ORIGINAL ARTICLE

Perception of Premenstrual Dysphoric Disorder Among Medical Students in Curitiba, Paraná

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ABSTRACT

Introduction: Premenstrual Dysphoric Disorder (PMDD) is a severe form of Premenstrual Syndrome (PMS) characterized by psychological or behavioral symptoms that significantly impact a woman's quality of life. Due to its recent recognition as a mental health disorder, many healthcare professionals remain unfamiliar with PMDD, complicating its diagnosis and management.

Objective: To evaluate the perception of medical students in Curitiba, Paraná, regarding premenstrual dysphoric disorder.

Methods: This descriptive cross-sectional study was approved by the Research Ethics Committee (CAAE: 47635921.4.0000.0093). Data were collected between August 2021 and April 2022 through an online questionnaire administered to 593 medical students from institutions in Curitiba, Paraná. The questionnaire assessed knowledge about PMDD, its teaching during medical training, differentiation from PMS, and the medical approach towards affected women.

Results: Of the participants, 83.6% were women and 16.4% were men. A total of 51.9% had studied Gynecology and Obstetrics and/or Psychiatry. Regarding PMDD, 40.8% had never heard of it, and only 28.8% had acquired knowledge about it during their university education. Among those who had studied Gynecology and/or Psychiatry, 86.7% did not feel qualified to diagnose the disorder and were unaware of the differences between PMDD and PMS (52.4%), with a higher frequency of men (68.4%) compared to women (51%, p=0.017). While 55.2% of students correctly defined PMDD, the majority (53.2%) were unclear about its signs and symptoms. Among female students, 82.9% felt that the medical approach was superficial during consultations, while only 10.1% reported a thorough investigation of symptoms.

Conclusions: PMDD is a condition that is poorly understood and inadequately addressed in the training of general practitioners. Increasing awareness and education on this subject in universities would better equip professionals to recognize and manage this disorder, ultimately improving women's quality of life.

Keywords: Premenstrual dysphoric disorder, Menstrual cycle, Women's health, Premenstrual syndrome

INTRODUCTION

Premenstrual Dysphoric Disorder (PMDD) is a more severe and disabling variant of Premenstrual Syndrome (PMS), affecting 3 to 8% of women of reproductive age (1). Women with PMDD experience debilitating psychosomatic and behavioral symptoms, including intense mood swings, depressive and compulsive disorders, and, in severe cases, episodes of psychosis and suicide attempts. The disorder is characterized by cyclical recurrence during the luteal phase, with symptoms generally worsening as menstruation approaches and subsiding with the onset of menstrual flow (2,5). Its etiology is not yet fully elucidated, but hormonal, genetic, environmental, and socio-

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cultural factors are believed to be involved (3). The primary associated factor appears to be alterations in sexual hormones (5). Vulnerability to PMDD is thought to result from central neuromodulation by gonadal hormones affecting neurotransmitters and circadian systems, which influence mood, behavior, and cognition.

Early diagnosis and appropriate treatment of PMDD are crucial to prevent it from becoming a chronic and recurrent issue for women (3). As there is no biological marker or specific test for confirmation, diagnosis relies on the experience and technical knowledge of healthcare professionals. Identifying the cyclic nature of symptoms and mapping them prospectively through daily assessments for two consecutive cycles guides the diagnosis (4). According to the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V), diagnosis is based on the presence of at least five of eleven symptoms, including at least one of the following: 1) depressed mood, feelings of hopelessness, self-deprecating thoughts; 2) severe anxiety or tension; 3) affective instability; 4) anger, persistent irritability, and exacerbated interpersonal conflicts (8). These observations are valid for spontaneous, ovulatory cycles, in the absence of pharmacological and hormonal interventions, and the use of drugs and alcohol (9).

Pharmacotherapy is the first-line treatment (7). Medications aim to modify neurotransmitter function or eliminate hormonal fluctuations by suppressing ovulation (2, 10). First-choice medications include Selective Serotonin Reuptake Inhibitors, Serotonin-Norepinephrine Reuptake Inhibitors, and hormonal therapy with oral contraceptives containing ethinylestradiol and drospirenone (7). Treatment should be multidisciplinary, with lifestyle changes being a key component. Recommendations include incorporating physical exercise, dietary adjustments, and psychotherapy, primarily cognitive-behavioral therapy (10).

Research on premenstrual disorders is important due to their impact on quality of life and psychosocial behavior (5). Women with PMDD are at higher risk of experiencing depression, anxiety, and suicidal ideation (2). The connection between Gynecology/Obstetrics and Psychiatry underscores the need for professionals to be well-trained to understand and manage the disorder effectively (2).

Studies on the impact and prevalence of PMDD are still scarce, particularly at the national level. Knowledge of the disorder is limited even among healthcare professionals, resulting in insufficient attention to premenstrual symptoms during consultations. This contributes to PMDD being underdiagnosed and patients remaining untreated for extended periods (11). Given its public health implications and its significant effects on women's daily lives, this study aims to evaluate the level of knowledge about PMDD among medical students in Curitiba, Paraná.

MATERIALS AND METHODS

This descriptive cross-sectional study was conducted from August 2021 to April 2022, without external funding, and was approved by the Research Ethics Committee of Universidade Positivo under number CAAE: 47635921.4.0000.0093. To determine the sample size, a population of 4,041 students enrolled in medical courses in Curitiba/PR in 2022 was considered, with a sampling error of 5% and a confidence le-

vel of 95%, resulting in a minimum sample size of 351 participants (12).

The final sample consisted of 593 medical students who signed the informed consent form, achieving a 95% confidence level and a 3% margin of error. Data were collected through an online questionnaire with 20 questions via Google Forms. Only one response per registered email was allowed to prevent duplicates.

Participants answered questions regarding age, sex, institution, course period, previous or current studies in Gynecology/Obstetrics and Psychiatry, awareness of Premenstrual Dysphoric Disorder, and sources of knowledge (college, social networks, scientific articles, or others). They were also asked if they knew the difference between PMS and PMDD and whether they felt capable of approaching and diagnosing the disorder. Additionally, the questionnaire included three questions about PMDD characteristics, its impact on daily life, and severity.

Female participants also answered questions about premenstrual symptoms (physical symptoms, marked mood swings, anger or irritability, self-deprecating thoughts, marked anxiety, difficulty concentrating, changes in eating habits, or no symptoms), frequency of symptoms, medical approach to these symptoms, previous PMDD diagnosis, and treatment used.

The variables were grouped and tabulated in a Microsoft Excel spreadsheet. Statistical analyses were performed using SPSS 17.0. Continuous variables were expressed as mean ± standard deviation, while categorical variables were expressed as percentages and compared using Fisher's exact test. P values less than 0.05 were considered statistically significant.

RESULTS

A total of 593 medical students from Curitiba, Paraná, participated in the study, with 83.6% being female (n = 496) and 16.4% male (n = 97). The average age of the students was 22.8 years, with 77.7% (n = 461) aged between 19 and 24.

Responses were obtained from students across all five medical schools in Curitiba. Among the students, 32.9% (n = 195) were in the preclinical years; 49.4% (n = 293) were in the clinical rotation phase; and 17.7% (n = 105) were in the internship phase. Regarding coursework related to Premenstrual Dysphoric Disorder (PMDD), 51.9% (n = 308) had completed Gynecology and/or Psychiatry courses; 35.4% (n = 210) had not participated in either; and 12.7% (n = 75) were currently enrolled, as shown in Table 1.

Table 1. Sample characterization (N=593)

Characteristics	N	%
Gender		
Female	496	(83,6)
Male	97	(16,4)
Age		
mean ± SD	22,8	(3,51)
Period		

Basic Cycle	195	(32,9)
Clinic Cycle	293	(49,4)
Boarding School	105	(17,7)
Studied gynecology or psychiatry		
Yes	308	(51,9)
No	210	(35,4)
Studying	75	(12,7)

SD: Standard deviation; OB/GYN: Obstetrics and Gynecology

Regarding the perception of PMDD, 40.8% (n = 242) of the students had never heard of the condition, and only 28.8% (n = 171) had gained knowledge about it in the classroom. Additionally, 47.4% (n = 46) of the male students claimed to have never heard of PMDD, while this figure decreased to 39.5% (n = 196) among female students.

The majority of respondents, 65.9% (n = 391), did not know the difference between Premenstrual Syndrome (PMS) and PMDD, and 92.2% (n = 547) did not feel capable of addressing or diagnosing PMDD. Among those who had taken Gynecology and Obstetrics and/or Psychiatry courses, the response pattern was similar: most students did not feel capable (86.7%; n = 267) and did not know the difference between PMDD and PMS (54.2%; n = 167). A higher frequency of male students (68.4%) compared to female students (51%, p = 0.017) were unable to distinguish between the disorders. There were no significant differences between male and female students regarding having heard of PMDD (p = 0.256) or feeling capable of diagnosing PMDD (p = 0.493). However, a higher frequency of students in the clinical cycle compared to the internship phase had never heard of PMDD (27.9%; p = 0.0001), did not know the difference between PMS and PMDD (59.5%; p = 0.003), and felt incapable of diagnosing it (89.5%; p = 0.002). This indicates that students in the final years of their studies felt less competent and confident in addressing the disorder.

Three questions assessed knowledge about the disorder, revealing that 55.8% (n = 331) provided incorrect definitions of PMDD, 56.2% (n = 333) identified incorrect symptoms, while 85.7% (n = 508) accurately identified the impact of PMDD on a woman's life. Among those who had taken Gynecology and Obstetrics and Psychiatry courses (n = 308), 55.2% (n = 170) correctly defined PMDD, 89.9% (n = 277) accurately identified the impact of the disorder, but 53.2% (n = 164) provided incorrect symptoms of PMDD. This highlights a lack of comprehensive knowledge among students. Finally, only 22% (n = 131) of all students correctly answered all knowledge questions about PMDD. Among those who claimed to be capable of addressing and diagnosing the disorder, only 3% (n = 18) achieved a perfect score on the PMDD knowledge test, as shown in Tables 2 and 3.

Table 2. Perception and knowledge of PMDD among students included in the study

Student perception/knowledge	All (n=593)		Studied gynecology or psychiatry (n=308)	
	N	%	N	%
Ever heard of PMDD				
Never ever heard of	242	(40,8)	74	(24,0)
yes, heard of in College	351	(59,2)	234	(76,0)
yes	171	(28,8)	147	(47,7)
no	422	(71,2)	161	(52,3)
Feel qualified for the diagnosis				
no	547	(92,2)	267	(86,7)
yes	46	(7,8)	41	(13,3)
Know the difference about PMDD and PMD				
No	391	(65,9)	167	(54,2)
Yes	202	(34,1)	141	(45,8)
PMDD knowledge questions				
Definition PMDD				
Correct	262	(44,2)	170	(55,2)
Wrong/unable to inform	331	(55,8)	138	(44,8)
PDD Signs and Symptoms				
Correct	260	(43,8)	144	(46,8)
Wrong/unable to inform	333	(56,2)	164	(53,2)
Impact of PMDD on women's lives				
Correct	508	(85,7)	277	(89,9)
Wrong/unable to inform	85	(14,3)	31	(10,1)
Answered all questions about PMDD	131	(22,0)	93	(30,2)

PMDD: Premenstrual Dysphoric Disorder; PMS: Premenstrual Syndrome.

Table 3. Perception and knowledge of PMDD among students who took Gynecology/ Obstetrics and Psychiatry courses

Student's perception/ knowledge*	Feminino (n=251)		Masculino (n=57)		Valor de p$	Ciclo Clínico (n=190)		Internato (n=104)		Valor de p$
	N	%	N	%		N	%	N	%	
Ever heard of										
Never heard of	57	(22,7)	17	(29,8)	0,256	53	(27,9)	12	(11,5)	**0,001**
yes	194	(77,3)	40	(70,2)		137	(72,1)	92	(88,5)	
Feel qualified for the diagnosis										
No	216	(86,1)	51	(89,5)	0,493	170	(89,5)	83	(79,8)	**0,022**
Yes	35	(13,9)	6	(10,5)		20	(10,5)	21	(20,2)	
Know the difference about PMDD and PMD										
No	128	(51,0)	39	(68,4)	**0,017**	113	(59,5)	43	(41,3)	**0,003**
Yes	123	(49,0)	18	(31,6)		77	(40,5)	61	(58,7)	
PMDD knowledge questions										
Definition about PMDD										
Correct	139	(55,4)	31	(54,4)	0,892	100	(52,6)	62	(59,6)	0,250
Wrong/unable to inform	112	(44,6)	26	(45,6)		90	(47,4)	42	(40,4)	
PDD Signs and Symptoms										
Correct	122	(48,6)	22	(38,6)	0,172	87	(45,8)	52	(50,0)	0,489
Wrong/unable to inform	129	(51,4)	35	(61,4)		103	(52,2)	52	(50,0)	
Impact of PMDD on women's lives										
Correct	227	(90,4)	50	(87,7)	0,538	170	(89,5)	97	(93,3)	0,281
Wrong/unable to inform	24	(9,6)	7	(12,3)		20	(10,5)	7	(6,7)	
Answered all questions about PMDD	79	(31,5)	14	(24,6)	0,341	55	(28,9)	34	(32,7)	0,509

*Among students who took OB/GYN and/or Psychiatry courses (n=308). Statistically significant values are in bold. $: Fisher's exact test. PMDD: Premenstrual Dysphoric Disorder; PMS: Premenstrual Syndrome.

Regarding the question exploring medical investigation of premenstrual symptoms, which is extremely important for diagnosing PMDD, the majority of women, 82.9% (n = 411), reported that the professional's approach was always superficial, 10.1% (n = 50) indicated that doctors thoroughly investigated symptoms, and 7.1% (n = 35) claimed to have no premenstrual symptoms. Among the women in the study, 94.4% (n = 468) did not have a PMDD diagnosis, 3.8% (n = 19) were uncertain, and 1.8% (n = 9) had a previous diagnosis (Table 4).

Table 4. Investigation of premenstrual symptoms and PMDD diagnosis among female students included in the study

Women (n=496)	**N**	**%**
With Diagnosis		
No	468	(94,4)
Don't know	19	(3,8)
Yes	9	(1,8)
In-depth investigation of symptoms		
No, superficial approach	411	(82,9)
Yes	50	(10,0)
I have no symptoms PMDD	35	(7,1)

DISCUSSION

The primary objective of this study was to assess future physicians' knowledge of Premenstrual Dysphoric Disorder (PMDD). According to the questionnaire results, the majority of students (76%) who had completed Gynecology/Obstetrics and/or Psychiatry courses, which should cover the topic, had heard of PMDD. However, only 45.8% understood the difference between PMS and PMDD, and just 13.3% felt qualified to diagnose it. These findings highlight the need for a more thorough and widespread approach to this topic in medical schools, ensuring that future physicians are well-prepared to recognize and manage PMDD.

PMDD is recognized as a psychiatric and disabling disorder; hence, having accurate knowledge about its signs and symptoms is crucial for distinguishing it from PMS and other psychiatric conditions, especially anxiety and depressive disorders (3, 5). Proper diagnosis and management are essential to provide appropriate support to patients and prevent severe and prolonged psychological distress (4).

The low percentage of students who felt capable of diagnosing PMDD (13.3%) might be due to the fact that PMDD was only recently classified as a Depressive Disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) in 2013, despite the DSM's first edition being published in 1918. Previously, the condition was listed only in Appendix-IV (Sets of Criteria and Proposed Axes for Additional Studies), which may have led to a limited understanding of PMDD (3). Additionally, students might have had minimal exposure to these patients during their internships, and the topic is still not widely discussed among physicians. Furthermore, the absence of physical or laboratory tests for PMDD complicates

its recognition. Diagnosis relies on detailed anamnesis to identify recurrent symptoms related to the menstrual cycle, and prospective diaries maintained for at least two consecutive cycles can aid in diagnosis (13).

Knowledge about PMDD should be introduced progressively throughout the medical curriculum, starting in the Gynecology/Obstetrics and Psychiatry courses during the clinical cycle and continuing into relevant internship stages, such as Family and Community Medicine (3). However, only 28.8% of the students gained knowledge about PMDD in the classroom, indicating that this subject is not adequately covered in much of the medical training in Curitiba. Additionally, a higher frequency of students in the basic cycle reported difficulty in diagnosing PMDD and distinguishing it from PMS compared to those in the clinical cycle. This is likely because these students have not yet encountered the relevant disciplines. Nevertheless, high numbers of students in advanced periods also struggled with these issues, suggesting that there has been insufficient progress in understanding PMDD throughout the course. This underscores the need for the topic to be more thoroughly addressed in medical education (4).

The observation that more female students can distinguish PMS from PMDD compared to male students may be attributed to women's personal experiences with premenstrual symptoms and the greater discussion of the topic among women. Around 80% of women experience some degree of PMS, and 2 to 8% have PMDD, particularly among young women (5).

Another notable finding is that a vast majority of female participants (82.9%) reported that physicians tend to address premenstrual symptoms superficially. Similar conclusions were reached in a study by Rios et al. (2020), where patients felt their complaints were not adequately addressed, contributing to underreporting and increasing the risks of chronicity. This includes associations with other psychiatric disorders, worsening of existing mental conditions such as dysthymia and anxiety disorders, increased risk of postpartum depression, impairments in social, family, and occupational life, substance abuse, self-harming thoughts, and suicidal ideation (10, 14, 15).

In our sample, the prevalence of 1.8% of students with PMDD aligns with the DSM-V prevalence range of 1.8% to 5.8% among menstruating women (DSM-V, 2014). However, there is considerable divergence in the literature regarding the actual prevalence of this disorder (1, 6, 10, 16, 17). This variation may be due to a lack of awareness among health professionals and insufficient preparation in handling these patients. Additionally, some doctors dispute the classification of PMDD as a legitimate disorder, leading to underdiagnosis and delayed assistance (1). It is estimated that patients may take approximately five years to seek medical help for diagnosis (11).

Moreover, mental health stigma and the tendency to dismiss menstruation-related concerns contribute to the issue. Women who report such concerns are often ignored or their symptoms are not taken seriously (4, 11). Reducing this gender vulnerability requires increasing knowledge and awareness among future health professionals by implementing protocols and consensus in both Gynecology and Psychiatry (18). Therefore, it is crucial to discuss this topic extensively early in academic training to ensure equity for affected women and society as a whole (9).

This study has some limitations, such as including a sample of medical students from a single Brazilian city, which may limit the generalizability of the findings. Further studies with participants from various regions are needed for more robust conclusions. Additionally, the online questionnaire may lead to misinterpretation of questions. However, the self-administered and anonymous nature of the questionnaire can enhance the reliability of responses by reducing fear of judgment.

CONCLUSION

Our results indicate that PMDD remains a poorly understood and addressed condition in the training of general practitioners, even among those in advanced stages of their education and those who have completed courses that should theoretically cover the disorder. Furthermore, most students surveyed do not know how to differentiate between premenstrual disorders and lack confidence in managing patients with these complaints. This gap in medical training can negatively impact female patients, leading to delays in diagnosis and inadequate attention to their symptoms. To our knowledge, this is the first study examining PMDD knowledge among Brazilian medical students. Our findings could foster greater interest in understanding this disorder among medical professionals and highlight the need for improved coverage of the topic in academic curricula, particularly in Gynecology/Obstetrics and Psychiatry, to better prepare future physicians for the recognition and management of PMDD.

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Authors' contribution:

BRP, GQMM, LMSP, MAS, RPL, VCL, ECP, FAA contributed to the research and development of the questionnaire. BRP, GQMM, LMSP, MAS, RPL, VCL contributed to the dissemination of the questionnaire, interpretation of results, writing and formatting of the manuscript. FAA and ECP contributed to the elaboration of the discussion and revision of the final version of the manuscript. FAA and RPL contributed to the statistical analysis.

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