but was based on similar principles in three countries (USA, UK and France) [28].

Moos (1968) developed the "Moos Menstrual Distress Questionnaire". There were 47 symptoms in eight related groups which include pain, concentration, behavioural changes, autonomic reactions, water retention, negative affect, arousal and control [29].

In the early 1970s it was increasingly perceived as problematic in part due to unresolved problems and in part because research styles were changing dramatically. There was a gradual increase in number of articles published in British journals, as innovations in medical techniques were introduced and more extensive laboratory studies including hormonal assays and biochemical profiling became the norm [28].

Kantero and Widholm (1971) noted a genetic tendency, when they found that 70% of daughters of affected women themselves suffered from premenstrual syndrome [11].

Craig (1980) investigated prostaglandins in the causation of premenstrual syndrome [11]. Steiner et al (1980) designed and introduced premenstrual tension rating scales, consisting of self-rating and observers rating scales [30,31]. The Premenstrual tension Syndrome became popular target for medical treatment in 1980s [22].

WHO (1982) gave Premenstrual Syndrome an ICD diagnostic code [43]. NIMH (1983) in the USA held a workshop to standardise diagnostic criteria for the condition. It concluded that two months of daily symptom rating showing a 30% increase in symptom intensity during the premenstrual phase were required for diagnosis [28].

Bancroft and Backstrom (1985) reported that a temporal relationship existed in the changes of prostaglandin levels and symptoms of premenstrual syndrome [11].

Brush et al. (1987) observed that in almost 33% of their cases, premenstrual symptoms started at or close to the menarche. The largest number however started soon after delivery. Tubal ligation, hysterectomy with ovarian conservation and discontinuing the oral contraceptive pills were all associated with premenstrual syndrome [11].

In 1987 the term Late Luteal Phase Dysphoric Disorder (LLPDD) was introduced to provide a systematic set of diagnostic criteria for a premenstrual disorder [14,32].

In 1994 premenstrual Dysphoric disorder (PMDD) replaced LLPDD [14,32] in 4th edition of DSM under “mood disorders not otherwise specified” and provided symptom occurrence, severity, and QOL impairment guidelines for diagnosis [32].

ACOG (2000) published the diagnostic guidelines for PMS combining both the NIMH criteria and supportive research evidence [43]. ICD-10 places PMS under “Diseases of the genitourinary system: Pain and other conditions associated with female genital organs and menstrual cycle” and labels it as Premenstrual tension syndrome [32].

Central neurotransmitters are clearly implicated in PMS because the mood and behavioral symptoms are the hallmarks of this illness. Serotonin is a brain neurotransmitter that is clearly involved in mood and behavior regulation. Premenstrual symptoms are diminished by serotonin reuptake inhibitors (SRIs). Aberrations in serotonergic transmission are found in women with PMS/PMDD. Symptomatic women have lower density of serotonin transporter receptors [33].

GABA is another brain neurotransmitter that plays role in this disease. Direct action, tolerance induction and withdrawal effect are possible influence of GABA in women with menstrual cycle phase disorders. Aberrations in GABA-A function as the pathophysiological trigger for the disorder is not uncontested. GABAergic and serotonergic neurons do interact, making the role of GABA in PMS/PMDD pathophysiology consistent with the serotonin hypothesis [33].

E.R. Bertone Johnson et al. (2014), observed significant positive associations between serum levels of inflammatory markers and menstrual symptom severity in young women. For several markers, including IL-12 and IFN-g, levels were more than 2-fold higher in women meeting criteria for PMS when compared with control women. These associations persisted after adjustment for BMI, smoking, alcohol use and other factors related to chronic inflammation [10].

Conclusion

Premenstrual symptoms can disrupt the relationships and is prevalent in women of all ages causing substantial morbidity with obvious detriment to interpersonal relationships, social interactions, lifestyle, work performance, emotional well-being and overall health-related quality of life. Physicians interpreted premenstrual complaints in different ways. Some consider it as a culture-specific syndrome. Part-Time Witches was the picturesque description of many women suffering from premenstrual tension. PMS is an appropriate symbolic representation of conflicting societal expectations. The exact cause of premenstrual syndrome is still to be answered.

References

- [1] Tolossa FW and Bekele ML. Prevalence, impacts and medical managements of premenstrual syndrome among female students; cross-sectional study in college of health sciences, Mekelle University. BMC women's health. 2014. 14 (52) 1-9.
- [2] Mishell DR. Premenstrual disorders: epidemiology and disease burden. Am J managed care. 2005. 11; 473-479.
- [3] Akram M et al. Treatment of premenstrual syndrome. Journal of medicinal plants research. 2011. 5 (26) 6122-6127.
- [4] Ried RL. Premenstrual syndrome. <http://www.endotext.org/female/female10>. cited 2015-01-01.
- [5] Avila C. The effect of nutritional supplementation on premenstrual syndrome. PhD thesis. Lismore, NSW: Southern cross university; 2009.
- [6] Zaka M, Mahmood KT. Pre-menstrual syndrome- a review. J pharm sci & res. 2012. 4 (1) 1684-1691.
- [7] Brahmabhatt S et al. A prospective survey study on premenstrual syndrome in young and middle aged women with an emphasis on its management. Int j res med sci. 2013. 1 (2) 69-72.
- [8] Nick Panay. Management of premenstrual syndrome. J fam plann reprod health care. 2009. 35 (3) 187-193.
- [9] Anonymous. Management of premenstrual syndrome: Green top guideline no. 48. Royal college of obstetricians and gynaecologists. 2007. 1-16.
- [10] Bertone-johnson ER et al. Association of inflammation markers in the menstrual symptom severity and premenstrual syndrome in young women. Human reproduction. 2014. 29 (19) 1987-1994.
- [11] O'Dowd MJ and Philip EE. History of obstetrics and gynaecology. New York: The parthenon publishing grou. 2000. 1, 36, 42-44, 329-332.
- [12] Birgittah S. Sex steroids, Chronic stress and violence in premenstrual. Dissertations. Faculty of medicine, actauniversitatis upsaliensis digital comprehensive summaries of upsala. 2011. 642-670.
- [13] Shaughn PM, O'Brien, Rapkin AJ, and Schmidt PJ. Premenstrual syndromes: PMS and PMDD. UK: Informa health care. 2007. 1-20.
- [14] Devisetty A et al. Study of serum calcium and magnesium levels during pre and post menstrual phases in premenstrual syndrome compared to normal subjects. International journal of basic and applied medical sciences. 2014. 4 (1) 116-126.
- [15] Majoosi AH. Tarjuma kamil--us- sana'. Vol-II. Lucknow: Munshi naval kishore; 1889: 534.

- [16] Green MH. *The trotula a medieval compendium of women's medicine*. Philadelphia: University of pennsylvania press. 2001. 149.
- [17] Stolberg M. The monthly malady: A history of premenstrual suffering. *Medical history*. 2000. 44 (3) 301-322.
- [18] Roger P. smith. *Gynaecology in primary care*. Philadelphia: Williams and Wilkins. 1997. 427-441.
- [19] David R, Rubinow, and Peter JS. The treatment of premenstrual syndrome - forward into the past. *N. Engl J med*. 1995. 332; 1574-1575.
- [20] Connolly M. Premenstrual syndrome: an update on definitions, diagnosis and management. *Advances in psychiatric treatment*. 2001. 7; 469-477.
- [21] Scutt JA. Pre-menstrual tension as an extenuating factor in female crime. *The Australian law journal*. 1982. 56; 108-109.
- [22] Scott B Ransom. *Practical strategies in obstetrics and gynaecology*. Philadelphia: WB Saunders Company. 2000. 684-692.
- [23] Frank R. The hormonal basis of premenstrual tension. *Archives neurological psychiatry*. 1931. 26; 1053-1057.
- [24] Halbreich U. History and trajectory of PMS: towards a balanced adaptation and a biosocial homeostasis. *Journal of reproductive and infant psychology*. 2006. 24 (4) 336-346.
- [25] Naoma LS. Premenstrual tension in automobile accidents. *Cleveland state law review*. 1957. 6 (1) 17-30.
- [26] Green R, and Dalton K. The premenstrual syndrome. *British medical journal*. 1953. 48; 1007-1014.
- [27] Gharib E et al. Frontal electroencephalogram α -asymmetry during the luteal phase of the menstrual cycle in women with premenstrual syndrome. *Journal of basic and clinical reproductive sciences*. 2015. 4 (1) 9-13.
- [28] Loes K, and George W. The biomedical standardization of premenstrual syndrome. *Stud. hist. phil. biol. & biomed. Sci*. 2008. 39; 120-134.
- [29] Moos RH. The development of a menstrual distress questionnaire. *Psychosomatic medicine*. 1968. 30 (6) 853-867.
- [30] Steiner M, Haskett RF, and Carrol BJ. Premenstrual tension syndrome: The development of research diagnostic criteria and new rating scales. *Actapsychiat scand*. 1980. 62; 177-190.
- [31] Haskett RF, and Judith MABP. Premenstrual tension syndrome: diagnostic criteria and selection of research subjects. *Psychiatry research*. 1983. 9; 125-138.

- [32] Kathleen M, Lustyk B, and Gerrish WG. Premenstrual syndrome and premenstrual dysphoric disorder: Issues of quality of life, stress and exercise. Springer science business media LLC. 2010. 1952-1971.
- [33] Cunningham J. Update on research and treatment of premenstrual dysphoric disorder. Harv rev psychiatry. 2009. 17 (2) 120-137.