

# Knowledge, Attitude and Practice among Women Toward Premenstrual Syndrome Attending Ministry of Health Primary Health Care Centers in Taif City, Saudi Arabia

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## ABSTRACT

**Background:** Research on premenstrual syndrome (PMS) is generally lacking in the Gulf countries, a region with unique cultural features that might influence expectations and self-perception of the disease. Little, if any, is known about the knowledge and attitude among women in Taif toward PMS. The shortage of such data in the general female Saudi population, too, emphasizes this concept, and hence the need to research on it.

**Objectives:** To study knowledge and attitude of woman attending PHCCs, MOH toward PMS as well as to identify factors affecting them.

**Subjects and Methods:** A cross sectional study was conducted consists of Saudi female aged 13-50 years attending PHCCs, MOH in Taif. Taif city has 17 PHCCs affiliated to MOH, among which 8 centers were selected, using random number generator software program. The participants were selected using "systematic random sampling" technique. The spacing unit between sample fractions was 4, thus, every 4th patient was selected. An Arabic self-administered questionnaire was used. It consisted of four sections. The first section is on the socio-demographic and reproductive characteristic of the participants. The second section covered the medical and reproductive history. The third section addressed PMS diagnostic criteria, as developed by the University of California at San Diego (UCSD) and the National Institute of Mental Health which. The fourth section of the questionnaire involved their knowledge about PMS.

**Results:** The study included 249 females. Their age ranged between 13 and 50 years (mean 30.6±9.6 years). Almost one-third of the participants (33.7%) reported family history of PMS. The prevalence rate of PMS among them was 61.4%. Only 14.1% of women recognized correctly that PMS is a

gynecological disease while 32.5% recognized that it necessitates medical consultation. When women asked if they were PMS patients, what they will do, 30.9% of them answered that they will use medical treatment, 22.1% will consult physician and 13.6% will use traditional therapy. Almost one-quarter of them (23.3%) responded that they will do nothing. Most of participated women (76.7%) responded that they will benefit others.

**Conclusion:** PMS is a common problem in Taif, Saudi Arabia. The number of women who will seek medical advice or treatment for premenstrual syndrome if they were PMS patients is not very promising since the disorders of the menstrual cycle, and its associated complications are taboo in Taif society.

**Keywords:** Premenstrual Syndrome, Knowledge, Attitude, Practice, Primary Care.

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## INTRODUCTION

Premenstrual syndrome (PMS) is a recurrent luteal phase condition characterized by physical, psychological, and behavioral changes of sufficient severity to result in deterioration of interpersonal relationships and normal activity. Premenstrual dysphoric disorder (PMDD) is considered a severe form of PMS.<sup>1,2</sup> Premenstrual syndromes are common, affecting up to 75 percent of women with regular menstrual cycles. Clinically significant PMS occurs in 20 to 30 percent of women, while PMDD affects a much

smaller subset of this group.<sup>3,4</sup> Including women who have some form of premenstrual mood or physical symptoms, the prevalence of PMS had been estimated at 80 percent.<sup>5</sup> The problem with these estimates is that they do not consider whether symptoms are moderate to severe or if they interfere with functioning. When one applies strict inclusion criteria for PMDD, estimates are between 2 and 6 percent, as illustrated by three community studies that used prospective ratings to determine the diagnosis.<sup>6-8</sup>

The most commonly used set of diagnostic criteria are the American Psychiatric Association DSM-IV criteria for PMDD<sup>9</sup>, and the University of California, San Diego (UCSD) criteria for PMS.<sup>10</sup> At least one symptom associated with “economic or social dysfunction” that occurs during the five days before the onset of menses should be present in at least three consecutive menstrual cycles. Symptoms may be affective (e.g., angry outbursts, depression) or physical (e.g., breast pain and bloating). Premenstrual syndrome affects women with ovulatory cycles. Older adolescents tend to have more severe symptoms than younger adolescents. Women in their fourth decade of life tend to be affected most severely. PMS completely resolves at menopause.<sup>11</sup>

In the United State, symptoms of PMS have been reported to affect as many as 90% of women of reproductive age sometime during their lives. Nearly 20% of women experience PMS; approximately 10% are affected severely.<sup>4</sup>

Accordingly, while menstruation represents the girl’s entrance to her expected social role as a mature woman the previously mentioned cultural perspectives may have an evident role. From the time of menarche, her family may impose stricter rules on her regarding social behavior. While menstruation may involve positive changes in the social role of the Arab girl, it may also lead to a conflict in attitudes regarding menstruation that may be expressed by negativity and the development of menstrual disorders.<sup>12</sup>

Studying the association between PMS frequency and possible risk factors for the disease among Saudis, Rasheed and Al-Sowielem<sup>13</sup> found that at least one premenstrual symptom was experienced by 448 women (96.6%), and 176 (37.5%) had a high symptom severity score.

Another Saudi work aiming to estimate the prevalence, severity, determinants of PMS and its impact among female medical students in Al-Ahsa district<sup>14</sup> found that PMS was diagnosed in 35.6% of cases: 45% mild, 32.6% moderate and 22.4% severe. There were significant tendencies that older age, rural residence, family income and family history of PMS, older student age, earlier age of menarche, regular cycles and positive family history were possible risk factors for PMS.

Research on PMS is generally lacking in the Gulf countries, a region with unique cultural features that might influence expectations and self-perception of the disease.

The Saudi community is undergoing a rapid and economic change. It has a young population structure, with 60% of Saudis fewer than 30 years of age, and 47% under 15. However little is still known about the extent and severity of premenstrual syndromes among Saudi young women. Also, a minority of women with menstrual problems had sought health care and menstruation was revealed to be a highly personal and secretive topic in this population.<sup>15-17</sup>

This study aimed to assess awareness among Saudi woman attending Ministry of Health (MOH), primary health care centers (PHCCs) in Taif city toward premenstrual syndrome.

## SUBJECTS AND METHODS

This cross-sectional study was conducted at PHCCs, MOH in Taif city. Taif city Saudi population based on 2010 census, counts up to 798912. The women population of which is 404760, the total

number of PHCCs, MOH in Taif district is 112 and 17 of which lie in Taif city.

The study population consists of Saudi female aged 13-50 years attending PHCCs, MOH in Taif. Selecting this age group was based on previous data<sup>18</sup> that Saudi females start their menarche at 13 years of age, on average. In parallel, menopause among Saudi women has been estimated at around 49 years on average.<sup>19</sup>

Using EPI info version 7, the study sample size was determined and accordingly, a sample size (n) would be 195. In order to account for non-response and achieve more generalizable results, sample size was increased up to 250.

Taif city has 17 PHCCs affiliated to MOH, among which 8 centers were selected, using random number generator software program.<sup>20</sup> The participants to see each day were selected using “systematic random sampling” technique. The sample populations were distributed over the selected centers, equally.

Self-administered Arabic questionnaire was given to all participants. Questionnaires were distributed by trained female interviewer from Taif. Those who have trouble reading or writing the questionnaire were filled by the interviewer. It consisted of four sections. The first section is on the socio-demographic and reproductive characteristic of the participants (e.g., age and education level). The second section covered the medical and reproductive history (e.g., menstrual history and past medical history). The third section addressed PMS diagnostic criteria, as developed by the University of California at San Diego (UCSD) and the National Institute of Mental Health which. Such criteria are further recommended by the American academy of obstetrics and gynecology. These criteria included the following six behavioral and four somatic symptoms: depression, angry outbursts, irritability, anxiety, confusion, social withdrawal, breast tenderness, abdominal bloating, headache, and swelling of extremities. To diagnose PMS, a woman should have at least one affective and somatic symptom before the menses in each of three previous cycles.<sup>10</sup> Data of women who have PMS based on the criteria and its severity answering were collected. The fourth section of the questionnaire involved their knowledge about PMS (e.g., disease information, such as cause and risk) and attitude (e.g., perception and treatment modalities).

The investigator distributed the questionnaire to three consultants of different specialties (family medicine, community medicine, and obstetric gynecology) who have enough experience and interest in the subject and some amendments were done, accordingly.

Necessary approval by the Research Ethics Committee of the Armed Forces Hospitals in Taif, was obtained prior to the study. Written consents were obtained both from MOH Taif region branch and primary health care centers administration. The aim of the study was explained to them. Feedback about the results will be sent to these organizations. Additionally, consent was obtained from each participant to voluntarily participate in the study.

Descriptive statistics, e.g., number, proportions, mean, range and standard deviation were displayed, as appropriate. Chi-square ( $\chi^2$  test) of independence would be used, as necessary. The Statistical Package for Social Sciences (SPSS) software for MS-version-20 was used for the analysis. All tests were conducted at level of significance  $\alpha=0.05$ ; results with p-values<0.05 were considered “statistically significant.”

Table 1: Demographic characteristics of participants (n=249).

Demographic characteristics		Frequency	Percent	
Age in years	13-20	44	17.7	
	21-30	92	36.9	
	31-40	68	27.3	
	>40	45	18.1	
	Range		13-50	
Mean±SD		30.6±9.6		
Residence	Urban	200	80.3	
	Rural	49	19.7	
Marital status	Single	102	41.0	
	Married	108	43.4	
	Divorced	26	10.4	
	Widowed	13	5.2	
	None	35	23.8	
Number of children (n=147)	1-4	77	52.4	
	>4	35	23.8	
	None	35	23.8	
Educational level	Illiterate/Elementary	15	6.0	
	Intermediate	28	11.2	
	Secondary	89	35.8	
	University and above	117	47.0	
Occupation	Student	72	28.9	
	House wife	80	32.1	
	Teacher	28	11.2	
	Health care worker	32	13.0	
	Seller	19	7.6	
	Other	18	7.2	
	<5000	15	6.0	
	5000-10000	85	34.1	
Income (SR/month)	>10000-15000	61	24.5	
	>150000	43	17.3	
	Do not know	45	18.1	
	Father's educational level	Illiterate	24	9.6
		Elementary	30	12.0
Intermediate		36	14.5	
Secondary		74	29.7	
University		71	28.5	
Post-graduate		14	5.6	
Father's work		Trader	59	23.7
	Teacher	54	21.7	
	Health care worker	17	6.8	
	Not working	18	7.2	
	Other	101	40.6	
Mother's educational level	Illiterate	32	12.9	
	Elementary	82	32.9	
	Intermediate	50	20.1	
	Secondary	54	21.7	
	University/above	31	12.4	
Mother's work	House wife	214	86.0	
	Teacher	19	7.6	
	Health care worker	5	2.0	
	Other	11	4.4	
Husband's educational level (n=109)	Illiterate/Elementary	5	4.6	
	Intermediate	10	9.2	
	Secondary	31	28.4	
	University/above	63	57.8	
Husband's work (n=108)	Trader	25	23.1	
	Teacher	26	24.1	
	Health care worker	21	19.4	
	Not working	2	1.9	
	Other	34	31.5	

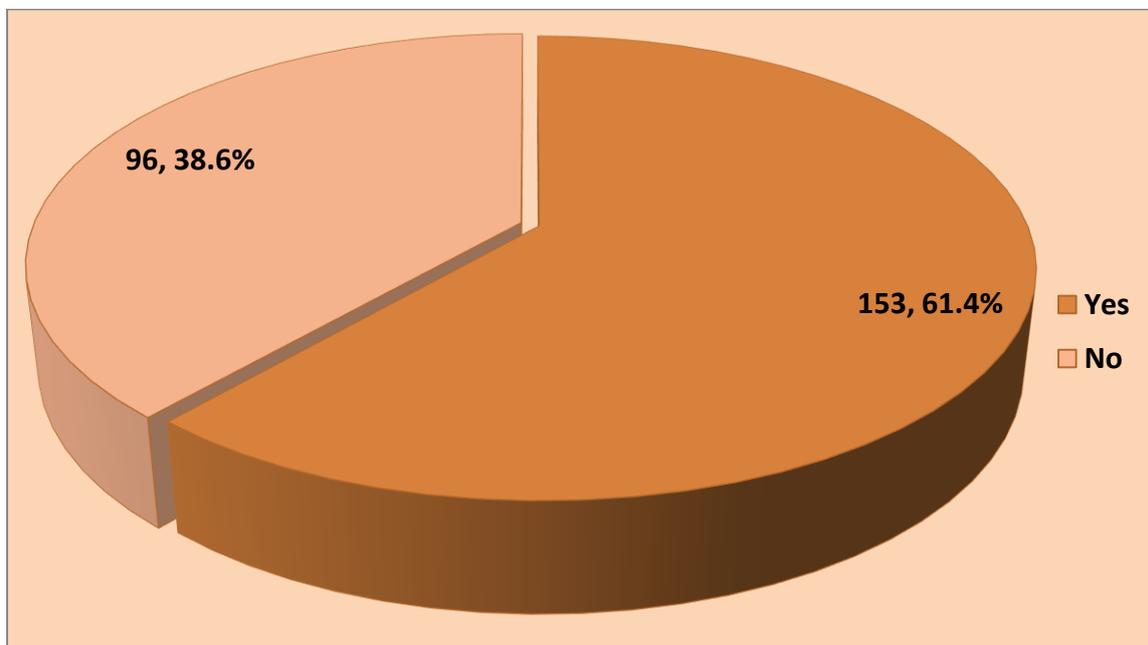
**Table 2: Menstrual history of participants. (n=249)**

Menstrual characteristics		PMS			$\chi^2$ (P-value)
		No N (%)	Yes N (%)	Total N (%)	
Age of menarche (years)	<12	20 (20.8)	26 (17.0)	46 (18.5)	1.64 (0.441)
	12	38 (39.6)	54 (35.3)	92 (36.9)	
	>12	38 (39.6)	73 (47.7)	111 (44.6)	
Regularity	Regular	57 (59.4)	88 (57.5)	145 (58.2)	0.8 (0.438)
	Irregular	39 (40.6)	65 (42.5)	104 (41.8)	
Duration (days)	<3	16 (16.7)	20 (13.1)	36 (14.5)	0.99 (0.607)
	3-7	68 (70.8)	117 (76.5)	185 (74.3)	
	>7	12 (12.5)	16 (10.5)	28 (11.2)	
Amount	Less than average	22 (22.9)	33 (21.6)	55 (22.1)	2.45 (0.294)
	Average	67 (69.8)	99 (64.7)	166 (66.7)	
	More than average	7 (7.3)	21 (13.7)	28 (11.2)	

**RESULTS**

The study included 249 females out of 250 invited to participate in the study, giving a response rate of 99.6%. Their age ranged between 13 and 50 years (mean 30.6±9.6 years). Most of them were from urban areas (80.3%). One-hundred and eight women (43.4%) were married while 102 (41%) were singles. Among more than half of them (52.4%), number of children ranged between one and four. Slightly less than half of them (47%) were university graduated. Almost one-third of them (32.1%) were house wives, 28.9% were students and 13% were health care workers. In almost one third of them (34.1%), the monthly income ranged between 5000 and 10000 SR/month and in 17.3%, it was more than 15000 SR/month. Among 34.1% and 12.4% of participants, fathers and mothers, respectively were at least university graduated. Fathers of almost one-quarter of participants (23.7%) were traders. The majority of mothers (86%) were house wives. Among those married, husband’s education was university or above in 57.8% of them and husband’s job as health care worker was observed in 19.4% of them. (Table 1) Almost one-third (34.5%) of women participated in the study were overweight and 15.7% were obese while 4.8% were underweight. Regarding physical activity, slightly more than one-third of them

(36.9%) practiced physical activities. Of them, 14.1% practiced such activities on daily basis and 63% practiced physical activities once or twice weekly. Only 11 women (4.4%) reported history of smoking. Almost two-thirds (64.7%) had menstrual pain. Depression/anxiety, DM and anemia were reported among 22.5%, 17.3% and 14.9% of participants, respectively. Almost one-third (31.7%) reported intake of medical treatment while slightly more than one-third of them (36.1%) reported surgical history. Only 16.1% of women reported trying of traditional medicine. Regarding current history of contraception, 38.8% of women reported current contraception history, oral contraceptives and Intrauterine devices were reported by 18.5% of women for each type separately. Among women who ever-married, 31.7%, reported previous history of oral contraceptive use. Of them, 45.7% used oral contraceptives for more than two years. Table 2 shows that the age of menarche was 12 years among more than one-third of women (36.9%) and over 12 years among 44.6% of them. The menstrual cycles were regular among 58.2% of them and their duration ranged between 3 and 7 days among most of them (74.3%). Exactly two-thirds of women (66.7%) reported cycles of average amount. Almost one-third of the participants (33.7%) reported family history of PMS.



**Figure 1: Prevalence of pre-menstrual syndrome among women attended PHCCs, Taif, KSA.**

Figure 1 shows that the prevalence rate of PMS among women attended PHCCs, Taif was 61.4%.

Only 14.1% of women recognized correctly that PMS is a gynecological disease while 32.5% recognized that it necessitates medical consultation. When women asked if they were PMS patients, what they will do, 30.9% of them answered that they will use medical treatment, 22.1% will consult physician and 13.6% will use traditional therapy. Almost one-quarter of them (23.3%) responded that they will do nothing. Most of participated women (76.7%) responded that they will benefit others.

Regarding demographic factors associated with PMS knowledge, 19 women in the age group 21-30 years (20.7%) compared to only two (4.5% in the age group 13-20 years recognized that PMS is a gynecological disease,  $p < 0.05$ . Twenty-two women (18.8%) who are university graduated compared to none of those primary educated recognized that PMS is a gynecological disease,  $p < 0.05$ . Women whose mothers are university graduated (22.6%) opposed to 3.1% of those whose mothers are illiterate recognized that PMS is a gynecological disease,  $p = 0.018$ .

Forty percent of women whose mothers are health care workers compared to 12.1% of those whose mothers are house wives recognized this fact,  $p < 0.05$ . Women whose husbands are at least

university graduated showed higher rate of right answers regarding the nature of PMS those whose husbands are illiterate (22.2% versus none,  $p < 0.05$ ).

In addition, 17 women who have more than 4 children (48.6%) compared to only nine women who have no children (25.7%), recognized that PMS is an organic disease necessitates medical consultation, ( $p < 0.05$ ) and 18 (41.9%) who have income more than 15000 SR/month compared to one who have income less than 5000 SR/month recognized that that PMS is an organic disease necessitates medical consultation,  $p < 0.05$ . More than one-third of women (38.7%) whose mothers are university graduated and less than half (48.1%) of women whose mothers are secondary school graduated opposed to 31.3% of those whose mothers are illiterate recognized that PMS is an organic disease necessitates medical consultation,  $p < 0.05$ . as well as it is a gynecological disease,  $p = 0.018$ . Eighty percent of women whose mothers are health care workers compared to 31.8% of those whose mothers are house wives recognized this fact,  $p < 0.05$ . Women whose husbands are health care worker showed higher rate of right answers regarding necessitating of PMS to medical consultation than those whose husbands are traders (57.1% versus 24%,  $p < 0.05$ ). (Table 3)

**Table 3: Significant demographic factors associated with PMS knowledge. (n=249)**

Demographic characteristics		Knowledge that PMS is a gynecological disease		$\chi^2$ (p-value)
		Wrong N (%)	Right N (%)	
Age (years)	13-20	42 (95.5)	2 (4.5)	<b>8.41 (0.038)</b>
	21-30	73 (79.3)	19 (20.7)	
	31-40	58 (85.3)	10 (14.7)	
	>40	41 (91.1)	4 (8.9)	
Educational level	Primary	15 (100)	0 (0)	<b>8.09 (0.044)</b>
	Intermediate	26 (92.9)	2 (7.1)	
	Secondary	78 (87.6)	11 (12.4)	
	University	95 (81.2)	22 (18.8)	
Mother's educational level	Illiterate	31 (96.9)	1 (3.1)	<b>5.64 (0.018)</b>
	Elementary	71 (86.6)	11 (13.4)	
	Intermediate	45 (90.0)	5 (10.0)	
	Secondary	43 (79.6)	11 (20.4)	
Mother's work	University/above	24 (77.4)	7 (22.6)	<b>8.48 (0.037)</b>
	House wife	188 (87.9)	26 (12.1)	
	Teacher	13 (68.4)	6 (31.6)	
	Health care worker	3 (60.0)	2 (40.0)	
Husband's educational level (n=109)	Other	10 (90.9)	1 (9.1)	<b>7.92 (0.048)</b>
	Illiterate/Elementary	5 (100)	0 (0)	
	Intermediate	10 (100)	0 (0)	
	Secondary	28 (90.3)	3 (9.7)	
Number of children (n=147)	University/above	49 (77.8)	14 (22.2)	<b>3.89 (0.049)</b>
	<b>PMS is an organic disease necessitates medical consultation</b>			
	None	26 (74.3)	9 (25.7)	
	1-4	48 (62.3)	29 (37.7)	
Income (SR/month)	>4	18 (51.4)	17 (48.6)	<b>4.54 (0.033)</b>
	<5000	14 (93.3)	1 (6.7)	
	5000-10000	60 (70.6)	25 (29.4)	
	>10000-15000	41 (67.2)	20 (32.8)	
	>15000	25 (58.1)	18 (41.9)	
	Do not know	28 (62.2)	17 (37.8)	

**Table 4: Significant demographic factors associated with women` attitude and practice towards PMS. (n=249)**

Demographic characteristics	If you are a PMS patient, what you will do?					$\chi^2$ (p-value)	
	1	2	3	4	5		
	N (%)	N (%)	N (%)	N (%)	N (%)		
Age (years)	13-20	9 (20.5)	2 (4.5)	14 (31.8)	9 (20.5)	10 (22.7)	<b>29.72 (0.003)</b>
	21-30	11 (12)	11 (12)	28 (30.4)	18 (19.6)	24 (26.1)	
	31-40	4 (5.9)	4 (5.9)	28 (41.2)	18 (26.5)	14 (20.6)	
	>40	4 (8.9)	14 (31.1)	7 (15.6)	10 (22.2)	10 (22.2)	
Residence	Urban	22 (11)	20 (10)	61 (30.5)	44 (22)	53 (26.5)	<b>9.74 (0.045)</b>
	Rural	6 (12.2)	11 (22.4)	16 (32.7)	11 (22.4)	5 (10.2)	
Marital status	Single	13 (12)	15 (13.9)	29 (26.9)	27 (25)	24 (22.2)	<b>29.86 (0.003)</b>
	Married	10 (9.8)	7 (6.9)	38 (37.3)	20 (19.6)	27 (26.5)	
	Divorced	5 (19.2)	2 (7.7)	8 (30.8)	5 (19.2)	6 (23.1)	
	Widowed	0 (0)	7 (53.8)	2 (15.4)	3 (23.1)	1 (7.7)	
Income (SR/month)	<5000	2 (13.3)	4 (26.7)	6 (40)	1 (6.7)	2 (13.3)	<b>26.58 (0.046)</b>
	5000-10000	8 (9.4)	7 (8.2)	32 (37.6)	17 (20)	21 (24.7)	
	>10000-15000	3 (4.9)	6 (9.8)	23 (37.7)	16 (26.2)	13 (21.3)	
	>150000	7 (16.3)	4 (9.3)	6 (14)	12 (27.9)	14 (32.6)	
	Do not know	8 (17.8)	10 (22.2)	10 (22.2)	9 (20)	8 (17.8)	
		<b>Do you will benefit others?</b>					
		<b>Yes</b>		<b>NO</b>			
Age (years)	13-20	34 (77.3)		10 (22.7)	<b>20.95 (&lt;0.001)</b>		
	21-30	77 (83.7)		15 (16.3)			
	31-40	57 (83.8)		11 (16.2)			
	>40	23 (51.1)		22 (48.9)			
Residence	Urban	162 (81)		38 (19)	<b>10.48 (0.002)</b>		
	Rural	29 (59.2)		20 (40.8)			
Educational level	Primary	7 (46.7)		8 (53.3)	<b>10.63 (0.014)</b>		
	Intermediate	20 (71.4)		8 (28.6)			
	Secondary	67 (75.3)		22 (24.7)			
	University	97 (82.9)		20 (17.1)			
Number of children (n=147)	None	23 (65.7)		12 (34.3)	<b>6.86 (0.032)</b>		
	1-4	64 (83.1)		13 (16.9)			
	>4	22 (62.9)		13 (37.1)			
Occupation	Student	56 (77.8)		16 (22.2)	<b>16.16 (0.006)</b>		
	House wife	52 (65)		28 (35)			
	Teacher	23 (82.1)		5 (17.9)			
	Health care worker	31 (96.9)		1 (3.1)			
	Seller	13 (68.4)		6 (31.9)			
	Other	16 (88.9)		2 (11.1)			
Income (SR/month)	<5000	12 (80)		3 (20)	<b>11.44 (0.022)</b>		
	5000-10000	55 (64.7)		30 (35.3)			
	>10000-15000	50 (82)		11 (18)			
	>150000	38 (88.4)		5 (11.6)			
	Do not know	36 (80)		9 (20)			
Husband`s work (n=108)	Trader	15 (60)		10 (40)	<b>10.13 (0.038)</b>		
	Teacher	21 (80.8)		5 (19.2)			
	Health care worker	20 (95.2)		1 (4.8)			
	Not working	2 (100)		0 (0)			
	Other	27 (79.4)		7 (20.6)			

1: Consult somebody; 2: Use traditional therapy; 3-Use medical treatment directly from a pharmacy ;  
4: Consult physician; 5: Do nothing

**Table 5: Association between history of PMS and attitude and practice towards it (n=249)**

PMS history	If you are a PMS patient" what you will do?					$\chi^2$ (p-value)
	1	2	3	4	5	
	N (%)	N (%)	N (%)	N (%)	N (%)	
No	17 (17.7)	6 (6.3)	20 (20.8)	20 (20.8)	33 (34.4)	<b>24.12 (&lt;0.001)</b>
Yes	11 (7.2)	25 (16.3)	57 (37.3)	35 (22.9)	25 (16.3)	
		<b>Do you will benefit others</b>				
		<b>Yes</b>		<b>No</b>		
No	76 (79.2)		20 (20.8)		<b>0.53 (0.285)</b>	
Yes	115 (75.2)		38 (24.8)			

1: Consult somebody; 2: Use traditional therapy; 3: Use medical treatment directly from a pharmacy;  
4: Consult physician; 5: Do nothing

Regarding demographic factors associated with women's attitude and practice towards PMS, When women were asked what they will do, if they were PMS patients, 31.8% of younger women (13-20 years) answered that they will use medical treatment while 31.1% of older women (>40 years) answered that they will use traditional therapy,  $p=0.003$ . Regarding women's residence, 10% of those living in urban areas compared to 22.4% of those living in rural areas reported that they will use traditional therapy. On the other hand, 26.5% and 10.2% of women living in urban and rural areas, respectively responded that they will do nothing,  $p<0.05$ . Concerning marital status, 26.5% and 7.7% of married and widowed women, respectively will do nothing if they were PMS patients. More than half (53.8%) of widowed women compared to 6.9% married women reported that they will use traditional therapy,  $p=0.003$ . Regarding women's income, almost one-third (32.6%) of high income women (>15000 SR/month) opposed to 13.3% of low income women (<5000 SR/month) reported that they will do nothing, if they are PMS patients. On the other hand, 26.7% and 9.3% of low and high income women, respectively responded that they will use traditional therapy,  $p<0.05$ . Regarding willing of women to benefit others, slightly less than half of women (48.9%) aged more than 40 years reported that they will not benefit others. More than 83% of women in the age group 21-40 years reported that they will benefit others. This difference was statistically significant,  $p<0.001$ . Most of women (81%) living in urban areas opposed to 59.2% of those living in rural areas will benefit others,  $p=0.002$ . Most of university graduated women (82.9%) compared to 46.7% of primary educated women responded that will benefit others,  $p=0.014$ . Most of women who have 1-4 children (83.1%) compared to 62.9% of those having more than four children responded that will benefit others,  $p<0.05$ . The majority of health care workers (96.9%) compared to 65% of house wives answered that they will benefit others,  $p=0.006$ . Most of women whose income more than 15000 SR/month (88.4%) compared to 64.7% of those having 5000-1000 SR/month answered that they will benefit others,  $p=0.022$ . Among married women, 95.2% of women whose husbands are health care workers opposed to 60% of those whose husbands are traders responded that they will benefit others,  $p<0.05$ . (Table 4)

As illustrated in table 5, almost one-third (34.4%) of women who have no history of PMS compared to 16.3% of those who have history of PMS reported that they will do nothing if they were PMS patients. More than one third (37.3%) of women who have history of PMS opposed to 20.8% of those who have no history of PMS responded that they will use medical treatment directly from a pharmacy, if they were PMS patients.

## DISCUSSION

This study sheds new light on the phenomenology of premenstrual tension syndrome by estimating the prevalence and identifying the risk factors of the syndrome in a sample of women in Taif, Saudi Arabia using a structured questionnaire. Prevalence of PMS in the present study (61.4%) was higher than reported by Balaha, et al in Al-Ahsa, Saudi Arabia (35.6%),<sup>14</sup> Serfaty et al in France<sup>21</sup> (35%), Guvenc et al in Turkey (36.4%)<sup>22</sup> and Dean et al<sup>23</sup> in Germany who reported prevalence of 19-30%. Stierer et al,<sup>24</sup> reported higher prevalence of PMS 85%. In Egypt, El-Defrawi et al,<sup>25</sup>

reported prevalence of 69.6% while Rasheed and Al-Sowielem<sup>26</sup> in Saudi Arabia, reported a prevalence of 96.6%.

A cross cultural investigation conducted in 14 different cultural groups in 10 countries found a lower prevalence rate (23-34%) in nonwestern cultures, while a higher prevalence rate (71-73%) was reported in the western countries.<sup>27</sup> The justification for such difference depends on varied definitions; methods of data collection, sampling technique and the type of study population.

Although not significant, the present study revealed that single women were more aware of PMS than married women. The same finding has been reported by Kothiyal and Aswal who observed that 28.8% of married women were aware of premenstrual syndrome as compared to 40.8% of unmarried women. However, this difference was significant in their study.<sup>28</sup>

Another noticeable observation was that, medical intervention was more than 50% in the study population either through using medical treatment directly from the pharmacy (30%) or consulting a physician (22%) indicating that few of these women seek physician consultation for this disorder. The highest percentage of using medical therapy directly from the pharmacy or consulting a physician was observed in the 31 to 40 years age category. However, Younger age (25-30 years) has been reported by Kothiyal and Aswal.<sup>28</sup>

The women who participated in this study with a low level of education reported less knowledge regarding premenstrual syndrome than women with professional degrees. The same has been reported in other studies.<sup>29,30</sup> This finding may be understood in social terms: in Saudi Arabia, it is not common for people with a low educational level to talk about menstruation and much less to know about the existence of PMS. It is interesting to note that in Mexico, Marván and Escobedo<sup>29</sup> studied women with a low level of schooling and confirmed that after women knew about the existence of PMS and its negative consequences in daily life through watching videotape, they reported more negative premenstrual symptoms and high level of PMS knowledge. This may be explained by the likelihood that after watching the videotape, the women acquired both a vocabulary to use and sufficient knowledge of what symptoms to expect. This agrees with the findings of another study that assessed the prevalence and severity of premenstrual symptoms in American adolescents. Women were asked if they had heard of PMS before participating in the study. Results showed that prior knowledge of PMS was associated with the presence of premenstrual changes.<sup>31</sup> However, in the present study, there was no significant association between history of PMS and knowledge regarding it whereas they tended to consult medical advice than those without history of PMS.

The results of this study reveal that most of women attending PHCCs in taif perceived PMS as a natural phenomenon. Some researchers have also reported that younger women have positive feelings about menarche.<sup>32,33</sup> On the other hand, negative beliefs about menstruation were reported in different studies.<sup>34-36</sup>

In principle, it seems difficult to understand the rarity of seeking medical care for a disease with physical load, psychological and social load comparable to that of some severe psychiatric disorders.<sup>37</sup> In the current study, 77.9% of women were responded that if they were PMS patients they will never consult a physician because they believe that the presence of symptoms was normal

and inherent in the female condition. The possible reasons that may justify this behavior probably include the women's own perceptions and the physician's response to the problem.

The Saudi reality does not differ substantially to that of other countries; for

example, in a survey of 220 women in USA, who reported being given a diagnosis of PMS by a physician, said that their doctors failed to recognize, diagnose, or treat their PMS.<sup>38</sup> These data seems to suggest a lack of interest and knowledge of the importance of PMS by health care providers. In Spain, 88.9% of women who met

diagnostic criteria for PMS never visited a physician.<sup>39</sup>

Although this study discussing an issue that holds some embarrassment and background beliefs that can lead to avoiding participation in the research, yet the response rate was very high and this could be attributed to the recent increase in empowerment and positive gender attitude of young women in Saudi Arabia as a result of rapid development and modernization of the society thus increasing the readiness to participate in such kinds of studies. In addition to the role played by the researcher in explaining the importance of the study to participants, clarify to them the exact questionnaire aim and contents, in order to remove their worries and assure confidentiality. Such action enhanced their responses to the questionnaire's encompassed questions.

The limitations of this study must also be recognized. First, our study included a selective sample comprising of women attended the PHCCs, MOH from one city in Saudi Arabia which will limit the generalizability of the findings. Second, because of the cross-sectional design of the study, we are unable to determine longitudinal relations between any of the studied predictors and outcome and whether they were coexisting or preexisting. Third, women were not screened for other possible medical diagnoses when they reported PMS symptoms. Finally, we depend on the retrospective analysis using questionnaires as it was inherently difficult or even impossible to use the prospective approaches.

In conclusion; PMS is a common problem in Taif, Saudi Arabia. Higher educated health care worker women were found to be more aware of premenstrual syndrome than their counter parts. The number of women who will seek medical advice or treatment for premenstrual syndrome if they were PMS patients is not very promising since the disorders of the menstrual cycle, and its associated complications are taboo in Taif society.

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