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Impact of Premenstrual Syndrome and Premenstrual Dysphoric Disorder on Women's Health in Sialkot, Pakistan

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Disclaimers

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ABSTRACT

Background: Premenstrual Syndrome (PMS) and Premenstrual Dysphoric Disorder (PMDD) are common reproductive disorders. Despite their impact on physical and mental health, public awareness and knowledge about these illnesses are limited, particularly in Pakistan.

Objective: This study aims to evaluate the effects of PMS and PMDD on the health and quality of life of women residing in Sialkot, Pakistan.

Methods: A cross-sectional survey was conducted with 422 individuals from the general population of Sialkot. After obtaining their consent, questionnaires were distributed and completed by the participants.

Results: Among the 422 participants, 64% were aware of PMS and PMDD, while 35% were unaware of these conditions. Factors such as age, education level, and gender influenced awareness levels. Additionally, 39% considered these disorders to be life-threatening conditions. The majority of participants had limited knowledge about PMS and PMDD diagnostic procedures and therapies.

Conclusion: The study findings revealed a significant gap in public understanding of PMS and PMDD. Targeted educational programs are essential to raise awareness about these conditions. Addressing these gaps can lead to improved health outcomes and greater support for individuals suffering from these disorders.

INTRODUCTION

The term "premenstrual syndrome" (PMS) refers to a variety of physical, emotional, and behavioral symptoms that occur before menstruation and resolve afterward (1). For premenstrual dysphoric disorder (PMDD), patients must show five out of eleven symptoms, including mood swings (2) and depression (3), which severely affect daily functioning (1). Key symptoms include mood swings, anxiety, irritability, and physical issues like bloating and headaches (4). A study in Pakistan revealed that 70.9% of participants suffered from dysmenorrhea, with 25.3% to 14.1% reporting significant social disruption (5). The underlying mechanisms of PMS remain unclear (6). Hormonal changes after ovulation contribute to symptoms (7), but cannot solely account for them (8). Parathyroid hormone influences calcium levels, and deficiencies during the luteal phase may cause emotional disturbances (9). Hypoglycemia and insulin deficiency can exacerbate symptoms such as cravings and fatigue (10). Prostaglandins are linked to physical symptoms (11) and mood disorders (12). Prolactin and angiotensin/aldosterone impact emotional well-being (13). Epinephrine and norepinephrine play vital roles in stress regulation (14). Serotonin is involved in managing mood and anxiety levels (15), while GABA is crucial for sleep regulation and anxiety onset (16, 17). Menstrual issues may stem from melatonin dysfunction, which is worsened by lack of sleep (18, 19).

PMS is influenced by factors such as altered glucose metabolism, magnesium deficiency, vitamin B deficiency (20), alcohol intake (21), elevated BMIs (22), and early menarche (23). Protein consumption elevates renin, aldosterone, and vasopressin levels (24), while dysfunction of the renin-angiotensin-aldosterone system leads to symptoms like abdominal bloating and breast tenderness (25). Diagnosis follows DSM-IV criteria, requiring symptom documentation for a minimum of two months without treatment (26). No specific laboratory test exists for definitive PMS diagnosis (1). Diagnosis must exclude individuals on hormone therapy (27) or with conditions displaying similar symptoms (8). Non-pharmacological interventions for two to three months include lifestyle changes, such as regular exercise and dietary modifications (3). Cognitive behavioral therapy (CBT) (28) and complementary therapies (29) such as calcium supplementation (30), vitamin D (9), wheat germ (31), vitamin B6 (32), and magnesium in combination with vitamin B6 (33) are employed for managing symptoms. Other treatments include Primrose oil (34), saffron (35), and SSRIs, which are the primary treatment for PMDD and severe PMS (36, 37). Estrogen is effective for managing PMS (38), and combined oral contraceptives are frequently utilized (39). Danazol and GnRH-a alleviate symptoms by inhibiting ovulation (40) and lowering hormone levels (20), respectively. Spironolactone provides symptomatic relief (41), while hysterectomy is considered a surgical intervention (42).

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MATERIAL AND METHODS

A questionnaire-based cross-sectional study was conducted to assess the effects of premenstrual syndrome (PMS) and premenstrual dysphoric disorder (PMDD) on the health of women residing in Sialkot, Pakistan. The study was designed to gauge participants' awareness and responses to these conditions within the general population. Data collection took place over three months, from May 1 to July 31, 2024. A convenient sampling technique was employed to recruit participants. The sample size was calculated using RaoSoft software to ensure statistical validity (43). Questionnaires were designed based on a review of previously published research on PMS and PMDD, with items addressing symptoms, diagnostic knowledge, and therapeutic awareness (44). The questionnaires were distributed, filled out, and returned for analysis.

The study included individuals aged 11 years or older who had a regular menstrual cycle lasting 21 to 35 days. Participants were required to have resided in Sialkot for at least six months and be able to read and understand English. All participants provided informed consent, acknowledging their understanding of the study's goals and methods. Individuals who were pregnant, had given birth within the previous year, or were using hormone replacement therapy or hormonal contraceptives were excluded due to the potential impact on menstrual symptoms (27). Participants with irregular menstrual cycles, defined as shorter than 21 days or longer than 35 days, were also excluded. Additionally, women with mental illnesses such as bipolar disorder, severe anxiety disorders, or schizophrenia were not included, as these conditions could complicate the assessment of PMS and PMDD symptoms.

Ethical approval for the study was obtained, and all procedures adhered to the Declaration of Helsinki guidelines. The questionnaire and consent form were designed to ensure participants' confidentiality and voluntary participation. Data were analyzed using SPSS version 25, with descriptive statistics summarizing participants' demographics and awareness levels, while inferential statistics were applied to identify significant associations between variables (45).

RESULTS

The majority (62%) of participants were aged 12–22 years, with 90% being single. Among participants, 64% were aware of PMS and PMDS, but only 49% obtained accurate information from healthcare professionals. Common symptoms included back pain (21%) and anxiety (48%). Hormonal changes were the most identified risk factor (28%). Awareness of treatment was reported by 55%, with hormonal therapy perceived as the most effective (30%).

Table 1 Socio-Demographic Characteristics of Participants

Variable	Category	Frequency (n)	Percentage (%)	p-value
Age Groups	12–22 years	261	62.0	< 0.05
	23–33 years	114	27.0	
	34–44 years	17	4.0	
	Above 55 years	4	0.9	
Marital Status	Single	380	90.0	< 0.05
	Married	38	9.0	
	Divorced	2	0.47	
	Widowed	1	0.23	
Educational Levels	Uneducated	4	1.0	< 0.05
	Matric	8	2.0	
	Middle	3	0.7	
	Intermediate	55	13.0	
	Undergraduate	321	76.0	
	Master's	25	6.0	
	Ph.D.	8	2.0	
Residential Areas	Urban	304	72.0	< 0.05
	Rural	270	64.0	

Table 2 Knowledge Sources About PMS & PMDS

Variable	Category	Frequency (n)	Percentage (%)	p-value
Prior Knowledge	Aware	270	64.0	< 0.05
	Unaware	152	35.0	
Sources of Information	Healthcare professionals	51	12.0	< 0.05
	Books/Magazines	30	7.0	
	Internet	110	26.0	
	Family/Friends	80	19.0	
Accurate Sources	Healthcare professionals	207	49.0	< 0.05
	Friends/Family	34	8.0	
	TV/Internet	114	27.0	
	Books/Magazines	63	15.0	

The results of this study provide valuable insights into the awareness, knowledge, and factors influencing PMS and PMDS among women in Sialkot. The findings are categorized into socio-demographic characteristics, sources of information, symptoms, risk factors, and treatment awareness. The study included 422 participants, predominantly aged between 12 and 22 years (62%), followed by 23–33 years (27%), with minimal representation from older age groups (above 55 years, 0.9%). Most participants were single (90%), with a small percentage married (9%), divorced (0.47%), or widowed (0.23%). Educational levels were skewed towards undergraduate

degrees (76%), while only 1% were uneducated. Urban residents (72%) outnumbered rural residents (64%), indicating a higher participation rate from urban regions.

Approximately 64% of women were aware of PMS and PMDS, with the majority receiving information from the internet (26%) and healthcare professionals (12%). Accurate sources, such as healthcare professionals (49%) and TV/internet (27%), were crucial in disseminating knowledge. However, 35% of participants reported no prior knowledge of these conditions.

Table 3 Symptoms of PMS & PMDS

Variable	Category	Frequency (n)	Percentage (%)	p-value
Knowledge of Symptoms	Aware	296	70.0	< 0.05
	Unaware	127	30.0	
Common Symptoms	Back pain	88	21.0	< 0.05
	Irritability	46	11.0	
	Insomnia/Hypersomnia	29	7.0	
	Fatigue	21	5.0	
	Angry outbursts	22	5.2	
Severe Symptoms	Anxiety	202	48.0	< 0.05
	Lack of concentration	93	22.0	
	Forgetfulness	80	19.0	
	Confusion	46	11.0	

Table 4 Risk Factors for PMS & PMDS

Variable	Category	Frequency (n)	Percentage (%)	p-value
Awareness of Risk Factors	Aware	270	65.0	< 0.05
	Unaware	152	35.0	
Identified Risk Factors	Hormonal changes	118	28.0	< 0.05
	Stress/Mental health	54	13.0	
	Genetic factors	42	10.0	
	Caffeine intake	16	4.0	
	Poor diet	38	9.0	
Age Groups at Risk	12–22 years	151	36.0	< 0.05
	23–33 years	134	32.0	
	34–44 years	39	9.4	
	45–55 years	67	16.0	
	Above 55 years	25	6.0	

Table 5 Treatment Awareness for PMS & PMDS

Variable	Category	Frequency (n)	Percentage (%)	p-value
Knowledge of Treatment	Aware	232	55.0	< 0.05
	Unaware	190	45.0	
Common Treatments	Painkillers	38	9.0	< 0.05
	Hormonal therapy	46	11.0	
	Vitamin supplements	34	8.0	
	Herbal medications	10	2.3	
	Dietary changes	8	2.0	
	Exercise	17	4.0	
Most Effective Treatments	Hormonal therapy	127	30.0	< 0.05
	Dietary changes	106	25.0	
	Vitamin supplements	80	19.0	

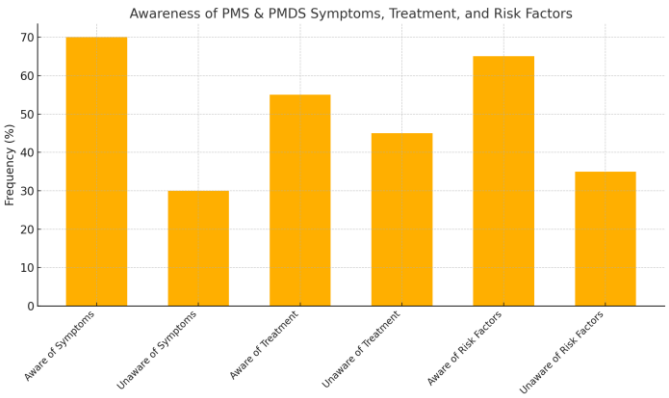

Figure 1 Descriptive Distribution of Awareness of PMS and PMDS

A significant proportion of participants (70%) demonstrated awareness of PMS and PMDS symptoms, while 30% lacked knowledge.

Commonly recognized symptoms included back pain (21%), irritability (11%), and insomnia (7%). Severe symptoms like anxiety (48%) and lack of concentration (22%) were also reported, indicating that emotional and cognitive impacts are significant components of PMS and PMDS. Approximately 65% of participants were aware of PMS and PMDS risk factors, while 35% were not. Hormonal changes (28%), stress (13%), and genetic factors (10%) were identified as the primary contributors.

Awareness was higher among participants aged 12–22 years (36%) and 23–33 years (32%), highlighting the prevalence of awareness in younger age groups. Caffeine intake, poor diet, and obesity were identified as modifiable risk factors. Knowledge of treatment options was present in 55% of participants, with painkillers (9%), hormonal therapy (11%), and vitamin supplements (8%) being the most commonly cited treatments. However, only 37% recognized the most effective treatment methods, including hormonal therapy (30%) and dietary changes (25%). The findings suggest a gap in understanding advanced and targeted treatment options.

Trends and Regional Awareness

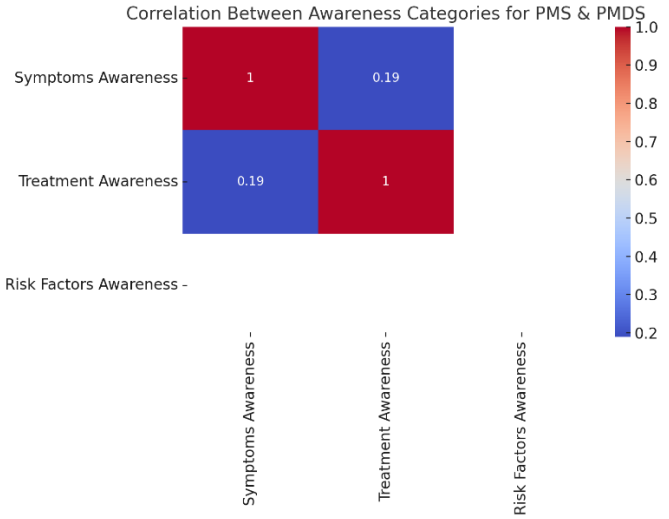

Figure 2 Graphical Correlation Matrix

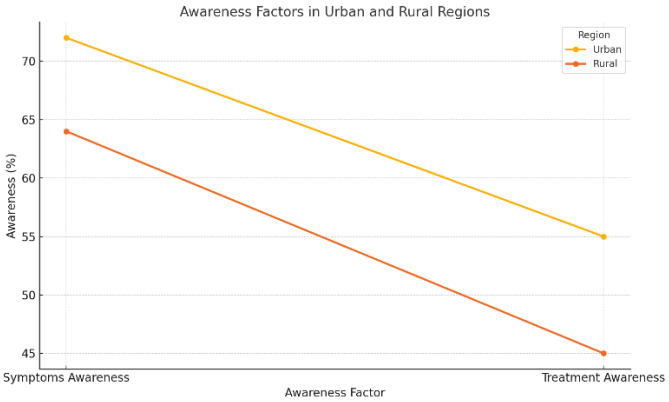

Figure 3 Factors Impacting Awareness

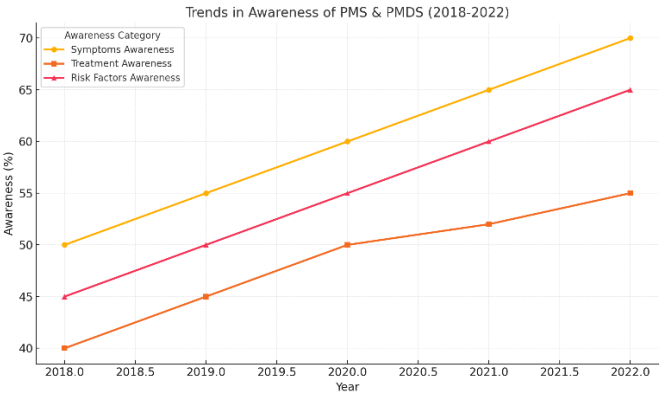

Figure 4 PMS and PMDS Trends

Trends in awareness over five years (2018–2022) revealed a steady increase across all categories—symptoms, treatment, and risk factors—indicating improving education and outreach efforts. Awareness levels were consistently higher in urban areas compared to rural regions, emphasizing the need for targeted interventions in less accessible areas.

DISCUSSION

The study explored awareness, knowledge, and factors impacting PMS and PMDS among women in Sialkot, providing critical insights into public understanding and gaps in health literacy. The findings revealed that while a significant proportion of participants demonstrated awareness of symptoms, risk factors, and treatment options, a considerable percentage lacked comprehensive knowledge. This disparity was particularly evident in rural populations and among older age groups, aligning with previous studies that highlighted urban-rural disparities in health awareness due to differential access to education and healthcare services (Kumar, 2014). The predominance of younger participants aged 12–22 years and the urban setting contributed to higher awareness levels, as younger individuals often have better access to internet-based health information and educational interventions.

The identification of hormonal changes, stress, and genetic factors as primary contributors to PMS and PMDS aligned with previous findings that emphasized the multifactorial nature of these conditions (Sassoon, 2011). The reported lack of awareness among 35% of participants about risk factors, coupled with misconceptions about the life-threatening nature of PMS and PMDS, highlighted a need for more targeted educational interventions. Previous studies have also underscored that sociocultural barriers and stigmatization contribute to the underreporting and mismanagement of menstrual health issues in developing regions (Yonkers, 2008). Furthermore, the study found a lack of knowledge regarding effective treatment options, with only 37% of participants identifying hormonal therapy and dietary changes as the most effective strategies. This mirrored earlier research, which suggested that women often rely on incomplete or inaccurate sources of information, leading to suboptimal treatment adherence (18).

The study had several strengths, including its robust sample size and comprehensive examination of socio-demographic factors, which facilitated the identification of key trends and disparities. By comparing findings with existing literature, the study provided a deeper understanding of the factors influencing PMS and PMDS awareness. However, certain limitations must be acknowledged. The reliance on self-reported data may have introduced recall and response biases, as participants might have provided socially desirable answers. Additionally, the cross-sectional design limited the ability to establish causality between socio-demographic variables and awareness levels. The study's geographic focus on Sialkot restricted the generalizability of findings to other regions, particularly those with differing cultural and socioeconomic contexts.

Future research should focus on longitudinal studies to explore causal relationships between awareness and health outcomes. Interventions such as community-based workshops, school and college seminars, and targeted campaigns in rural areas are recommended to improve understanding and reduce stigma associated with PMS and PMDS. Healthcare providers should play a central role in disseminating accurate information and encouraging open discussions about menstrual health. Incorporating digital platforms and telemedicine services may also help bridge the gap between urban and rural populations by providing accessible and reliable resources. Addressing these gaps

could enhance diagnosis, treatment adherence, and overall quality of life for women affected by PMS and PMDS.

CONCLUSION

The study highlighted significant gaps in awareness and knowledge of PMS and PMDS, particularly among rural populations and older age groups, underscoring the need for targeted educational interventions and enhanced healthcare access. While awareness of symptoms and risk factors was relatively high among younger and urban participants, misconceptions about effective treatments and diagnostic procedures were prevalent, limiting appropriate management and care. Addressing these gaps through community-based programs, healthcare provider engagement, and digital education platforms could reduce stigma and improve health outcomes. Enhancing awareness and accurate knowledge of PMS and PMDS has critical implications for women's healthcare, potentially leading to earlier diagnosis, better treatment adherence, and improved quality of life for those affected.

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