EFFECT OF BODY MASS INDEX ON PREMENSTRUAL SYNDROME SYMPTOMATOLOGY

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ABSTRACT

BACKGROUND: Premenstrual syndrome refers distressing somatic and psychological symptoms, in the absence of organic or underlying psychiatric diseases, which regularly occurs in the luteal phase of menstrual (ovarian) cycle and which disappears or significantly regresses by the end of menstruation.

OBJECTIVE: To find out the frequency of psychological, social and physical symptoms in relation to body mass index, in patients with premenstrual syndrome.

MATERIAL & METHODS: It was a cross sectional, prospective, observational study conducted from May 2010 to April 2011, in Out Patient Department of Obstetrics and Gynecology, Post Graduate Medical Institute, Lady Reading Hospital, Peshawar. By purposive non-probability sampling technique, 150 subjects were selected among attendants of regular patients, after fulfilling inclusion criterion of reproductive age women, in age group of 15-40 years. Body Mass Index (kg/m^2) was recorded and categorized, as low (<18.5), normal (18.5 and <25), over weight (25 and <30) and obese (>30). Premenstrual symptoms were recorded through Quantification of severity of psychological, social and physical symptoms, for two consecutive symptomatic cycles. SPSS 16.0 was used to analyze the data. Mean $\pm$ SD, frequency and percentages were used for numerical and categorical variables, respectively. Chi-Square test was used to compare the proportion of premenstrual syndrome at different BMIs. P value ≤ 0.05 was taken as significant between pairs of variables.

RESULTS: A total of 150 female patients were included in the study. Mean age was 26 ± 6.2 years (15-45). About 61% ($n=91$) were unmarried, 38% ($n=57$) were married, and one case each of widow and divorced. Mean body mass index was $24.5\pm 3.6 \text{ kg/m}^2$. About 10% ($n=15$) subjects had low BMI, 52% ($n=79$) had normal BMI, while 30% ($n=45$) were overweight and 7% ($n=11$) were obese. Psychological symptoms were present in 45% ($n=68$) of patients, followed by 42% ($n=64$) and 59% ($n=89$), of patients having social and physical symptoms, respectively. There was a general trend of more psychological symptoms in overweight and obese group, with no statistically significant difference. Those patients with low to normal BMI has less chances of having social symptoms. Physical symptoms were more frequently observed in obese group, with no statistically significant difference.

CONCLUSION: There was no statistically significant difference in the frequency of symptomatology of premenstrual syndrome among the studied categories of Body Mass Index.

KEY WORDS: Premenstrual syndrome, Body Mass Index

INTRODUCTION

Premenstrual syndrome (PMS) refers distressing somatic and psychological symptoms, in the absence of organic or underlying psychiatric diseases, which regularly occurs in the luteal phase of menstrual (ovarian) cycle and which disappears or significantly regresses by the end of menstruation¹. These symptoms should be severe enough to have a negative effect on life².

The symptoms may include headache, breast tenderness, pelvic pain, premenstrual tension, irritability, dysphoria and mood lability³.

PMS is a common cyclic disorder of reproductive age women. Some 75% of women experience recurrent PMS symptoms⁴; about 20-40% are distressed mentally or physically to some extent and 5% experience severe symptoms⁵.

Despite being a well known condition, it lacks a universally accepted diagnostic criterion. Suggested treatment options include life style changes for mild symptoms and supplementation with medication in case of moderate to severe symptoms^{2,6-9}. This may include from simple dietary supplementation of minerals⁷ to hormones^{8,9} and antidepressants like selective serotonin reuptake inhibitors such as Fluoxetine, which offer most effective symptomatic relief.¹⁰⁻¹²

There is no scientific clear documented data in my local and regional population regarding any relation between BMI and PMS. In my study I will observe the relationship between BMI and PMS to draw a conclusion regarding recommended BMI.

MATERIALS AND METHODS

This was a cross sectional, comparative study conducted from May 2010 to April 2011, in Emergency and Out Patient sections of Obstetrics and Gynecology department of Post Graduate Medical Institute, Lady Reading Hospital, Peshawar. By purposive non-probability sampling technique, 150 sample size was selected among attendants of regular patients, after fulfilling inclusion criterion of employed and unemployed women, in age group of 15-40years, having regular menstrual cycles, without history of major depression, epilepsy or hypertension or taking medications for these disorders and those taking oral contraceptives, diuretics or corticosteroids. PMS was diagnosed as, Quantification of severity of psychological (e.g; tension, anxiety), social (e.g. lack of energy) and physical (headache, breast tenderness) symptoms, for two consecutive symptomatic cycles. BMI was quantified as low, normal, overweight and obese. SPSS 16.0 was used to analyze the data. Mean $\pm$ SD, frequency and percentages were used for numerical and categorical variables, respectively. Chi-Square test was used to compare the proportion of premenstrual syndrome at each BMI.. P value $\leq$ 0.05 was taken as significant between pairs of variables.

RESULTS

A total of 150 female patients were included in the study. Mean age was 26 ± 6.2 years (15-45). About 61% (n=91) were unmarried, 38% (n=57) were married, and one case each of widow and divorced. Mean body mass index was 24.5 ± 3.6 kg/m². About 10% (n=15) subjects had low BMI, 52% (n=79) had normal BMI, while 30% (n=45) were overweight and 7% (n=11) were obese. Psychological symptoms were present in 45% (n=68) of patients, followed by 42% (n=64) and 59% (n=89), of patients having social and physical symptoms, respectively. There was a general trend of more psychological symptoms in overweight and obese group, with no statistically significant difference (Table 01).

Table 01. BMI and Psychological symptoms

BMI	Psychological symptoms		Total
	No	Yes	
Low	10	5	15
Normal	47	32	79
Overweight	20	25	45
Obesity	5	6	11
Total	82	68	150

P = 0.274

Those patients with low to normal BMI has less chances of having social symptoms (Table 02).

Table 02. BMI and Social symptoms

BMI	Social symptoms		Total
	No	Yes	
Low	9	6	15
Normal	48	31	79
Overweight	23	22	45
Obesity	6	5	11
Total	86	64	150

P=0.76

Physical symptoms were more frequently observed in obese group, with no statistically significant difference (Table 03).

Table 03. BMI and Physical symptoms

BMI	Physical symptoms		Total
	No	Yes	
Low	5	10	15
Normal	35	44	79
Overweight	15	30	45
Obesity	5	6	11
Total	60	90	150

P=0.603

DISCUSSION

Premenstrual syndrome is a symptom complex comprising psychological, social and physical elements, affecting females of reproductive ages. There was no consistent trend noted regarding age and parity. Various BMI groups were represented in varying percentages, and there were no positive correlation found between BMI categories and various symptoms.

On the whole, about 72.7% of subjects complained of one or the other premenstrual symptom, while premenstrual syndrome was diagnosed in 43.3%. This was in accordance with the internationally quoted figures of 80% for premenstrual symptoms⁶ and 20-40% for premenstrual syndrome³.

Majority of selected subjects fell in the categories of normal BMI or obese. In general all symptom categories i.e. psychological, social and physical, were more prevalent in obese groups, although the difference could not be shown to be significant in the study.

Premenstrual syndrome has no doubt a psychological impact on affected patients. With increasing BMI, there was an increasing frequency of psychological symptoms with p value of 0.274, such a non-significant linear relation was also reported by Rasheed et al¹⁰ with p value of 0.193.

Social symptoms were frequently found in patients with PMS, this symptom has no doubt a distressing impact on lives of these patients. We found in our study that in patients who were

overweight to obese were suffering more from social symptoms, p 0.76, nearly same results were observed by Dickerson LM et al⁴, (p 0.108).

When individually studied, physical symptoms were more prevalent at all BMI categories, but the increasing trend of physical symptoms was present in overweight to obese categories, although not statistically significant (p 0.603), such statistically non-significant relation between physical symptoms and obese patients having PMS was also found by Gannan et al⁹ in their study. Masho SW et al, in their study demonstrated obesity as a risk factor for premenstrual syndrome¹³. Likewise Elizabeth R. et al observed linear relationship between BMI and risk of developing premenstrual syndrome¹⁴. Our study found that increasing BMI has some association with psychological, social and physical symptoms in individuals with PMS, although not statistically significant. Living with a healthier BMI can potentially minimize the risk of developing psychological, social and physical problems. This can be achieved by lifestyle modification and consistent efforts at maintaining optimal weight.

CONCLUSION

The distribution of premenstrual symptoms could not be shown to vary significantly among various BMI groups. However the study indicated that with increasing BMI, women face increasing risk of being symptomatic with recurrent psychological, social and physical symptoms.

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