Premenstrual Experience, Premenstrual Syndrome, and Dysphoric Disorder

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Abstract

The major criticisms made to the conceptualization of PMDD as a clinical syndrome focus on pathologizing of women's biology and its consequent medicalization which perpetuated misconceptions related to menses. This is a reality in History of Medicine. The excessive medicalization of the menstrual experience that interferes in life is very important in Western countries. Premenstrual syndrome (PMS) is a health problem that affects millions of women of reproductive age and, in some cases, may be severe enough to be considered as a premenstrual dysphoric disorder (PMDD). Both, PMS and PMDD, are composed by affective, behavioural, and physical symptoms. Risk factors identified, which predispose to PMS/PMDD, are the age between 25 and 35 years, to have a psychiatric history, family history of PMDD, unhealthy living habits, and the apparition of stressful life events. In addition to that, it has been established a comorbidity of PMDD with various psychiatric disorders as major depression and anxiety disorders. The first-line treatment for PMDD is pharmacological with SSRIs. From the medical point of view, there is some evidence of the efficacy of non-pharmacological treatments such as relaxation and aerobic and cognitive behavioural therapy that are used mostly in mild cases. Some authors

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remind us the historical and negative conceptions about the female body plus a reproductivist vision, as the cause of many women's behaviour, have had a determinate influence in the consideration about women's experience as diseases. In our opinion, we consider it is important to rethink about it and talk about premenstrual experience instead of syndrome. It could be used to reinforce and maintain the patriarchal model. If women are treated medically because of their own biology, they would respond again to the female stereotype of women as mild, placid, and undemanding. At the same time, for some women could represent an attractive explanation to justify their oppression and their relative lack of success compared to men. This means that women can attribute their subordination and oppression to something identifiable and potentially curable, rather than attributing to gender power relations. Finally, the concept clearly benefits to the pharmaceutical industry, as the medicalization of premenstrual experiences increased their market.

20.1 Introduction

It is called premenstrual syndrome (PMS) to the recurrent pattern of emotional, behavioural, and physical symptoms that appear during the last week of the luteal phase and reversed during the first days of menses. When the symptoms of premenstrual syndrome are very severe and produce a decrease in functional impairment, it is defined as premenstrual dysphoric disorder (PMDD). The symptoms, as in the case of PMS, usually start 5–7 days before menses, reaching its peak of greatest intensity during the 2 days before the start of menses disappearing few days after. Currently, the relationship between PMS and PMDD is unclear, although most clinicians consider that there is a continuum between these premenstrual problems, constituting PMDD as the more severe stage [1].

PMS and PMDD are generally accepted as a medical reality, with physical symptoms, negative moods including sadness, anxiety and irritability, and behavioural changes.

The birth of the term "premenstrual tension" (precursor of PMS) in 1991 resulted in extensive biomedical research, but much of both the biological and psychological theorizing about PMS is predicated on the assumption that PMS is a real identifiable biological disease [2]. However, despite many years of scientific research, fundamental questions remain unanswered.

On the other hand, during all these years, many authors have criticized the concept, suggesting a not simply biological point of view and developing a vision that takes into account the relationships between gender and psychiatry, with contributions from anthropology and sociology.

In this chapter, the PMS and the PMDD are first exposed from a biologicist model that understands disease as the state produced by an error in a biological mechanism or process. Afterwards, a review is made of those authors who have questioned and have tried to understand the concept from another point of view.

If all women experience physiological changes associated with ovulation, why during the twentieth century have they become intolerable?

20.2 History

Despite the physical and psychological changes associated with the menstrual cycle that have been recognized and described for thousands of years, it is not until the twentieth century when the concept of PMDD emerges as a clinical disorder.

Hippocrates in the fifth century BC observed that in the days prior to menses occurred mood swings in women, and Galen in the second century AD associated premenstrual hysterical reactions to a toxic uterine fluid which was eliminated through menstruation.

In general, the Hippocratics considered that the most likely cause of any disease in women was the retention of menses. Such retention could result in headaches, fever, hot flashes, etc. and in extreme cases, even loss of reason. This is reported in the Hippocratic treatise "On the diseases of virgins", which tells how in some virgins retained blood can move through the body causing in the first place a heart dysfunction and in severe states of the disease, stupor, delirium, and madness:

> Women go crazy as a result of the acute inflammation, as a result of the putrefaction, they feel the desire to kill; as a result of the darkness that builds inside them, they feel terrors and fears, as a result of pressure on the heart they desire choking; because of the spoiling of their blood, their spirit, agitated and distressed, is perverted. In addition, the patient says terrible things. (The visions) command them to jump and throw themselves to wells or strangle themselves as if it was the better and was something useful…. [3]

The Aristotelica, however, suggested that menses was itself a risk to weakness, with no therapeutic purpose whose only function would be restricted to procreation.

Although the connotations of menses for these classical philosophers are opposed, in both cases women will be at constant risk of being damaged by their own nature.

The first to use menses as a scientific basis to explain some of the female behaviour was the American neurologist Robert Frank. In 1931 he published a descriptive study conducted with 15 women that relate recurring physical, emotional and behavioural symptoms during the luteal phase which disappeared at the beginning of menses. He called to this set of symptoms as "premenstrual tension syndrome".

Frank proposed the existence of three groups of women based on the gravity of the symptoms:

- A first group in which are included those women with mild symptoms, such as fatigue, considered to be within normal limits. It could be considered women with physiological changes without a medical connotation from our point of view.

- Other group of women diagnosed of other clinical conditions who suffer variations in them during the premenstrual phase.
- Finally, a group with "premenstrual tension", considered as a severe emotional disorder which process with irritability, tension, emotional instability, and reckless behaviour [4].

In 1953, Green and Dalton suggest that the emotional tension was just a symptom of the many that compound this state and they replace the term "premenstrual tension" for "premenstrual syndrome" [5]. In her book, *The Premenstrual Syndrome*, Katharina Dalton reported the premenstrual syndrome is the most common endocrine disturbance, frequently meeting in general medical practice, due to the impact of cyclical changes and their effects on the patient and the family circle. It infiltrates in many medical specialties, so that the issue should be of great interest to psychiatrists, endocrinologists, gynaecologists, medical officers of the industry and the prison system. This author identifies an imbalance between oestrogen and progesterone during the luteal phase as the cause of the syndrome, proposing a treatment with progesterone during the premenstrual period, treatment of questionable reliability which acquired great popularity in the 1980s [6].

Finally, in 1987 DSM-III included PMDD in research criteria under the name of late luteal phase dysphoric disorder (LLPDD). After that, the DSM-IV TR criteria categorized it in the Appendix B "Criterion Sets and Axes Provided for Further Study" with its current name. The new DSM-5 considers that there are enough empirical evidences to consider PMDD as a new diagnostic category.

20.3 Epidemiology

Up to 90% of women of childbearing age experience at least one premenstrual symptom during their reproductive years. Symptoms include physical and emotional complaints and differ in their severity, duration, and frequency [7].

Different definitions exist for the categorization of premenstrual symptoms and syndromes, and epidemiological studies on their prevalence have produced varied results, depending upon the diagnostic criteria and methodology. Moreover, cultural differences in the reporting of premenstrual symptoms complicate to obtain an accurate prevalence of PMS, so that the PMS rate has been reported 10% in Switzerland and 98% in Iran [8].

Several population-based studies have been conducted to assess the prevalence of the most severe end of the premenstrual symptom spectrum, the PMDD, and have reported estimates between 3 and 8% [7].

20.4 Clinical Symptomatology

The main feature of the clinical representation of the PMS/PMDD is the recurring expression of symptoms during the late luteal phase of the menstrual cycle (approximately over 4 days) that ends in the first or second day of the onset of menses [9].

For most women, the symptoms are consistent between cycles and last an average of 6 days per month [10].

The literature has ascribed to PMS/PMDD over 150 symptoms. However, the number of symptoms that patients usually present are much more limited [11]. Most referrals are:

- Physical: swelling, breast tenderness, aches, headache, bloating/weight.
- Behavioural: sleep disturbances, appetite changes, poor concentration, decreased interest, social withdrawal.
- Mood: irritability, mood swings, anxiety/tension, depression, feeling out of control [12].

Some studies suggest that women with PMDD, especially those with more severe symptoms, have an increased risk of suicidal ideation [13].

Regarding the evolution, symptoms can start at any time from the onset of menarche and are usually maintained throughout the woman's reproductive life if they are not treated specifically [14]. However, it has been observed that some women experience more severe symptoms during the late reproductive years [15] and this condition has been associated with an increased risk of developing affective disorders during the transition to menopause [16]. The PMS/PMDD resolve completely after menopause and temporarily during pregnancy or during any menstrual cycle interruption [15–17].

Finally, no specific abnormalities were found in physical examinations of women with PMS/PMDD nor specific biochemical abnormalities in laboratory tests [18, 19].

20.5 Diagnosis

The subspecialties of psychiatry and gynaecology have developed overlapping but distinct diagnoses that qualify as a premenstrual disorder. The American Congress of Obstetricians and Gynaecologists (ACOG) includes psychiatric and physical symptoms in describing premenstrual syndrome (PMS). The American Psychiatric Association (APA) focuses predominantly on psychiatric symptoms in its diagnostic criteria for premenstrual dysphoric disorder (PMDD).

ACOG has defined PMS as a condition in which a woman experiences at least one affective symptom and one somatic symptom that cause dysfunction in social, academic, or work performance. To meet the DSM-5 criteria for PMDD, they must experience 5 of 11 physical, behavioural, or cognitive-affective symptoms, and at least 1 must be a key mood symptom. Mood symptoms include irritability, mood lability, depressed mood, or anxiety.

Establishing the timing of symptoms is essential. Other conditions, such as depression or anxiety, may worsen during the luteal phase, but these can be distinguished from PMS because they persist throughout the menstrual cycle. Migraines, anaemia, chronic pain disorders, rheumatologic disorders, endometriosis, irritable bowel syndrome, interstitial cystitis, primary and secondary dysmenorrhea, and

hypothyroidism may produce symptoms similar to PMS or PMDD and should also be considered. An accurate diagnosis requires a thorough history, physical examination, and prospective symptom evaluation. Diagnostic laboratory testing or imaging should be directed at ruling out alternative medical diagnoses.

Prospective questionnaires are the most accurate way to diagnose PMS and PMDD because patients greatly overestimate the cyclical nature of symptoms, when in fact they are erratic or simply exacerbated during their luteal phase. The Daily Record of Severity of Problems (DRSP) is a valid and reliable tool that can be used to diagnose PMS or PMDD. It is a daily log of symptoms that correlate with the diagnostic criteria for PMS and PMDD. Patients rate their symptoms through at least two menstrual cycles [20, 21].

20.5.1 Negative Impact of PMDD Symptoms in Functional Impairment

One of the criteria required by the current classifications for the diagnosis of PMDD is that symptoms must be severe enough to cause a significant deterioration in the quality of life, interfering with work, interpersonal relations, and/or social activities. Most women with PMDD diagnosis report a significant alteration in social adjusting and an increase of interpersonal difficulties and perceive a decrease in quality of life [22–25]. A study conducted with women from the United States, United Kingdom, and France has shown that a 30% of women reported a serious interference in family life, 17% interference in social life, and a 14% at work [23].

20.6 Etiology

Although the etiology of PMDD is unknown yet, there is consensus in recognizing its complex and multifactorial nature and involves biological, psychological, environmental, and social variables. The biological hypotheses are those that have attracted more research emphasizing the implication in the pathogenesis of certain central neurotransmitters and ovarian steroids.

20.6.1 Female Sex Hormones

Since PMDD only affects women of reproductive age, it is supposed that female sex hormones play a causal role in the disorder. However, studies comparing the levels of progesterone, estradiol, follicle-stimulating hormone, luteinizing hormone (LH), prolactin, cortisol, testosterone, and dihydrotestosterone in women with and without premenstrual symptoms found similar levels in both cases [18, 19].

A commonly purported belief is that fluctuations in sex hormones across the menstrual cycle contribute to women's emotion processing and experience of negative affect such as irritability, nervousness, anger, depression, and anxiety.

However, a multisite longitudinal study on the association between mood disorders and sex hormone levels encompassing two consecutive menstrual cycles concluded that negative affect did not fluctuate across the cycle and there was no direct and uniform association between sex hormones and self-reported negative affect [26].

The deficits of progesterone metabolites (some of which have anxiolytic properties) and its receptors have been proposed as possible mediators of PMS/PMDD. Indeed, treatment of PMD with progesterone suppositories was at one point a popular treatment. However, evidence synthesized from randomized trials has not shown the efficacy of this treatment [27]. However, as it is already noted, progesterone concentrations are normal in women with PMS. Furthermore, although the results of the studies are contradictory, it seems that concentrations of progesterone metabolites also happen to be similar in women with PMS compared to control women [28].

Since women with PMS have normal levels of oestrogen and progesterone, it is postulated that they may have a greater vulnerability to normal hormonal changes that occur during the menstrual cycle and suggest that gonadal hormones are necessary but not sufficient to explain the etiology of the disorder.

The basis of this vulnerability could be in the interaction that occurs with other neurohormonal systems, including the renin-angiotensin-aldosterone system and the CRH as well as neurotransmitters of the central nervous system, particularly GABA and serotonergic systems [29, 30], as it is discussed below.

20.6.2 Neurotransmitter Systems

Animal studies provide evidence that the cyclical fluctuations of oestrogen and progesterone in blood changes produce changes in opioid [31], GABA [32], and serotonin systems [20].

- Beta-endorphins
- β-endorphin levels have been demonstrated to be lower in the luteal phase of the cycle in women suffering from Premenstrual Syndrome [33, 34]. This low level of endorphins is linked with lethargy, low mood, and emotional instability, all of which are symptoms typical of PMS sufferers [27].
- The beta-endorphin withdrawal hypothesis proposed that decreased levels of endogenous opioids were linked to PMS symptom expression and pain sensitivity.
- A study comparing women with PMDD and healthy controls during both the follicular and luteal phases found that during both cycle phases, women with PMDD had lower levels of cortisol and beta-endorphins, shorter pain thresholds and tolerance times, and higher blood pressure levels at rest and during pain testing [35].
- Serotonin
- The serotonergic system has emerged as the most likely cause of PMDD and PMS, being the one which most research has risen.

- One of the pioneers in this field was Wirst, who shows that the levels of free tryptophan (an amino acid precursor of serotonin) had changes during the menstrual cycle, which correlated with plasma concentrations of oestrogens [36]. There is wide evidence in the literature suggesting that PMDD is caused by a deregulation in the serotonergic system in response to fluctuations of gonadal female hormones during the menstrual cycle. In fact, it has been shown that during the lutein phase, women with PMS have lower plasma levels of serotonin reuptake and lower minor recognition sites of this neurotransmitter [37].
- Several findings support this hypothesis. For example, the administration of L-tryptophan is more effective than placebo in treating premenstrual symptoms, including mood swings, dysphoria, irritability, and tension [38]. Also it has been referred that flenfluramina, which increases the release of serotonin and decreases its reuptake, produces significant improvement in PMS symptoms [39]. Besides, SSRIs are the most effective drugs for the treatment of PMDD. In fact, the administration of metergoline (a serotonin antagonist) in women treated with fluoxetine produce a recurrence of symptoms [40].
- The rapid onset of action of selective serotonin reuptake inhibitor suggests a mechanism of action different than serotonin reuptake inhibition. It has been demonstrated that SSRIs increase the level of central allopregnanolone in both rats and humans. Although the mechanism by which this occurs is not known, it has been proposed that it could implicate a direct stimulation of 3a-HSD, the enzyme that catalyses the reduction of 5a-DHP into allopregnanolone [41].
- GABA
- Recent growing interest focuses on the neurosteroid allopregnanolone and its effect on the gamma-aminobutyric acid (GABA) system, one of the main inhibitory systems in the central nervous system. Allopregnanolone is a metabolite of progesterone implicated in mood disorders in both men and women. Allopregnanolone is a strong positive modulator of GABAA receptor, acting on a specific site of the receptor distinct from the site acted on by barbiturates, benzodiazepines, and alcohol, yet similarly to them, leading to increased receptor activity. Preclinical studies suggest that allopregnanolone mediates its own fluctuations as well as the fluctuations of progesterone, through modulation of subunits of GABAA receptor and receptor function.
- It is currently proposed that women with PMDD have reduced sensitivity at the GABAA receptor complex, at the allopregnanolone, as well as at the benzodiazepine site.
- A blunted response to stress has been reported in PMDD, and it has been proposed that a decrease in the expected increase in allopregnanolone in response to stress or reduced allopregnanolone-modulated GABAA receptor sensitivity impairs the ability of the hypothalamic-pituitary-adrenal axis to achieve homeostasis after stress. Dysregulated acoustic startle responses in women with PMDD suggest increased arousal in the luteal phase, which could be another reflection of dysregulated allopregnanolone function.
- In a randomized controlled trial (RCT), when the conversion of progesterone to allopregnanolone was blocked by dutasteride (a 5a-reductase inhibitor), PMDD

symptoms were significantly decreased, and there was no effect of dutasteride on the healthy controls. There is a hypothesis that the negative mood and anxiety symptoms of PMDD may be related to a paradoxic sensitivity to allopregnanolone. In a subset of women, when allopregnanolone levels increase (i.e. in the midluteal phase), the increase leads to elevated rather than decreased mood and anxiety symptoms [41].

- Glutamate
- For both symptomatic and non-symptomatic women, levels of the excitatory neurotransmitter glutamate fluctuate during the menstrual cycle. Luteal-phase levels of glutamate/creatine plus phosphocreatine in the medial prefrontal cortex are thus lower for all women. However, symptomatic women may have an increased sensitivity to such cyclical changes [35].

20.6.3 Vitamins and Minerals

Attempts to determine if there are vitamin deficiencies in women with premenstrual symptoms have not been successful. It has also been suggested that women with PMS may have lower levels of intracellular magnesium during the menstrual cycle, but differences are not limited to the luteal phase [42, 43].

The potential role of calcium has been studied, and it has been reported that reduced calcium levels during ovulation are related to the luteal phase of the cycle. Serum vitamin D has also been shown to fluctuate during the menstrual cycle along with alterations in estradiol at ovulation and across the luteal phase in several, but not all of the studies. The results of studies assessing the association between PMS and vitamin D and calcium status have been inconsistent.

Recently, no significant association was observed between the menstrual bleeding pattern or the PMS symptoms with a vitamin D status [44].

20.6.4 Central Nervous System

The development of neuroimaging techniques has opened a new stage in the study of the biological alterations in mental disorders.

Through functional neuroimaging techniques, specifically SPECT, it is been discovered fluctuations of glutamate in the medial prefrontal cortex during the menstrual cycle in women with PMDD as well as in asymptomatic. Thus, there are lower levels during the luteal phase compared with the follicular phase ones. These variations in the levels of glutamate are probably due in part to hormonal changes that occur during the menstrual cycle, as we mention previously, being women with PMDD more sensitive to these changes produced during the menstrual cycle [45].

On the other hand, magnetic resonance studies revealed that during the premenstrual phase, the grey substance is relatively bigger in the anterior right hippocampus (right anterior hippocampus) and, at the same time, is relatively reduced in the right region of the right dorsal basal ganglia [46].

Functional magnetic resonance imaging (fMRI) studies have reported that PMS patients have dysfunctions of several brain regions, mainly including the frontal cortex, precentral gyrus, anterior cingulated cortex, temporal cortex, and precuneus, and a recent study has investigated about abnormal thalamocortical connectivity in PMS patients [47].

A voxel-based morphometry (VBM) study reported that PMS patients had morphological change of thalamus and abnormal thalamic-prefrontal structural covariance pattern by structural MRI [48].

The autonomic nervous system has also been extensively studied in the premenstrual syndrome. Classic studies demonstrated that the parasympathetic nervous system activity in women with PMDD was smaller in the luteal phase than in the follicular phase. More recently, some studies have managed to establish a relationship between the decline in autonomic nervous system activity and PMS, through evaluation heart rate variability and hormone levels in the follicular and luteal phase. Results indicate that there were no changes in the autonomic nervous system activity in the control group, whereas the group of women with PMS showed a significant decrease in the luteal phase, being more marked in women with PMDD [49, 50].

Regarding electrophysiological abnormalities, women with PMS have a lower incidence of delta activity and a higher incidence and amplitude of theta waves during electroencephalographic studies [51].

20.6.5 Psychosocial Factors

Psychosocial models consider that PMDD is a syndrome influenced by Western culture where most women have negative beliefs about menses. In this culture, menses has been related with affective symptoms as well as having been always associated to negative connotations. Due to this, they suggest that women have ended up interpreting negatively normal physiological changes that occur during the menstrual cycle [52].

The role that psychosocial factors have on the etiology of PMDD has been very poorly investigated. There are some studies which refer that attributional and coping styles play a central role in the SPM [53]. For example, Blake [54], who developed a cognitive therapy for the treatment of PMDD, suggests that premenstrual symptoms are caused by negative attributions women make about symptoms. They perceived a loss of control over them and use an emotion-focused coping style, which leads them to feelings of anger and depression and increases negative thoughts in relation to symptoms.

20.7 Risk Factors

Factors that have been associated with an increased risk of PMDD are:

20.7.1 Age

Although this disorder can appear at any time from the onset of menarche until the end of the reproductive cycle, research shows that the risk is higher in young women from 25 to 35 years old. This is exemplified by a study conducted with a sample of women aged 18–44 years old which found that the older age group (35–44 years) was the least likely to experience premenstrual symptoms (4.5%) compared with the group of 18–24 (8.7%) and 25–34 years (10.4%) [55].

It is not clear if premenstrual symptoms change with age. Most of the women seeking treatment for PMDD are in the first half of the fourth decade of his life but recognize the appearance of the symptoms in their teenage years. This suggests that the symptoms tend to become more severe over time until eventually disappear with menopause [56]. In contrast, a prospective study of a large sample of adolescent and young adults reported no change in PMDD prevalence over a 2-year period [57].

Although over time it has maintained the belief that women with irregular menstrual cycles have a higher incidence of PMS/PMDD, the fact is that recent studies have found no such difference [58].

Risk does not differ among various premenopausal age groups [57].

20.7.2 Past or Current Psychiatric Disorders

Women with a history of mood disorders, anxiety disorders, personality disorder, and substance abuse disorder have a higher incidence of severe premenstrual symptoms [59]. Specifically, PMDD is usually associated with a history of depression [15] and anxiety disorders [60].

On the other hand, some studies show that during the premenstrual period, it can exacerbate certain psychiatric symptoms such as obsessive-compulsive behaviour, increased alcohol consumption, a higher rate of suicide, or schizophrenic symptoms [61].

20.7.3 Heritability and Familial Aggregation

Family and twin studies suggest a genetic influence in premenstrual syndromes, but not all studies agree.

Studies with twins have generally shown a higher concordance rate in monozygotic twins versus dizygotic twins, although it is not clear if the genetic vulnerability is for premenstrual symptoms itself or for some other characteristic, which is genetically determined [62].

The heritability has been estimated between 30 and 80% according to different studies. Familial risk differs for PMS and common mood and anxiety disorders [63].

20.7.4 Candidate Gene Studies in PMDD

Candidate gene studies for PMDD have primarily focused on genes previously associated with a risk for major depressive disorder, including those coding for the serotonin transporter (SERT), catechol-O-methyl transferase (COMT), monoamine oxidase (MAO), and brain-derived neurotrophic factor (BDNF). Several studies have also focused on polymorphisms of the genes for the oestrogen receptors (ESR1 and ESR2), given the hypothesized hormonal trigger:

- SERT Gene. The candidate gene best studied in PMDD is the serotonin transporter gene (SERT). Overall, the preponderance of the evidence does not support an association between SERT polymorphism and PMDD.
- COMT Gene and BDNF Gene. Results to date are negative.
- ESR Genes. There have been four studies with PMDD and ESR genes, two for each subtype, with conflicting results for each. Huo and colleagues found that four different single nucleotide polymorphisms (SNPs) in intron 4 of ESR1 were more likely to occur in subjects with PMDD versus healthy controls. They also studied ESR2 and did not find an association. The same group published a second study that did not find an association between PMDD and ESR1 but did find an association between certain psychological traits in the women with PMDD and SNPs in ESR1. Finally, Takeo and colleagues studied 51 postmenopausal women and found an association between the short-short (ss) genotype of the ESR2 and a history of PMS. However, this was based on a retrospective diagnosis determined by research assistants rather than clinician-based diagnosis or use of validated scales. It remains unclear if polymorphisms of the ESR genes underlie the pathogenesis of PMDD [64].

20.7.5 Healthy Behaviours

Smoking has been associated with an increased incidence of [65]. Women smokers are 2.1 times more likely to suffer from premenstrual symptoms than non-smokers. Furthermore, this risk is much higher for women who started smoking during adolescence [66].

Body mass index (BMI) has also been associated with PMS, finding a three times higher risk in women with a BMI greater than or equal to 30 [67].

It has also been described a strong linear relationship between BMI and risk of premenstrual syndrome, with each 1 kg/m^2 increase in BMI associated with a significant 3% increase in PMS risk. BMI was also associated with specific symptoms [68].

Dietary factors are shown to moderate the risk of PMS [69].

20.7.6 Educational Level and Work Situation

Cohen et al. found an association between PMDD and lower educational level. They also reported that women who do not work outside home were less likely to have the disorder [15]. Krantz and Ostergren's results [65] suggest that, in addition of the symptomatology increment observed in unemployed women, those who are exposed to high job strain suffered it too. Despite this date, Potter et al. [70] with a sample of 2863 French women do not find associations between the educational level, laboral status, and PMDD.

To sum up, studies have not found consistent associations between sociodemographic variables and PMDD. Due to the diverse results, the role of sociodemographic variables as risk factors of PMDD is unknown yet.

20.7.7 Racial Disparities

A US population study using retrospective surveys described that black women were significantly less likely than white women to experience PMDD and premenstrual symptoms in their lifetimes, independently of marital status, employment status, educational attainment, smoking status, body mass index, history of oral contraceptive use, current age, income, history of past-month mood disorder, and a measure of social desirability [71].

20.7.8 Stressful Events

Research has shown complex interactions between the impact of traumatic experiences and the reproductive lifecycle in women. Sexual abuse history is associated with diverse physical health problems and is also associated with affective disorders.

Evidence suggests that psychosocial factors including exposure to early life emotional, physical, and sexual abuse increase the risk of PMS [72].

A study evaluated the prevalence of sexual abuse history among women seeking treatment for severe premenstrual syndrome and found at least one attempted or completed sexual assault was reported by 95.2% of the women although typically ranged from 32 to 50% [73].

Several studies have investigated the association of psychosocial risk factors and physiopathology of premenstrual disorders.

Based on the evidence that traumatic experiences sensitize stress response systems, and that these systems are regulated by ovarian steroids, the hypothesis has been raised that a history of abuse provides a context in which within-person elevations of ovarian steroids estradiol and progesterone prospectively predict daily

symptoms. The results were that in women with a history of physical abuse, cyclical increases in progesterone predicted greater mood, and interpersonal symptoms 3 days following that sample and in women with a history of sexual abuse, cyclical increases in estradiol predicted greater anxiety symptoms 3 days following that sample [74].

About the comorbid relationship between PTSD and premenstrual dysphoric disorder, it is not clear. Some research claims that it seems that trauma and PTSD are independently associated with PMDD and premenstrual symptoms [75]. Other studies argue that experience of premenstrual symptoms may be an important mechanism involved in increasing vulnerability for PTSD symptoms [76].

20.8 Treatment

There are numerous original articles pertaining to the treatment of premenstrual disorders, but clear clinical guidelines are not yet available. The therapeutic options available for the treatment of PMS and PMDD can be classified into nondrug interventions and pharmacological approaches.

20.8.1 Lifestyle Modifications

The ACOG recommends changes in daily life as the first choice of treatment for PMS [77]. However, the most used treatment is the pharmacological one with SSRIs or oral contraceptives. The ACOG recommendations are often ignored due to the absence of information about the effectiveness of behavioural interventions to produce long-term changes in lifestyle and are typically reserved for mild cases of PMD. The observed results in this type of treatment occur in a longer period of time than in the pharmacological intervention.

There is some evidence to indicate the effectiveness of aerobic exercise [78, 79] and relaxation [80] as a treatment for PMS/PMDD. Correlational studies show a positive correlation between the maintenance of aerobic exercise and the increments in quality of life reports QOL [81, 82]. However, a qualitative review on exercise and PMS symptomatology that included only interventional studies revealed minimal evidence to support the recommendation [83].

Caffeine, sugar, and alcohol are associated to an increase in the symptoms associated with PMS [84]. However, dietary interventions, such as reducing sugar intake and eat small but frequent meals, have little scientific evidence to support their effectiveness.

20.8.2 Supplements and Herbal Treatments

Supplements. Calcium supplements have been shown to decrease both negative mood symptoms as well as somatic symptoms. The data are less compelling for

vitamin B6 supplementation with marginal improvement in symptoms. There is limited data on vitamin E for treatment of PMS/PMDD symptoms. Smaller studies have indicated that it may alleviate symptoms, but further data are needed to support it as an effective treatment [25].

Minerals. The therapeutic efficacy of magnesium has been investigated, but no significant effects were found on mood symptoms with respect to placebo. Chromium supplementation was found to reduce mood disturbances in a small study [85].

Herbal Treatments. A growing body of literature is supporting the use of *Vitex agnus-castus* (chasteberry) for alleviating PMS and PMDD symptoms. Chasteberry was superior to placebo in relief of breast fullness, headache, irritability, anger, and mood lability. *V. agnus-castus* has also been shown to be as effective as fluoxetine in treatment of PMD/PMDD symptoms [25].

20.8.3 Cognitive Behavioural Therapy

CBT is the most extensively studied psychological treatment. CBT has been found to be beneficial to improve coping skills to tackle physical and psychological discomforts associated with PMS and PMDD. CBT has also showed some positive results as a maintenance strategy, although its combined use with pharmacotherapy (selective serotonin reuptake inhibitors) does not seem to produce additional benefits. The paucity of well-controlled studies for CBT and the lack of diagnostic rigour (severity, psychiatric comorbidities) in some of these studies are limiting factors for greater acceptability of CBT as a first-line treatment, along with other challenges such as costs and limited access to well-trained professionals. Challenges of access may be mitigated should emerging data on the use of remote, Internet-based cognitive behavioural therapies ultimately prove to be effective [86].

20.9 Pharmacological Approaches

20.9.1 SSRIs

Selective serotonin reuptake inhibitors (fluoxetine, sertraline, paroxetine, and venlafaxine) have proven to have safety profile [87] and their effectiveness in the treatment of PMDD in clinical trials [88] as in systematic reviews [89, 90].

SSRIs can be administrated daily or specifically during the luteal phase. Many women prefer this treatment mode [16]. Intermittent therapy starts in the 14th day of the cycle and continues until the onset of menses. It can maintain some days more if the symptoms persist during menses. This modality of treatment has the advantage of being cheaper and has fewer side effects. While individual trials suggest the efficacy of this approach [87, 91, 92], a meta-analysis of 29 studies reported that the intermittent dosing was less effective than the continuous therapy [16].

The rates of success of the SSRIs are high, from 60 to 70% of the patients respond positively. Women who do not response, between 30 and 40%, can benefit from the administration of a second SSRI or made daily therapy [88].

Generally, side effects are well tolerated by patients. Nausea is a common symptom and decreases after the first few days of treatment not to return even in the intermittent treatment modality [89]. Sexual effects (decreased libido and anorgasmia) persist throughout the treatment period but not during periods without it [90]. The discontinuation symptoms may occur if the treatment ceases abruptly, not occur in the intermittent one, indicating that 2 weeks are insufficient to provoke them [87].

Other antidepressants that inhibit serotonin reuptake inhibitors (but are not SSRIs) and have proven somewhat effectiveness for PMDD include clomipramine [93, 94] (administered throughout the menstrual cycle or only during the luteal phase), nefazodone [95], and venlafaxine [96], a drug that selectively inhibits the reuptake of serotonin and norepinephrine.

20.9.2 Anxiolytics

Anxiolytics that have been evaluated for the treatment of premenstrual syndrome include alprazolam and buspirone.

The therapeutic recommendation is to add alprazolam to treatment with SSRIs at low doses (0.25 mg three or four times a day) when treatment with SSRIs has been ineffective or not reduced completely all symptoms [87, 97–99]. It is considered a second treatment option because it exists a risk of addictive use.

20.9.3 Combined Oral Contraceptives

The treatment with oral contraceptives (OC) for the PMDD despite being very spread in the clinical practice is not supported by strong empirical evidence. The placebo-controlled trials are limited, and the first results were negative [100, 101]. However, it seems that OC treatment with fewer hormone-free days could be more effective [102]; the reduction in the number of hormone-free days results in fewer symptom [103].

The use of OC drospirenone plus ethinyl estradiol is promising [104–106]. A double-blind, randomized, placebo-controlled, cross-over design study demonstrated significant improvement in both mood and somatic symptoms as recorded on the DRSP when compared with placebo [107].

20.9.4 Hormone Treatment

If the treatment with SSRIs or oral contraceptives has not been effective or is not well tolerated, GnRH agonist with oestrogen-progestin add-back therapy is recommended.

The goal of hormone therapy is to suppress the hypothalamus-gonadal cyclicity that triggers the symptoms. It is important to take into account that GnRG agonists administered alone produce hypoestrogenism (hot flashes and loss of bone mineral density).

Studies report the effectiveness of the maintained administration of leuprolide when it is continuously added low doses of oestrogens and progestin [108–110]. This modality of combined treatment prevents the loss of bone density [111, 112].

However, the necessary use of cyclic or continuous progestin in add-back formulations can precipitate recurrence of PMS/ PMDD symptoms. In such cases, a levonorgestrel-releasing intrauterine device could be considered. Although GnRH agonists are effective treatment for PMS/PMDD, they should be used as third-line therapy and limited to a short course spanning no more than 3–6 months [25].

20.9.5 Surgery

Surgery is reserved for refractory cases with severe and very disabling symptoms. Three observational studies found that bilateral oophorectomy, usually along with hysterectomy, are effective for these patients [113–115]. But it is necessary further research in this area.

20.10 The Untold Story

Many authors question the validity of the premenstrual syndrome and how it became a treatable disease. There are authors who explore beyond the medical model, with contributions from anthropology, politics, philosophy, and sociology, because it is the only way it is understood the female suffering, in all its amplitude.

Several experts have linked premenstrual syndrome to the old descriptions of hysteria. Rodin affirms that the current disease category of PMS is a modern recreation of hysteria where women's bodies were thought to cause all sorts of unusual behaviours [116].

History is full of taboos and negative stereotypes about menstruation. For example, Eskimo believes that contact with a menstruating woman can lead to bad luck in hunting. Among the Habbe of Western Sudan, a man whose wife is menstruating does not undertake any hunting. In Nepal, *chhaupadi* is a practice that forces women to stay out of the house during menstruation to preserve the purity of the home, often in shelters for animals.

In some cultures, menstruation has been portrayed as an evil spirit that invades women of childbearing age once a month [117].

Premenstrual syndrome has also been compared with neurasthenia (another epidemic of vague and idiosyncratic symptoms). Like PMS, neurasthenia was connected to the tensions of the fast pace of modern life. It was first described as "American nervousness" caused by "mental and physical fatigue with organic causes beyond the diagnostic capacities of nineteenth-century medical science".

The pain of childbirth and dysmenorrhea or the strain of intellectual activities were thought to be largely responsible for neurasthenia in women, who were advised to stay at home, rest, and avoid reading, writing, or studying. Today, women thought to have PMS are advised to slow down the busy pace of their lives, although this can harm their professional careers: to tell their bosses about their PMS, not to schedule important business meetings or travel during the luteal phase [118].

In 1931, American gynaecologist Robert Frank published scientific studies about a condition he called "premenstrual tension". He described that some of her patients felt tense and irritable, emotionally unstable, and associated with "foolish and ill-considered actions". After the onset of the menstrual flow, the symptoms disappeared, and Frank described a hormonal origin.

Thus, the ancestral belief that women were unpredictable and fragile had a scientific basis, menstruation. Frank replaced religious or superstition elements with those that came directly from the world of medicine.

The primary way in which new ideas or diseases achieve recognition in modern society is for scientists or physicians to call them real. This is what happened to PMS in the twentieth century: PMS became real as a medical diagnosis and condition [117].

The premenstrual syndrome as a medical disorder began to receive constant attention when Katharina Dalton, a British endocrinologist, began to investigate it in the 1950s and, during the following years, published books and journal articles for professionals but also for the general population.

Many authors have not overlooked that Dalton published her first works when women were encouraged to become full-time housewives so that there would be more jobs available for veterans of World War II. In addition, Frank's publications were carried out during the Great Depression. The premenstrual syndrome was a medical and scientific reason to keep women away from the workplace and maintain the patriarchal model, which is sustained through the maintenance of women at home.

By the mid-1980s, when Ronald Reagan was the US President and Margaret Thatcher was a UK Prime Minister, and there was a backlash against feminism in both countries, PMS had become established in North American culture. The establishment was greatly facilitated by two sensational murder trials in the United Kingdom in which the courts accepted PMS as a plea of diminished responsibility. One of them, who was arrested for stabbing a co-worker, had a long history of mental illness and a history of great violence; the other, which today would probably be described as a post-traumatic stress disorder, was a battered woman who murdered her lover by running over him with the car after an argument. The trials received extensive media coverage, and the press introduced the concept of premenstrual syndrome, and with it, the notion that kind and quiet women can become dangerous criminals if they are left at the mercy of their hormonal fluctuations. One of the attorneys described his client as having a typical case of "Dr Jekyll and Mr Hyde" since without the injections of progesterone to control their premenstrual symptoms, the "hidden animal" in it would have no choice but to come to light [118].

A short time later, a committee of psychiatrists from the United States defined the late luteal phase dysphoric disorder (LLPPD) and proposed its incorporation into the DSM-III-R. The feminist community protested; they objected to this diagnosis both from the scientific point of view and from the politician; despite the protests it was included in the appendix of the diagnostic manual, along with other categories that should continue to be studied. Part of the controversy surrounding this label is centred around the sex-specific nature of this diagnostic category. Men also experience fluctuations in gonadal hormone levels which affect their psychological and behavioural functioning. Fluctuations in mood and behaviour are treated as aberrations to be medically managed when they occur in women, while similar changes in men are not publicly and medically scrutinized [2].

To understand scientific progress, Solomon introduced the idea of decision vector. A decision vector is any factor that influences the outcome of a scientific decision, such as accepting or rejecting a theory. She distinguished between empirical and nonempirical decision vectors. An empirical decision vector is any factor that leads scientists to prefer theories with empirical success. Nonempirical decision vectors are any other factors leading a community to prefer one theory (or diagnostic construct) over another. These include economic, social-political, and ethical considerations, as well as psychological factors such as conservatism and peer pressure [119].

For example, those who fear the empowerment of women may prefer that the PMDD appear in the diagnostic manual. During the debate about whether to include LLPPD in the DSM, Paula Caplan was interviewed by a Canadian reporter who wanted to write a story about the debate, but finally, her editor thought no one would want to read it. Soon afterwards Kim Campbell was elected head of the Progressive Conservative Party, and it looked like she would become Canada's first woman Prime Minister. The editor instructed the reporter to complete the LLPPD story since the notion that women behave irrationally once a month would hurt Campbell's chances of political success. Each time women make substantial gains in political or social power; medical or scientific experts step forward to warn that women cannot go any farther without risking damage to their delicate physical and mental health [118].

Because there is no established cause or cure for PMS, it has never been clear which experts are best suited to treat women with premenstrual symptoms. Most PMS clinics have been established by gynaecologists, endocrinologists, nurse practitioners, or nutritionists. With the vast majority of women of reproductive age convinced that they suffered from PMS at least occasionally and the inclusion of PMDD in the DSM, it was the opportunity to find a psychotropic drug that could be applied to the different symptoms that constituted the disease. Chrisler and Caplan describe in detail the strategy used by the Eli Lilly laboratory because with the patent on Prozac due to expire soon, it was essential to demonstrate the effectiveness of the drug in a disease different from depression so that distribution can be avoided of generic forms. They also described the politics of renaming, as Eli Lilly repackaged Prozac in pink and purple colours and renamed it Sarafem. Sarah was the ideal wife of the Old Testament, and the combination of her name

with “fem”, a shorthand term for feminine behaviour, suggests a transformation, from a real woman who is angry to the stereotypical ideal of femininity, to a woman of “serene behaviour”. Eli Lilly’s advertising slogan for Sarafem, “It’s like the woman you are”. An energetic marketing campaign was developed for Sarafem. The first television ad for Sarafem showed a woman frantic because she could not extricate a shopping cart from a row of carts, and another showed a woman looking furious at a man who looked so calm and caring that the message was crystal clear that he could not have done anything to provoke her anger. The Sarafem ads do not appear to target the small minority of women the American Psychiatric Association says have PMDD. The daily frustrations and irritations of life portrayed as symptoms of a psychiatric disorder [118].

PMS has been theorized to be a culture-bound syndrome. A culture-bound syndrome involves a constellation of symptoms categorized by a given culture like a disease and the etiology of which symbolizes core meanings and reflects the preoccupations of the culture; the diagnosis and treatment are dependent upon culture-specific technology and ideology. Further, the definition holds that, while such symptoms may be recognized elsewhere, they will not be categorized as the same disease, and treatment which is successful in one cultural context will not be seen as successful in another. The reality of such syndromes is the result of a negotiation between those who treat it and those who suffer from it, even though symptoms may exist apart from the negotiated reality [120].

Johnson argues that a culture-bound syndrome can serve as a symbolic mechanism for both structural maintenance and change in a particular society. PMS appearance follows on the heels of an unprecedented alteration of the status and roles of women in the social structure. In that specific time in the history of Western industrial culture, women were placed in a role conflict and were expected to be productive and to be reproductive. The author explains how PMS serves to answer this role conflict of productivity and generativity by simultaneously and symbolically denying the possibility of each: in menstruating, one is potentially fertile but obviously nonpregnant; in having incapacitating symptomatology, one is exempted from normal work role expectations. With PMS, women can be seen as “victims” who did not “choose” to be sick.

From the point of view of social change, the PMS solidifies the position of women in the changing social structure of Western industrial culture. Throughout history, women have been considered delicate, fragile, emotional, etc. Nevertheless, the fact those women’s work roles have become central to the mode of production demands liberation from these constraints. PMS defines women as potentially irresponsible only some of the time, and asserting those irrational thoughts and incapacitating physical symptoms relates to a medically treatable entity. By defining women as potentially “in control” of heretofore devalued constitutional characteristics, PMS “negotiates” access to power in a way which indirectly legitimates the changing status of women without directly threatening or destroying the structural status quo [120].

Figert explains how the PMS has a very real image in the popular culture of something that drives women crazy once a month and relates a wide variety of jokes

and anecdotes from women as subject to their raging hormones. These are common on television and in movies. For example, an episode of Roseanne (a popular American show of the 1990s) depicted a day in the life of the entire family affected by Roseanne's (the wife and mother) rapid mood swings, emotional outbursts, and unpredictable behaviours. Hollywood romances are also not immune from PMS attacks. People magazine reported in 1994 that when Melanie Griffith filed for divorce from Don Johnson, and then withdrew the petition a day later, it was "an impulsive act that occurred during a moment of frustration and anger" and attributed to Griffith's PMS [117].

This author also reviews some popular jokes about PMS: "What is the difference between a pit bull and a woman with PMS? A pit bull doesn't wear lipstick" and "What is the difference between a woman with PMS and a terrorist? You can negotiate with a terrorist". Popular culture plays an important role in establishing and maintaining beliefs and most of these jokes promote an extremely negative image of women.

Another interesting line of research is to study the beliefs and attitudes of women towards the PMS label. White women are the majority who have sought services at PMS clinics and most of the women depicted in the cultural products about PMS. African-American women are apparently reluctant to seek medical services, and the scarcity of articles about PMS in magazines that target Black women suggests that the resistance to the label of PMS may be greater in some ethnic and socioeconomic groups than in others [120].

In a study of the year 1995, the views of women patients recruited from a PMS clinic were very similar to those presented in popular culture. They believed that PMS is biologically based, and they rejected situational attributions for their distress, "everything else in my life is fine, it's just my PMS". In more recent studies of community samples of women with and without PMS, there is evidence of more ambivalence and some resistance. Women with negative attitudes towards menstruation were likely to consider PMS to be an appropriate label for their personal experience and to believe that women's symptoms are not taken seriously without a medical explanation. Women with more positive attitudes towards menstruation were more critical of the label PMS, even though most of them said that they did experience it to some extent.

The application of the PMS label to the self may be a form of self-handicapping, that is, the setting up of insurmountable (or nearly so) obstacles to success so that the inevitable failure can later be attributed to the obstacles rather than to one's own lack of effort or ability. As soon as one's PMS is known, it provides an excuse for an emotional outburst, careless mistake, or error in judgement [120].

Of the vast array of symptoms that are said to characterize PMS, feelings of anger, irritability, and a sense of being out-of-control appear to be the most frequent and the most problematic for the women themselves. This faulty "emotion management" is highly undesirable because it disrupts the accepted gender-role script. Because the overt expression of anger is incompatible with the accepted norm of a "healthy" feminine personality, PMS has become an acceptable mode of expressing women's distress.

By containing her anger, dissatisfaction, and feelings of impotence throughout the month, and deferring their expression to one particular time of the month, women can give voice to their legitimate discontent without disturbing the acceptable image of the "good woman" and without losing their "feminine allure". In this way, the artificial dichotomy between the "bad woman" and the "good woman" is retained, and little or no change need be affected to remove the sources of women's distress or to reconceptualize our notions of femaleness [2].

In addition to all the above, research on the PMS has been troubled by a series of methodological flaws.

Early critics point to inconsistencies in the very definition of PMS. Since her initial discovery of PMS, Dalton refined the definition and, consequently, increased the time frame during which particular symptoms can be attributed to premenstrual syndrome.

The occurrence of symptoms does not, according to her definition, have to be restricted to the few days prior to menstruation, and PMS may be diagnosed whenever there is a pathological variance in levels of oestrogen and progesterone during the cycle, despite the problem of determining the pathological variance. Dalton's definition became progressively less precise and more inclusive. From being restricted to the few days prior to menstruation to incorporating any "pathological variation" in hormonal levels, PMS can conceivably include approx. 17 days out of each cycle. The fact that there is disagreement about exactly what PMS is, it does not make it surprising that studies are also impossible to compare [116].

Even today, there is no standard definition of PMS; there is little agreement on how many symptoms must be experienced or how severe the symptoms must be in order to be considered PMS. All these affect the estimates of the prevalence of premenstrual symptoms. Furthermore, not all women experience the same symptoms, and any woman's experience may vary from one cycle to the next. It is important to add that the concept of PMS has become so ubiquitous in popular culture since 1980 that the results of the surveys have undoubtedly been affected by a response bias in the direction of the stereotype of the premenstrual woman [118].

Another issue that has received numerous criticisms are the standardized questionnaires that have been used for the diagnosis. This type of standardized retrospective questionnaire is designed in accordance with the experimenter's conception of what symptoms constitute PMS. The questionnaire is closed-ended and focuses on negative mood and behavioural changes. Consequently, any premenstrual experience that is at variance from the one offered by the questionnaire is impossible to detect [116]. Women also report cognitive, behavioural, and psychological changes during the premenstrual phase that they welcome and view as positive, such as bursts of energy and activity, increased creativity, increased sex drive, feelings of affection, increased personal strength or power, and feelings of connection to nature or to other women. These premenstrual changes are rarely mentioned in the professional or popular literature because they do not fit into the conceptualization of the perimenstruum as a time of illness and dysphoria [118].

In recognition of the inherent biases of standardized retrospective questionnaires, many PMS researchers have adopted the use of a "calendar" or "diary". Every day

over a 3-month period, women are directed to indicate on the calendar whether if they experience any of the listed possible changes or not. Although this method of diagnosis adopts a prospective approach and is relatively open-ended compared to the standardized retrospective questionnaire, most options available on the calendar are negative. Thereby, women's reports of their menstrual experience become reproductions of the medical description of PMS [116].

An interesting and robust phenomenon in studies of menstrual cycle effects is that premenstrual participants expect to perform worse than they actually do on cognitive tasks. An example is a classic experiment, in which Ruble (1977) led some women to believe that they were premenstrual when they were not and others to believe that they were not premenstrual when they actually were. The women who believed they were premenstrual reported more symptoms than did those who believed they were not. The cultural expectations encourage women to attribute their unhappiness and difficulties to internal (i.e. biochemical) rather than external (e.g. stress, discrimination, harassment, abuse) causes [118].

The most serious of methodological flaws is the inability of most researchers to ascertain which phase of the menstrual cycle their participants actually are in at the time that the dependent variable is measured, they do not take into account that not all menstrual cycles have the same length and they assume that all menstrual cycles include ovulation. Life stress can alter the menstrual cycle length and anovulatory cycles are not uncommon. If there is no ovulation, there is no true luteal phase.

And finally, menstrual cycle research is one of the few areas in the behavioural sciences in which women comprise the majority of those studied. Inherent in the design of most menstrual cycle studies is the unfounded assumption that only females experience cyclic fluctuations in affect, performance, and symptomatology. The exclusion of males as a control group precludes the examination of sex and gender [118].

Unfortunately, the rapid expansion in biomedical understanding in Western culture has created a reductionistic focusing of our attention on the biological aspects of symptom complexes. We strive to discover the biological "reality" of PMS, without examining the cultural forces which are attendant in the process of creating that reality. We are willing to see culture-bound syndromes in other cultures when we cannot readily understand their symptom complexes in biomedical terms. Yet we unquestioningly treat our own problematic syndromes, such as PMS, as "real", striving constantly to find physiological correlates of symptoms [5]. Retaining the PMS label is not only likely to be damaging to women medically, socially and politically, but that it may also preclude potentially fruitful scientific inquiry into the normal cyclical fluctuations associated with menstruation [2].

García Porta [6] suggests that it could be more appropriate to talk about the premenstrual or perimenstrual experience instead of PMD. This does not deny the experience itself, although it would exclude it as an expression which defines a pathological state. It has been emphasized the role that reproductive health education can have in order to change the social construction made about the PMS/PMDD. Apart from that, if biomedicine was opened to social disciplines such as anthropology, sociology, history, and gender studies and their qualitative

methodology, it could clarify the context and meaning of too many of these phenomena. Only through an approach like this, women could be active agents trying to make sense of their own experiences [6].

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