<u>Original Article</u>

Sociodemographic correlates of psychological symptoms of premenstrual syndrome

Jassal B[1], Kumar R[2], Bajaj JK[3]

[1]Dr Baljit Jassal
Assistant Professor
baljitjassal@gmail.com
[2]Dr Rakesh Kumar
Associate Professor
bagharakesh@gmail.com
Dr Jagminder Kaur Bajaj
Professor & Head
jagminderbajaj@gmail.com
[1,2,3]Department of Pharmacology
Punjab Institute of Medical Sciences
Jalandhar, Punjab, India

Correspondence to:
Dr Rakesh Kumar
bagharakesh@gmail.com

ABSTRACT

Background: *Premenstrual syndrome is a multifactorial psychoneurendocrine disorder. Etiology of PMS is still not demarcated & research continues in this area. Role of corelates age, parity, marital, educational & occupational status of PMS is being explored in various regions.*

Objective: *To study sociodemographic correlates of psychological symptoms of premenstrual syndrome in woman of reproductive age group.*

Material and Methods: *Prospective observational study was carried on 247 females in the reproductive age group. The participants were given the list of 18 preliminary symptoms and asked to encircle the symptoms they suffer during later part of the menstrual cycle in any of the last 3 cycles. In participants reporting ≥3 symptoms, the psychological symptoms were analysed and their association was observed with various sociodemographic parameters (age, location- rural/urban, marital status, parity, education, occupation).*

Results: *155(62.57%) reported 3 or more symptoms during later part of the menstrual cycle in the last 3 cycles. 149(96.1%) females reported at least one psychological symptom. These women showed following demographic correlates. 74.5% of females belonged to 18-26 years age group. 75.8% were unmarried. 81% had no child. 87.2% were from urban area. 71.1% were senior secondary. 96% females had mental work occupation.*

Conclusion: *On retrospective screening there was 62.57% prevalence but on prospective follow up with PMTS & daily diary prevalence was found to be only 4.05%. Most common psychological symptom reported was irritability & there was significant association of irritability with educational status, type of work & parity. Mood swings were significantly more in females doing mental work.*

Keywords: *Reproductive age group, mood swings, irritability, physical symptoms, fluid retention*

Introduction

Premenstrual syndrome is a multifactorial psychoneurendocrine disorder characterised by cyclical recurrence of a combination of various physical, psychological, behavioural, affective, cognitive, neurovegetative and autonomic symptoms, not caused by organic disease, which regularly recur during the luteal phase of menstrual cycle and regress during the proliferative phase. The term was first introduced by Frank [1] in 1931 for cyclic symptoms occurring before onset of menstruation. Symptoms of PMS are usually severe enough to interfere with normal activities, deteriorate interpersonal relationships, increase accident proneness and incidence of acts of violence. [2] Although 70-90% females admit of suffering from recurrent premenstrual symptoms but all of them are not suffering from PMS. Only about 20-40% report temporary physical or mental incapacitation in premenstrual phase.[3] Approximately 2/3rd of patients referred to premenstrual syndrome clinic by general practitioners are reported not to be suffering from PMS & this overdiagnosis may be attributed to exacerbation of symptoms of many functional psychiatric disorders during the premenstrual phase of cycle.[4] Schunar found that only 24% of women attending premenstrual syndrome clinic suffer from severe symptoms during two consecutive cycles. [5] Some studies have ruled out the possibility of any significant correlation of premenstrual syndrome with age [6,7] its incidence is reported to be more in women in their 20's & 30's, [8] with more parity, [9] & in housewives and women with less education than those who are employed and/ or better educated.[10] About 34% of variance in symptom severity is reported to be explained by 4 factors i.e. history of PMS in patients mother, low level of exercise, younger age and more children. [11] So even after about 80 years of 1st description of PMS nothing is clear about its presentation & various correlates. Etiology of PMS is still not demarcated & research continues in this area. Role of sociodemographic corelates age, parity,

marital, educational & occupational status of PMS is being explored in various regions. So, in the present study sociodemographic corelates of psychological symptoms of premenstrual syndrome in woman of reproductive age group in PIMS was studied. The aim of present study was to study the influence of various correlates i.e age, parity, marital, educational, occupational status on psychological symptoms in premenstrual syndrome.

Material and Methods

It was prospective observational study carried on 247 females in the reproductive age group of 18-45 years with regular, normal menstrual cycles ranging 21-35 days. Married participants using no/barrier contraceptive methods were included. Informed consent of participants was taken. The participants were given the list of 18 preliminary symptoms:- irritability, tension/ anxiety, aggression, restlessness, depression, mood swings, emotional lability (psychological symptoms), general swelling, swelling face /hands/ feet, abdominal bloating, weight gain, breast tenderness (fluid retention related), poor coordination, decreased concentration, headache/general aches (physical symptoms), lethargy, food craving, constipation/diarrhoea and asked to encircle the symptoms they suffer during later part of the menstrual cycle in any of

the last 3 cycles. In participants reporting ≥3 symptoms, the psychological symptoms were analysed and their association was observed with various sociodemographic parameters (age, location- rural/urban, marital status, parity, education, occupation). Statistical analysis was done using chi square test in SPSS software. These participants reporting ≥3symptoms in luteal phase were further asked to fill 36 questionaire premenstrual tension syndrome (PMTS) self rating scale [12] at around day 26 of cycle (approximately 1-2 days before onset of menstruation in luteal phase) & after onset of menstruation. Participants in whom score of PMTS scale reduced from ≥18 in luteal phase to ≤6 in postmenstrual phase were further verified for fulfilling inclusion criteria (18-45 years females with regular normal cycles ranging 21-35days, married participants using no/barrier contraceptive) & ruled out for exclusion criteria (concurrent medical/gynaecological/psychiatric illness, pregnancy/lactation, use of oral contraceptive pills, drug/alcohol abuse). Selected participants filled 22 symptom Samuel smith's menstrual symptomatology daily diary [13] for two cycle to record the severity of symptoms. Participants in whom the severity increased by 30% [14] were labeled as patients of premenstrual tension syndrome.

Results

Table 1: Frequency & distribution of sociodemographic correlates (n= 149)

Sociodemographic corelate		Frequency	Percentage
Age (years)	18-26	111	74.5%
	27-35	23	15.4%
	36-45	15	10.1%
location	Urban	130	87.2%
	rural	19	12.8%
Marital status	married	36	24.2%
	unmarried	113	75.8%
parity	No child	121	81.2%
	One child	13	8.7%
	2or >2 children	15	10.1%
Education	Post graduation	26	17.4%
	Graduation	14	9.4%
	Senior secondary	106	71.1%
	Matric or less	3	2%
occupation	Mental	143	96%
	Physical	6	4%

Table 2a: Association of Psychological symptoms with sociodemographic correlates

		Irritability N (%)		Tension/anxiety		aggression		restlessness	
		yes	no	yes	no	yes	no	yes	no
AGE	18-26	79(71.2)	32(28.8)	52(46.8)	49(53.2)	34(30.6)	77(69.4)	44(39.6)	67(60.4)
	27-35	15(65.2)	8(34.8)	10(43.5)	13(56.5)	9(39.1)	14(16.9)	9(39.1)	14(60.9)
	36-45	8(53.3)	7(46.7)	6(40)	9(60)	2(13.3)	13(86.7)	5(33.3)	10(66.7)
		P=0.354 X^2=2.079		P=0.860 X^2=0.301		P=0.234 X^2=2.904		P=0.895 X^2=0.222	
Location	Rural	1(57.9)	8(42.1)	11(57.9)	8(42.1)	9(47.4)	10(52.6)	7(36.8)	12(63.2)
	urban	91(70)	39(30)	57(43.8)	73(56.2)	36(27.7)	94(72.3)	51(39.2)	79(60.8)
		P=0.289 X^2=1.125		P=0.251 X^2=1.319		P=0.081 X^2=3.045		P=0.842 X^2=0.040	
Education	Matric	0(0)	3(100)	0(0)	3(100)	2(66.7)	1(33.3)	1(33.3)	2(66.7)
	Senior sec	77(72.6)	29(27.4)	52(49.1)	54(50.9)	32(30.2)	74(69.8)	47(44.3)	59(55.7)
	Graduate	8(57.1)	6(42.9)	4(28.6)	10(71.4)	5(35.7)	9(64.3)	1(7.1)	13(92.9)
	PG	17(65.4)	9(34.6)	12(46.2)	14(53.8)	6(23.1)	20(76.9)	9(34.6)	17(65.4)
		P=0.04 X^2=8.31 4, phi=0.236		P=0.198 X^2=4.66		P=0.437 X^2=2.720		P=0.058 X^2=7.498	
Occupation	Physical	1(16.7)	5(83.3)	2(33.3)	4(66.7)	3(50)	3(50)	2(33.3)	4(66.7)
	Mental	101(70.6)	42(29.4)	66(46.2)	77(53.8)	42(29.4)	101(70.6)	56(39.2)	87(60.8)
		P=0.005 X^2=7.765, phi 0.228		P=0.842 X^2=0.040		P=0.532 X^2=0.390		P=0.774 X^2=0.082	
Marital status	Married	20(55.6)	16(44.4)	14(38.9)	22(61.1)	10(27.8)	26(72.2)	12(33.3)	24(66.7)
	unmarried	82(72.6)	31(74.4)	54(47.8)	59(52.2)	35(31)	78(69)	46(40.7)	67(59.3)
		P=0.056 X^2=3.65		P=0.351 X^2=0.87		P=0.716 X^2=0.132		P=0.429 X^2=0.625	
parity	0	87(71.9)	34(28.1)	56(46.3)	65(53.7)	36(30.6)	84(69.4)	49(40.5)	72(59.5)
	1	9(69)	4(30.8)	6(46.2)	7(53.8)	5(38.5)	8(61.5)	5(38.5)	8(61.5)
	≥2	6(40)	9(60)	6(40)	9(60)	3(20)	12(80)	4(26.7)	11(73.3)
		P=0.043 X^2=6.293 phi =0.206		P=0.899 X^2=0.214		P=0.557 X^2=1.169		P=0.584 X^2=1.075	

A total of 247 participants were screened for 18 preliminary symptoms. 155(62.57%) reported 3 or more symptoms during later part of the menstrual cycle in the last 3 cycles. 149(96.1%) females reported at least one psychological symptom, 103(66.45%) had one or other physical symptom & 93(60%) had one of fluid retention related symptoms. Most commonly reported psychological symptom was irritability (68.4%), followed by mood swings (67.1%), tension/anxiety(45.6%), restlessness(38.2%), aggression(30.2%), depression(25.5%), and emotional lability(15.4%) in that order. These women with psychological symptoms showed following demographic correlates. 74.5% of females belonged to 18-26 years age group. 75.8% were unmarried. 81% had no child. 87.2% were from urban area. 71.1% were senior secondary. 96% females had mental work occupation (Table 1).

In present study there is significant relation of irritability with educational standard of participant, type of work & parity. Senior secondary females suffer more from irritability than others (chi value 8.314, df 3, p 0.04). Irritability is more in females doing mental work

(chi value 7.765, p0.005) & with no child (chi 6.293, p 0.043). Mood swings are significantly related to females doing mental work (chi 4.816.p 0.028) (Table 2). 155 participants reporting 3 or more preliminary symptoms were further asked to fill 36 item PMTS self rating scale around day 26 of cycle & at onset of menstruation. Only 29 (18.7 %) participants showed reduction in score from ≥18 premenstrually to ≤6 postmenstrually. These 29 participants maintained 22 item Samuel smith's diary for 2months. Only 10 participants showed difference of ≥30% in symptom severity in luteal & proliferative phase & were labeled as suffering from PMS. So prevalence of PMS

reported retrospectively was 62.57% but after prospective follow up of patients for 2months, prevalence was found to be 4.05% (n=10). The most frequent symptom in finally diagnosed patients was irritability. All had mental work occupation, 90% were urban residents,60% of these patients belonged to 18-26 years age group, were educated upto senior secondary, were unmarried & had no child. 80% had irritability, 70% had aggression, restlessness, 60% had mood swings & tension/anxiety, 2% had depression. 70% had one or other fluid retention symptoms & 60% had one of the physical symptoms.

Table 2b: Association of Psychological symptoms with sociodemographic correlates

		depression		Mood swings		Emotional liability	
		yes	no	yes	no	yes	no
Age	18-26 27-35 36-45	28(25.2) 7(30.4) 3(20)	83(74.8) 16(69.6) 12(80)	76(68.5) 15(65.2) 8(53.3)	35(31.5) 8(34.8) 7(46.7)	17(15.3) 4(17.4) 2(13.3)	94(84.7) 19(82.6) 13(86.7)
		P=0.764 X^2 =0.538		P=0.503 X^2 =1.376		P=0.942 X^2 =0.119	
location	Rural Urban	6(31.6) 32(24.6)	13(68.4) 98(75.4)	12(63.2) 87(66.9)	7(36.8) 43(33.1)	3(15.8) 20(15.4)	16(84.2) 110(84.6)
		P=0.515 X^2 =0.423		P=0.745 X^2 =0.105		P=0.964 X^2 =0.002	
education	Matric Senior sec Graduation PG	1(33.3) 26(24.5) 4(28.6) 7(26.9)	2(66.7) 80(75.5) 10(71.4) 19(73.1)	1(33.3) 73(68.9) 8(57.1) 17(65.4)	2(66.7) 33(31.1) 6(42.9) 9(34.6)	0(0) 15(14.2) 2(14.3) 6(23.1)	3(100) 91(85.8) 12(85.7) 20(76.9)
		P=0.970 X^2 =0.247		P=0.510 X^2 =2.311		P=0.602 X^2 =1.859	
occupation	Physical Mental	4(66.7) 34(23.8)	2(33.3) 109(76.2)	1(16.7) 98(68.5)	5(83.3) 45(31.5)	1(16.7) 22(15.4)	5(83.3) 121(84.6)
		P=0.060 X^2 =3.547		P=0.028 X^2 =4.816, phi 0.216		P=0.932 X^2 =0.007	
Marital status	Married unmarried	10(27.8) 28(24.8)	26(72.2) 85(75.2)	21(58.3) 78(69)	15(41.7) 35(31)	7(19.4) 16(14.2)	29(80.6) 97(85.8)
		P=0.719 X^2 =0.129		P=0.237 X^2 =1.40		P=0445 X^2 =0.584	
Parity	0 1 ≥2	30(24.8) 2(15.4) 6(40)	91(75.2) 11(84.6) 9(60)	83(68.6) 7(53.8) 9(60)	38(31.4) 6(46.2) 6(40)	17(14) 4(30.8) 2(13.3)	104(86) 9(69.2) 13(86.7)
		P=0.302 X^2 =2.392		P=0.483 X^2 =1.456		P=0.277 X^2 =2.570	

Discussion

In present study prevalence was found to be 4.05%. Deuster[15] reported prevalence of 7.4% in

white & 10% in black women. Raval[16] reported moderate to severe PMS in 14.7% females

whereas some studies report quite high prevalence of upto 51%[17] & 75%. [18] This difference in prevalence can be explained by difference in criteria used for diagnosis of PMS. In present study, stringent criteria including 18 symptom screening retrospectively followed by 36 item PMTS & 22 item daily diary filled prospectively were used to document decrease in symptom severity from premenstrual phase to postmenstrual phase.

In present study, 149 females reported at least one psychological symptom, irritability being most common reported symptom. This study is in concordance with Kumari [19] who reported irritability 44% & restlessness 15.3%. However Nisar[20] reported anger 83.83%, anxiety/tension 81.81%, mood swings 58.58%, depression 52.52%. In contrast Joseph [18] reported highest frequency of backache (73%) followed by tiredness(65%), irritability (60%), tension(29%), mood swings (22%) & Pal[21] reported predominance of physical symptom muscular pain (35.34%) & the frequency of psychological symptom to be 16.13% anxiety, 15.05% irritability, 11.94% restlessness, 11.21% anger, 8.06% depression & 6.74% tension. In present study, 74.5% females belonged to age of 18-26years. The psychological symptoms are reported in all age groups but they are not statistically significant (Table 2). This is similar to studies done by Deuster,[15] Amjad,[17] Ozturk [22] & freeman[25]. In contrast, Kumari [19] reported that irritability is significantly more in age between 36-45 years & Singh [23] reported higher percent of depression, agitation in 35-45 age group. However Nisar[20] reported no significant relation with age. In present study 87.2% belonged to urban area. All the psychological symptoms are reported from both urban & rural localities but they are not statistically significant (Table 2). Similarly Amjad[17] too reported that females living in urban area suffer more PMS symptoms than those in rural locality. In present study, 71.1% were educated upto senior secondary. Irritability is significantly associated with educational status (chi=8.314, p=0.04), (strength of association phi=0.236, p=0.04) (Table 2). Many studies have reported association of PMS symptoms with educational status. Kumari

[19] reported more PMS symptoms in females who are 10th pass. Amjad[17] & Asmare[24] also reported higher prevalence of PMS among educated females. Ozturk[22] also reported PMS in high school educated strata. However Pal[21] & freeman [25] observed that there is no association of PMS with education. In present study 96% females had mental work occupation. Irritability & mood swings are statistically more observed in females doing mental work (Table 2) {(chi value 7.765, p0.005);(chi 4.816.p 0.028)} (Table 2). This is first study to categorize occupation on type of work as mental or Physical. Ozturk [22] & Deuster[15] reported more prevalence in unemployed. Kumari [19] reported significantly more PMS symptoms in nursing staff than ward attendants & students. Singh[23] reported depression, aggression, agitation more in housewives, students, service women than in doctors & nurses. However, Asmare[24] & Pal[21] reported that there is no relation between PMS & occupation.

In present study, 75.8% were unmarried. Frequency of psychological symptoms is as shown in table 1. All these symptoms are reported more in unmarried but statistical significance is not observed (Table 2). In concordance to present study, Amjad[17] also reported more PMS in unmarried. But Kumari[19] reported poor efficiency & fatigability in married females. However Deuster, [15] Pal, [21] Asmare,[24] Rasheed [26] observed no association of marital status & PMS symptoms.

In present study, 81% had no child. Irritability is reported more in females with no child than those having one or more children (chi= 6.293, p=0.043) (Table 2). Singh [23] reported behavioral symptoms are more in females having more than two children & females with no child have less tendency for depression. In contrast, freeman [25] reported PMS symptoms are more in females with more children. However, Pal [21] reported no association of PMS symptoms with parity.

In present study, most common psychological symptom reported is irritability & there is significant relation of irritability with educational status, type of work & parity. Senior secondary females, those involved in mental

work & with no child suffer more from irritability. Mood swings are more in females with mental work. On retrospective screening there was 62.57% prevalence but on prospective follow up with PMTS & daily diary prevalence was found to be only 4.05%.

References

1. Frank RT. The hormonal causes of premenstrual tension. Archives of neurology & psychiatry 1931;26:1053.
2. Zaafrane F, Fateh R, Melki W, Sakoahi M, Gaha L. An overview of premenstrual syndrome. European Journal of obstetrics, gynecology & reproductive biology 36(7);642-62.
3. Reid RL, Yen SSC. Premenstrual syndrome. Am J Obstet Gyneco 1981;139:85-8.
4. Callender K, Christipher S Thomas. Corlates of PMS. Am J Psychiatry 1988;11:145-8.
5. Schunar PP. Some correlates of prospectively defined premenstrual symptoms. Am J Psychiatry 1988;145:491-4.
6. Coppen A, Kessel N. Menstruation & personality. Br J psychiatry 1963;109:711-4.
7. Glass GS, Heninger GR, Lansky M, Talan K. psychiatric emergency related to the menstrual cycle. Am J psychiatry 1971;128:705-8.
8. Alison S, Crowder AM. Premenstrual syndrome. Medicine update 1993; 631.
9. Dalton K. The premenstrual syndrome & progesterone therapy. London: William Heine Mann Medical Books; 1984.
10. Freidman DE, Jaffe A. influence of lifestyle on the premenstrual syndrome. J Reprod Med 1985;30:715-8.
11. Ellen WF, Steven J, Sondheimer KR. Effects of medical history factors on symptoms in women meeting criteria for premenstrual symptoms. Obstet Gynecol 1988;72:236-9.
12. Steiner M, Haskett RF, Carroll BJ. Premenstrual tension syndrome: the development of research diagnostic criteria & new rating scale. Acta Psychiatr Scand 1980;62:177-91.
13. Smith S, Rinehart JS, Ruddock VE, Schiff I. Treatment of premenstrual syndrome with alprazolam: results of a double blind, placebo controlled, randomized crossover clinical trial. Obstet Gynecol 1987;70:37-42.
14. National Institute of Mental Health. NIMH. Premenstrual syndrome workshop Guidelines 1983. Rockville, Md.
15. Deuster PA. Biological, Social & behavioral factors associated with premenstrual syndrome. Arch Fam Med 1999;8:122-8.
16. Raval CM, Panchal BN, Tiwari DS, Vala AU, Bhatt RB. Prevalence of premenstrual syndrome and premenstrual dysphoric disorder among college students of Bhavnagar, Gujarat. Indian Journal of psychiatry 2016;58(2):164-70.
17. Amjad A Kumar R, Mazher SB. Sociodemographic factors & premenstrual syndrome among women attending a teaching hospital in Islamabad, Pakistan. Journal of Pioneering Medical Sciences 2014;4(4):159-62.
18. Joseph T, Nandini M, Sabira KA. Prevalence of premenstrual syndrome among adolescent girls. Journal of nursing & Health Science 2016;5(1):24-7.
19. Kumari S, Sachdeva A. Patterns & predictors of premenstrual symptoms among females working in a psychiatric hospital. Scientifica 2016; ID 6943852.
20. Nisar N, Zehra N, Haider G, Munir AA, Sohoo NA. Frequency, intensity & impact of premenstrual syndrome in medical students. Journal of college of Physicians & surgeons Pakistan 2008;18(8):481-4.
21. Pal SA, Dennerstein L, Lehert P. Premenstrual symptoms in Pakistani women & their effect on activities of daily life. J Pak Med Assoc 2011;61(8):763-8.
22. Ozturk S, Tanriverdi D, Erci B. Premenstrual syndrome & management behaviours in Turkey. Australian Journal of advanced nursing 2007;28(3):54-60.
23. Singh H, Walia R, Gorea RK, Maheshwari A. Premenstrual syndrome (PMS) The malady & the law. JIAFM 2004;26(4):129-31.
24. Asmare D, Nekatibeb G, Merhatibeb Z, Gizachew M. Prevalence of premenstrual syndrome & associated factors among Debrebirhan Town, North Showa, Amhara

Region, Ethiopa. American Journal of Psychiatry & Neuroscience 2015;3(1):8-14.

25. Freeman EW, Sondheimer SJ, Rickels K. Effects of Medical history factors on symptom severity in women meeting criteria for premenstrual syndrome. Obstetrics & Gynecology 1988;72(2): 236-9.

26. Rasheed P, AL-Sowielem LS. Prevalence & predictors of premenstrual syndrome among college aged women in Saudi Arabia. Annals of Saudi Medicine 2003;23(6):381-92.