PREVALENCE OF PREMENSTRUAL SYNDROME (PMS) AND PREMENSTRUAL DYSPHORIC DISORDER (PMDD) AMONG YOUNG FEMALES

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Abstract

Background: Premenstrual dysphoric disorder (PMDD) is a severe form of premenstrual syndrome (PMS) characterised by mood changes, anxiety and somatic symptoms experienced during the specific time of the menstrual cycle. Prevalence data of PMS and PMDD is sparse among young girls in India. Aim: To identify the Prevalence of premenstrual syndrome (PMS) and premenstrual dysphoric disorder (PMDD) among young females. Objectives: To identify the Prevalence of premenstrual syndrome (PMS) and premenstrual dysphoric disorder (PMDD) among young females and also To find out the association between sociodemographic profile and the occurrence of PMS/PMDD Materials and

Methods: This cross sectional Study is conducted among 285 young females using simple random sampling method A cross sectional survey is conducted among young females , Which each individual will be approached and after getting informed consent , pre-menstrual syndrome symptoms screening test (PSST) tool along with socio demographic details Will be collected. The data received is documented and the scores will be analysed

Results: The prevalence of PMS is 45.5% (36.4% for moderate to severe PMS   and 9.1% for PMDD) among young females in our study. The symptoms commonly reported were depressed mood, anger/irritability and anxiety/tension. The common functional impairment was "your relationship with your family" PSST has 90.9% sensitivity, 57.01% specificity and 97.01% predictive value of negative test.

Conclusion: The prevalence of PMS among the young females is slightly higher than compare to other studies from Asia. PSST is a useful screening tool for PMS. Routine screening with PSST can identify young girls who can improve with treatment.

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1. INTRODUCTION:-

According to the World Health Organization, sadness, loss of confidence, low self-esteem, and less energy are more common among females.[1] In India, about one-fourth of the female population falls in the young females that is the age group of 15-29yrs.[1] In India, about one-fourth of the female This age is a transition phase of life associated with spurt of physical, mental, emotional, and social development.

Premenstrual syndrome (PMS) is a recurrent luteal-phase disorder characterized by a cluster of mild to severe physical or emotional symptoms that mainly begin during the luteal phase of the menstrual cycle. [1] In India, about one-fourth of the female The severe form of Premenstrual disorder is known as Premenstrual dysphoric disorder (PMDD), is characterized by more severe symptoms that are associated with psycho- logical dominance and intense mood swings, which may exacerbate and/or weaken the existing symptoms.

The formal medical description of premenstrual syndrome (PMS) and the more severe, related diagnosis of premenstrual dysphoric disorder (PMDD) goes back at least 70 years to a paper presented at the New York Academy of Medicine by Robert T. Frank titled "Hormonal Causes of Premenstrual Tension".The specific term premenstrual syndrome appears to date from an article published in 1953 by Dalton and Greene in the British Medical Journal. Since then, PMS has been a continuous presence in popular culture, occupying a place that is larger than the research attention accorded it as a medical diagnosis. Although many people thought premenstrual syndrome was an imagined disease. It has also been suggested that the public debate over PMS and PMDD was impacted by organizations who had a stake in the outcome including feminists, the American Psychiatric Association, physicians and scientists. Until the 1950s, there was little research done surrounding PMS and it was not seen as a social problem. [2] By the 1980s, however, viewing PMS in a social context had begun to take place.

Epidemiology of PMS, in which mild to moderate symptoms affect some facet of the person's life, occurs in about 20 to 30% of premenopausal women; the more severe symptoms of PMDD affect 3 to 8% of premenopausal women.Among females of reproductive age living in India, the prevalence of PMS is 43%; the prevalence among adolescents is even higher.[1] Women with PMS report significant impairment in personal relationships, compromised work levels and increased absence from work, school, or college.There are very few studies assessing PMDD in young females.

I considered that PMS and PMDD is relatively not a common area of psychiatry in India; hence, this study was planned. The objectives of the study are to find the prevalence of PMS and PMDD among young females, this study is associated with basic demographic factors and premenstrual symptom screening tool (PSST) which includes all premenstrual symptoms and a measure of impairment as per DSM-IV-TR criteria.[It also translates categorical DSM-IV-TR criteria into a dimensional rating scale to assess severity.

2. METHODOLOGY:-

The study was approved by the ethics committee of Saveetha medical College Thandalam. A cross-sectional study was done among young females across Tamil Nadu ,Karnataka and Andhra Pradesh from April to October , 2022.

This cross sectional Study is conducted among 300 young females using a simple random sampling method. In this study,

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sample size was calculated using the OpenEpi Version 2 epidemiology calculator. Premenstrual Screening Scale Tool(PSST) is used. It is the screening tool developed by Steiner et al., which reflects and "translates" categorical DSM-IV-TR criteria into a rating scale with degrees of severity. It includes 14 items assessing premenstrual symptoms of mood, anxiety, sleep, appetite, and physical symptoms.[4] It also includes functional impairment items of five different domains. Participants rated their experience of each symptom and functional impairment item on four-point Likert scale as "not at all," "mild," "moderate," or "severe" in the last 12 months duration during most of the cycles. "PMDD," "moderate to severe PMS," and "no/mild PMS" subjects were identified using PSST scoring criteria. [1] Sensitivity of PSST is 90.9%, specificity 57.01%, predictive value of positive PSST 28.98%, and predictive value of the negative PSST 97.01%

The case record form of the study had two sections. Section I included the demographic data and activity levels. Section II included PSST. A total of 300 individuals were approached in which 294 agreed and willing to give consent. Some 9 individuals were excluded from this study due to gynaecological illness such as anemia, diabetes, hypothyroidism, asthma, migraine, epilepsy, pelvic inflammatory disease, endometriosis, and amenorrhea were excluded. Remaining 285 individuals were provided with the google form containing the consent form along with socio demographic details and premenstrual syndrome symptoms screening test (PSST) tool. The google form is collected and the data received is documented and the score is analysed.

The data was analyzed with OpenEpi Version 2 open source calculator. Data was expressed as mean ± standard deviation for continuous variables and percentage for categorical variables. Prevalence of PMS and PMDD according to DSM-IV-TR research criteria was calculated. Prevalence of premenstrual tension syndrome according to the International Classification of Diseases, 10th edition (ICD-10) criteria was also calculated. Chi-square test was used for qualitative variables to find the significance of difference between proportion among respective groups: "No/mild PMS," "moderate to severe PMS," and "PMDD." Predictive values of positive test and negative test were calculated for PSST.

3. RESULTS:

Total 300 subjects were approached. In that 285 subjects were accepted and PSST was given to them ,while 6 people got rejected due to incomplete data and irregular periods and 9 people unwilling to participate in this study.

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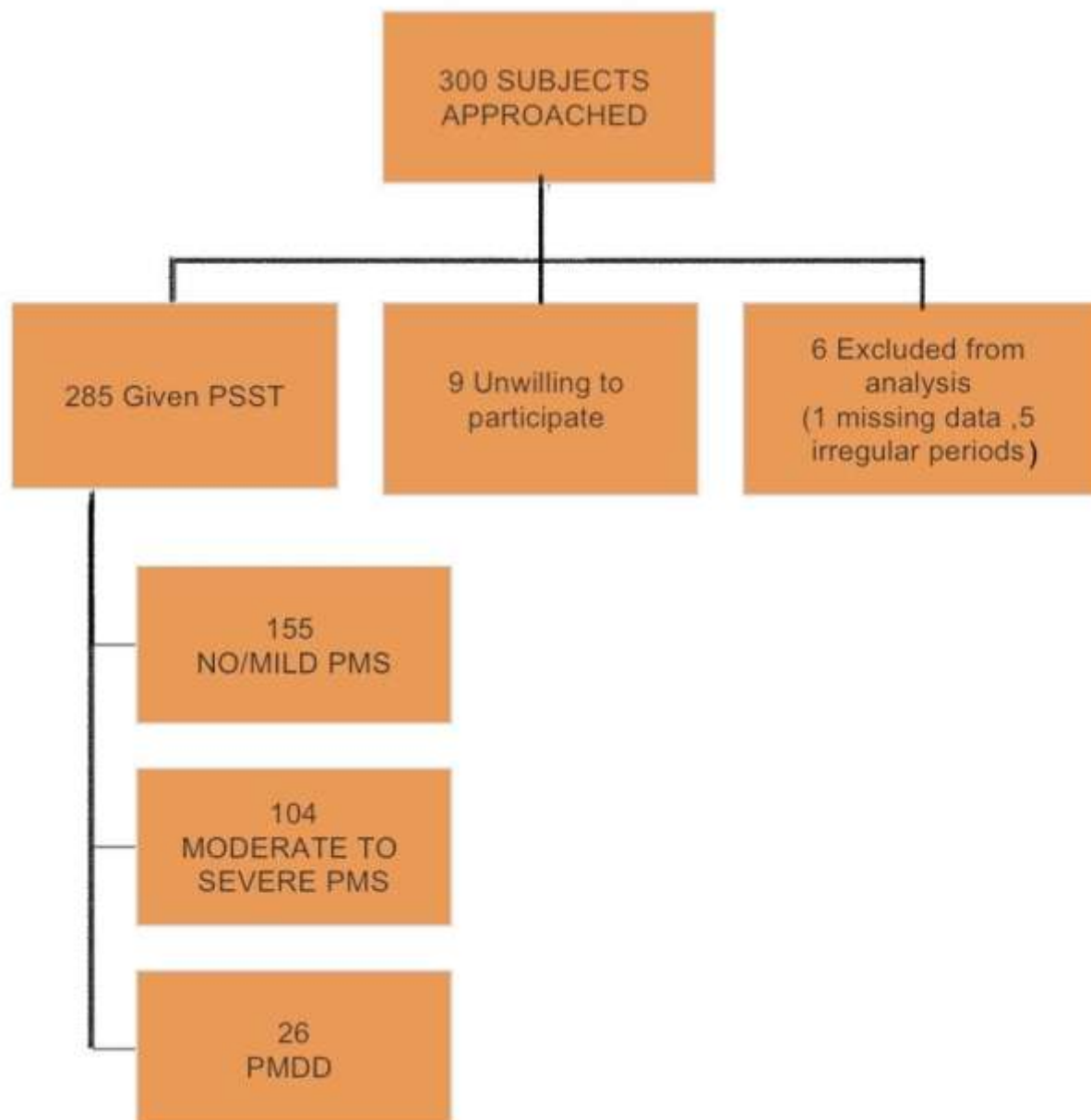
The mean age of all participants was 20.41± 2.5 years.

On screening by PSST, the prevalence of PMS is 45.5% (36.4% for moderate to severe PMS and 9.1% for PMDD) among young females in our study. 26 participants (9.12%) met the criteria for diagnosis for PMDD , 104 participants (36.4%) are identified as "moderate to severe PMS."

Remaining 155 participants (54.3%) experienced "no/mild PMS."

PMDD is associated with a relatively young age group as compared to no/mild PMS. There was some significant difference among three groups with respect to residence,occupation,family type and marital status. Young Doctors had higher rates of PMS and PMDD compared to BDS and MBBS students

	NO/MILD PMS (n=155)	MODERATE TO SEVERE PMS (n=104)	PMDD (n=26)	RAW TOTAL	P

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Mean age	20.48±2.567	20.31±2.6	20.46±1.655		0.863*
Residence					0.794
Urban	133(55.2)	85(35.3)	23(9.5)	241	
Rural	013(52.0)	11(44.0)	01(4.0)	25	
Semi-urban	009(47.4)	08(42.1)	02(10.5)	19	
occupation					0.406
MBBS	86(59.7)	47(32.6)	11(7.6)	144	
BDS	57(49.6)	45(39.1)	13(11.3)	115	
DOCTORS	6(46.2)	5(38.5)	2(15.4)	13	
OTHERS	6(46.2)	7(53.8)	—	13	
Family type					0.346
Joint	16(40.0)	20(50.0)	4(10.0)	40	
Nuclear	138(56.8)	83(34.2)	22(9.1)	243	
Extended	1(50)	1(50.0)	—	2	
Martial status					0.961
Married	5(50.0)	4(40.0)	1(10.0)	10	
Unmarried	150(54.5)	100(36.4)	25(9.1)	275	

The most commonly reported symptom was "Depressed mood" followed by "Anger/irritability" and "Anger/tension ". Almost half of the participants of "moderate to severe PMS" group and majority of PMDD group reported "Depressed mood" as moderate to severe. All participants of the PMDD group and majority of "moderate to severe PMS" group , and nearly one third of all participants reported "Anger/irritability."

It remained the second most common reported symptom.

Although Anger and irritability stand as second common symptoms" the prevalence is 94.7%. More than half of "no/mild PMS" group (78%), 45.1% of "moderate to severe PMS" group, and one third (26.9%) of "PMDD" group reported "anger/irritability ."

	NO/MILD PMS (n=155)	MODERATE TO SEVERE PMS (n=104)	PMDD (n=26)
1. **Anger/irritability**	121(78.0)	47(45.1)	07(26.9)
2. **Anxiety/tension**	132(85.1)	48(46.1)	05(19.2)
3. **Tearfulness**	140(90.3)	34(32.6)	09(34.6)
4. **Depressed mood**	144(92.9)	33(31.7)	19(73.0)
5. **Decrease interest in work**	135(87.0)	32(30.7)	07(26.9)
6. **Decrease interest in home**	134(86.4)	32(30.7)	06(23.0)
7. **Decrease interest in social activities**	138(89.0)	31(29.8)	06(23.0)
8. **Difficultyin concentrating**	137(88.3)	31(29.8)	05(19.2)

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9. Fatigue/lack of energy	114(73.5)	33(31.7)	08(30.7)
10. Overeating/food craving	125(80.6)	27(25.9)	09(34.6)
11. Insomnia	144(92.9)	14(13.4)	02(7.6)
12. Hypersomnia	142(91.6)	26(25.0)	03(30.7)
13. Feeling overwhelmed	140(90.3)	29(27.8)	05(19.2)
14. Physical symptoms	117(75.4)	34(32.6)	06(23.0)

Total 176 participants reported, at least, one area of impaired functioning. Most frequent functional impairment was "your relationship with your family." It was seen among 79.5% of the total respondents, half of "moderate to severe PMS," and 11 of 26 among "PMDD" group

	NO/MILD PMS (n=155)	**MODERATE TO SEVERE PMS (n=104)**	**PMDD (n=26)**
A. Your work efficiency or productivity	145	30	03
B. Your relationships with coworkers			
C. Your relationships with your family	145	34	06
D. Your social life activities			
E. Your home responsibilities	141	45	11
	144	37	04
	142	34	06

4. DISCUSSION:

The sample of this study is comparable with previous similar studies because mean age of all participants is 20.41± 2.5 years and the majority of them are urban resident and unmarried. The participants from previous studies were also from similar age group college students, had urban residence, and were unmarried.

According to PSST screening ,the prevalence of PMS is 45.5% (36.4% for moderate to severe PMS and 9.1% for PMDD) among young females in our study. The prevalence of severe PMS and PMDD in this study is not in agreement with the study by Steiner et al who reported 21.3% and 8.3%, respectively, and also differs from study by Raval et al reported the prevalence of PMS is 18.4% (14.7% for moderate to severe PMS and 3.7% for PMDD) among college students of bhavnagar.[6] Chayachinda et al.who reported 25.1% of PMDD among Thai nurses[7] The higher prevalence in our study can be explained by influence of socialization factors, actual experiences, and concomitant life stresses about menstruation in Indian context which affects both experiencing and reporting of the premenstrual symptoms. Banerjee et al. reported 6.4% prevalence of PMDD in Indian women. [8]

The study indicates that overall most commonly reported symptom is "Depressed mood" ,followed by "anger/irritability" it was the third most common symptom reported by Raval et al.[6] Anger/irritability has been reported as most common symptom by previous

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several studies. "Decreased energy" and "being irritable" were most common reported premenstrual symptoms in a community-based nonpatient sample of 321 black and 462 white women studied by Stout et al.[9]

A cross-sectional study done among Indian college students by Singh et al. reported that the most common symptom reported by subjects not having any impairment was "irritability" and those having impairment. There is repositioning of symptoms in diagnostic criteria of PMDD within the revised manual of DSM-5. The order of symptoms is shuffled in revised manual. Mood swings and irritability are now at the top of the list. "Markedly depressed mood" was at the top in the DSM-IV TR research criteria of PMDD. Hence, finding of this study is similar with this context of change in DSM-5.[10]

This study reports that the most frequent functional impairment item reported was "your relationship with your family"(79.5%). Steiner et al. found that nearly three-quarters of the PMDD and almost half of the severe PMS cases reported symptoms that interfered with their relationships with friends, family ,classmates, and/or coworkers, and/or school/work efficiency/productivity.[11]

This study found no statistically significant association between groups with regards to physical activities such as regular exercise and games. The evidence for an effect of exercise on PMDD symptoms is largely anecdotal. However, regular exercise can be advised as part of a healthy lifestyle regimen. Small trials have suggested aerobic exercise to be beneficial for PMS sufferers, and one trial found high-intensity aerobic exercise to be superior to low-intensity one for PMS treatment. Fewer premenstrual complaints have been found in women participating in sports than in nonathletic women. Exercise training has been associated with decreased breast, fluid, and stress complaints, but not necessarily with improvements in anxiety or depression. The association between exercise and premenstrual symptoms needs to be further investigated by exploring the type and intensity of physical exercise.[6]

PSST is a highly sensitive tool (sensitivity 90.9%). We can reasonably conclude that PSST is a very useful screening[1]. instrument in this population. Predictive value of the negative PSST is also high (97.01%), so the likelihood of in fact not having PMDD when found negative on PSST is very high. Hence, it can be easily excluded those who are not having PMDD.

The predictive value of positive PSST is relatively low, i.e., 28.98%. Hence, it should be followed by more specific tests such as daily record of severity of problems or structured clinical interview for confirmation of diagnosis and planning further interventions.[1]

Differentiation between "mild PMS" and "no PMS" was not possible because both were in the same group.

Findings of this study need to be confirmed by large-scale community cross-sectional survey including young girls for obtaining more precise prevalence rates among this age group. Comparison of PSST with gold standard prospective daily diaries of symptoms for diagnostic agreement can be done. PSST is a useful and easy to administer screening test for probable diagnosis of PMS and PMDD.

5. CONCLUSION:

PMS occurs at little higher in rate among young females in India than compared to other Asian countries. PMS is associated with menstrual cramps, positive family history, symptom onset since menarche, and relatively higher BMI. The most common symptoms are "Depreesed mood," "Anger/irritability " followed by

"anxiety/tension and decreased interest in work." PSST is a useful, sensitive screening tool among this population for provisional diagnosis of PMS and PMDD.

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