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Association Between Premenstrual Syndrome and Quality of Life among Female Students at a University in Selangor, Malaysia

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Abstract: Premenstrual Syndrome (PMS) refers to a common psychosomatic disorder which about 30-50% of woman in the childbearing age suffer from mild to moderate form and 3-8% suffer from it in its severe form. This study was undertaken to determine the association between premenstrual syndrome and quality of life and to identify the most common physical and psychiatric symptoms of premenstrual syndrome and determine the management of premenstrual syndrome among female students. A total of 300 female university students were respondents involved in this study and data were collected through self-administered questionnaire. Questionnaire was developed which included socio-demographic, obstetrical history, symptoms of PMS and management of premenstrual syndrome. Health related QOL was measured using Short Form Health Survey (SF-36). Data obtained were then analyzed using Chi square, Anova and independent T-tests. This study revealed that the prevalence of PMS among the studied respondents was 69.7% and among them, 8.3% had severe form of PMS. While the mood swing (90.9%) and backache (78.9%) was identified as the most common psychiatric and physical symptoms, respectively. The study also showed that the burden of PMS on health related QOL was on those with PMS whom had lower scores in all scales. There is no significant differences were observed between scales of QOL according SF-36 in category of PMS. The most commonly used practice to overcome PMS symptoms was warm bathing (72.7%). Conclusively, PMS adversely affects QOL among female university students and is an important health problem. PMS is a prevalent yet undertreated which contributes to a disordered life among women. Therefore, to improve QOL of female students, constructive support should be provided to the affected female individual.

Key words: Premenstrual syndrome, quality of life, SF-36 questionnaire, psychosomatic, socio-demographic

INTRODUCTION

Premenstrual Syndromes (PMS) refers to a group of menstrual related disorders characterized by mental and physical symptoms that varies with different phase of menstrual cycle. This syndrome is known to have a great impact on daily life activities and social functions and might result in significantly decreased quality of life (Rizk *et al*., 2010). Quality of Life (QOL) can be defined as a subjective feeling that the individual's life is changing entirely for the better and may also be described as how the individual perceives her/his state within the culture and value system.

The objective of the current study is to identify the associations between premenstrual syndrome and quality of life among female students in order to predict the effect of this disorder on daily life activities of female students. This study is very crucial to identify female students with premenstrual syndrome and helps to design and implement a proper lifestyle or pharmacological intervention that may use to prevent premenstrual syndrome among them. Female students in Faculty of Health Life Sciences at a private University in Selangor in reproductive age from 18-28 years old are selected as targeted group in this study because there is evidence of epidemiologic studies that suggested premenstrual syndrome adversely affects the quality of life among female university students (Takeda *et al*., 2006). A private University in Selangor is chosen as the area of study because it is considered as one of developing universities in Malaysia where the students are practicing modern lifestyle behavior. A lifestyle modifications among female students is much influenced on the prevalence of premenstrual syndrome, thus this place could be suitable to conduct the study.

MATERIALS AND METHODS

Cross-sectional descriptive research design is chosen as the study design for this research. This method

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involved self-administered questionnaire as research instrument completed by researcher for collecting data among respondent. A total of 300 data were collected from respondent. Questionnaire was distributed to the respondent and collected after they had been filled up. The questionnaire was prepared based on literature in line with the study objectives. The duration of completing the questionnaire was estimated within 5-10 min.

The collected data were recorded in Microsoft Excel 2010 Software for easier analysis and reference in future. The data collected were analyzed by using current version of Statistical Package for Social Sciences (SPSS) Version 23.0.

RESULTS AND DISCUSSION

The prevalence of PMS (Table 1) among the studied group was 69.7% of them, 63% showed mild PMS while moderate PMS represented 28 and 12% had severe form of PMS (Table 2). Among the studied respondent, 63.1% started their menstruation at age of <12 years old and the remaining was 36.8% started menstruation at range age of 13-16 years old. About 68.9% had normal duration of menstruation within 4-6 days. As regards of regularity of menstruation; it was observed that 82.3% of the studied respondent was normal. Concerning the family history of PMS, it was reported that nearly 61.3% were positive family history of PMS (Table 3).

From the Table 4, it was observed that the most commonly reported physical symptoms with PMS were backache by 78.9%, breast tenderness by 67.9% and fatigue by 67.5 followed by other symptoms with less than 66.0%. Table 5 showed the distribution of the most commonly reported psychiatric symptoms by studied respondent with PMS were mood swings by 90.9%, tension by 78.5%, depression 68.9% followed by other symptoms with <64.6%.

Table 6 shows the mean of scores in all the components of SF-36 among students with and without PMS. Based on Table 6, mean of scores in all the components in PMS group was lower than the group without PMS. Role limitation due to physical problem, bodily pain, social functioning, mental health and vitality were significantly lower in PMS group while physical functioning, general health and role limitation due to emotional problem were not significantly lower.
statistically significant ($p<0.05$)

Table 7 shows the mean of scores in all the components of SF-36 among students with mild, moderate and severe PMS. Based on the table, role limitation due to physical problem, bodily pain and social functioning scores was significant for the students with severe PMS compared to than PMS categories (mild and moderate PMS). It was observed that there is no statistical significant on SF-36 scores between category of PMS. Severe PMS are highly associated with the reduction of Quality of Life (QOL).

Table 1: Number and percentage distribution of PMS among the respondent

PMS	N = 300	Percentage
Present	209	69.7
Absent	91	30.3
Total	300	100.0

Table 2: Number and percentage distribution of severity of PMS among the respondent

Severity of PMS	N = 209	Percentage
Mild	126	60.28
Moderate	58	27.75
Severe	25	11.97
Total	209	100.00

Table 3: Distribution of the respondent according to their obstetrical history

Obstetrical data	N = 209	Percentage
Age of menarche (years)		
9-10	17	8.1
11-12	115	55.0
13-14	72	34.4
15-16	5	2.4
Duration of menstruation (days)		
1-3	15	7.2
4-6	144	68.9
>7	50	23.9
Regularity of menstruation		
Yes	172	82.3
No	37	17.7
Family history of PMS		
Yes	129	61.7
No	80	38.3

Table 4: Distribution of the most common reported physicalsymptoms of PMS by the studied respondent

Physical symptoms	N = 209	Percentage
Backache		
Yes	165	78.9
No	44	21.1
Breast tenderness		
Yes	142	67.9
No	67	32.1
Fatigue		
Yes	141	67.5
No	68	32.5
Headache		
Yes	138	66.0
No	71	34.0
Bloating		
Yes	102	48.8
No	107	51.2
Nausea		
Yes	79	37.8
No	130	62.2
Weight gain		
Yes	78	37.3
No	131	62.7
Vomiting		
Yes	54	25.8
No	155	74.2

Table 5: Distribution of the most common reported psychiatric symptoms of PMS by the studied respondent

Psychiatric symptoms	N = 209	Percentage
Mood swings		
Yes	190	90.9
No	19	9.1
Tension		
Yes	164	78.5
No	45	21.5
Depression		
Yes	144	68.9
No	65	31.1
Worry		
Yes	135	64.6
No	74	35.4
Nervous		
Yes	123	58.9
No	86	41.1
Crying attack		
Yes	92	44.0
No	117	56.0
Social withdrawal		
Yes	62	29.7
No	147	70.3
Insomnia		
Yes	60	28.7
No	149	71.3

Figure 1 showed the measures used by the studied respondent to overcome premenstrual symptoms. It displays that 72.7, 72.2 and 67.9, respectively the most common used practice by the studied respondent to overcome premenstrual symptoms. It displays that 72.7, 72.2 and 67.9%, respectively the most common used practice by the studied respondent to overcome the premenstrual syndrome symptoms were warm bathing, warm drink and rest period. The least commonly reported measure by the studied respondent was medications with 25.8%.

The prevalence of PMS among the studied respondents was at 69.7% of them, 60.28% showed mild form while moderate PMS represented 27.75 and 11.97% had severe form of PMS. This study found that female students of FHLS at MSU suffered from PMS. This result is in agreement with studies done by Lee *et al.* (2012) who reported PMS prevalence of PMS with range of 60-70%, respectively. Another research by Bakshan *et al.* (2012) found high prevalence of PMS among Iranian female university students was at 98.2%. The difference in prevalence happened due to difference in study group, difference in used questionnaire to access PMS. There were variation in estimation of PMS from various studies due to limitation, difference of PMS, standard and method of data collection, sampling technique, type of population, symptoms pattern and number of symptoms reported by Kisa. Mild form was highly reported among respondent due individual pain were vary from women to women.

Concerning the age of menarche; it was observed that the 63.1% respondent started menstruation at age of <12 years while 36.8% of respondent started menstruation at age of 13-16 years. Early age menarche contributing to

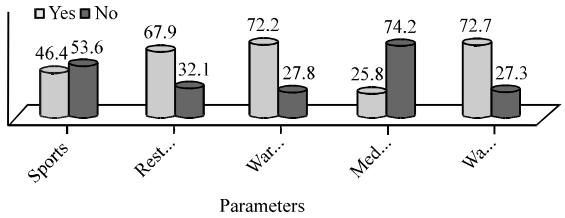

Fig. 1: Measure used by the studied respondent to overcome premenstrual symptoms

prevalence of PMS. Girls experience menarche at different ages. Timing of menarche influenced by female biology, genetic, environmental and nutritional factors. Age of menarche vary significantly by geographical regions, race and ethnicity. Early age of menarche is believed to set stage for emotional, behavioural symptoms which directly and indirectly linked to PMS as well. Therefore, more early age of menarche, longer exposed to elevated hormone levels so increase the presence of PMS.

Regarding duration and normal of menstruation, respondent seems normal in process of puberty. Family history of PMS did play role in PMS. Using χ^2-test, it was found that no association between family history of PMS where $p<0.05$ is considered statistically significant. However, odds ratio of risk estimation is 0.84 higher than those without PMS and those don't have family history of PMS. Thus, the history of PMS was considered positive family history of PMS influenced the frequency and severity of PMS. There are several studies indicating that PMS complaints were more commonly reported in women with history of PMS. It was reported that more than half of young women with a history of PMS in their mothers had PMS.

In this study, it is found that the most common reported physical symptoms of premenstrual syndrome by the respondent were backache (78.9%), breast tenderness (67.9%) and fatigue (67.5%). This result agreed with result of study done by Mona *et al.* (2013) who reported backache (79.64%) was the highest reported complaints. Also, the findings of the present study were in line with result of Alters who found that the most frequently physical symptoms reported by the respondent were backache, breast tenderness and fatigue. Similar results were found by Ghonamy *et al.* (2014) who studied premenstrual syndrome among Egyptian Cairo university females and reported the most common somatic symptoms were those symptoms stated above. The present study also found that the most common reported psychiatric symptoms of premenstrual syndrome by the respondent were mood swings (90.9%), tension (78.5%) and depression (68.9%). This result is supported by the result by Atwood *et al.* (2010) who found that the most common

Table 6: Comparison of the scores of subscales of SF 36 among students with and without PMS

The scales of SF-36	With PMS	Without PMS	p-values
Physical functioning	65.17±24.66	67.86±25.24	0.389
Role limitation due physical problems	44.86±35.95	65.38±34.11	0.000*
Bodily pain	57.56±20.19	71.18±19.19	0.000*
General health	52.48±13.01	53.64±12.11	0.471
Social functioning	64.41±20.79	76.10±18.88	0.000*
Mental health	58.56±16.12	65.27±14.69	0.001*
Role limitation due emotional problems	55.50±37.02	68.13±36.49	0.007
Vitality	49.09±13.63	54.78±13.80	0.001*

*Statistically significant ($p<0.05$); *Data are Mean±Standard Deviation

Table 7: Comparison of the scores of subscales of SF-36 among students with mild, moderate and severe PMS

The scales of SF-36	Mild PMS	Moderate PMS	Severe PMS	p-values
Physical functioning	67.90±24.71	59.40±26.44	64.80±17.65	0.094
Role limitation due physical problem	59.07±34.76	41.38±36.14	23.00±33.01	0.001*
Bodily pain	59.07±19.39	59.01±20.86	46.60±20.04	0.015*
General health	52.63±12.43	51.83±13.09	53.25±16.25	0.088
Social functioning	67.36±20.49	60.99±20.82	57.50±20.09	0.031*
Mental health	59.11±15.87	60.21±15.71	52.00±17.36	0.086
Role limitation due emotional problems	59.52±36.66	52.30±36.47	42.67±37.91	0.085
Vitality	48.93±13.85	48.97±11.54	50.20±17.17	0.111

*Statistically significant; *Data are Mean±Standard Deviation

observed psychological symptoms were mood swings, tension and depression. These findings were in line with Angst also showed that up to 60% women with PMS reported psychiatric symptoms above. On the other hand, the study done by Hamid *et al.* (2013) reported that most common reported psychiatric symptoms of premenstrual syndrome by the studied group were worry. The result also in accordance with the study by Jarvis *et al.* (2008) who mentioned that worry was the most common reported psychiatric symptoms of PMS. But the results disagreed with Mohamad and Mostafa (2012) who studied the prevalence and severity of premenstrual syndrome among adolescent Iranian girls and found that the most common complaints were crying attack (84%) and sudden feeling of sadness (72.3%) (Firoozi *et al.*, 2012).

This study showed the burden of PMS on Quality of Life as the score of QOL in all the dimensions were lower in respondents with PMS compared to the group without PMS. Thus, it can be concluded that PMS has a great burden on different dimensions of QOL. The findings of the study confirmed the result of Taghizadeh *et al.* (2011) study conducted in 2011 which aimed to determine the effect of premenstrual syndrome on quality of life. The result of the study showed that respondents with PMS reported a poor quality of life as measured by SF36. They specially reported poorer conditions on role limitation due to physical problem, bodily pain, social functioning, mental health and vitality. A recent publication using SF-12V2 (shortened version of SF 36) found that women either at risk of PMS or with PMS were significantly more likely to report limitation than women with no indications of PMS. It was observed that there is no statistical significant on SF-36 scores between category of PMS. Trying to find a relationship between the severity of PMS and QOL this study found out the more the severity of PMS, the less the QOL. Thus, severe PMS are highly associated with the reduction of Quality of Life (QOL). However, this could be verifying this relationship only in severe forms of PMS.

Results also showed the practices used by studied respondent to overcome the syndrome and there were various types of measures mentioned in this research. Their aim was to alleviate PMS symptoms and the measures and respectively was warm bathing (72.7%), warm drink (72.2%) and rest period (67.9%). This result agreed with Hylan *et al.* (1999) who found that majority of the studied respondent used warm bathing, warm drink and rest period as commonest practice used to reduce PMS symptoms. In the same line, the results supported by a review of treatment approaches to premenstrual syndrome and found that the most practice were high proportion of these women perceived lifestyle adaptations such take warm bathing, warm drink and rest period (Hamid *et al.*, 2013). On the other hand, the results of the study disagreed with the findings of Ismail who observed that most common reported practice by the studied respondent were nutritional approaches to alleviate symptoms

There were some limitations to this study. Firstly, this study limited to the female students at Faculty of Health Life Sciences of Management and Science University. Information collected about previous practice, recall bias was possibility. Then, use of questionnaire was not best method for data collection of PMS symptoms. The use of prospective logging symptoms by respondents over at least 2 cycles are the best effective method, however there

were no budget constraint to do so. Based on the findings, further studies can incorporate QOL not only as an outcome measures but also as part of the inclusion criteria for the selection of the subjects. As for example, research strategy might target subjects with severe symptoms and substantial impairment in QOL in order to compare different medical and psychological treatment for patients with severe form of PMS. In addition, another study can evaluate the impact of PMS in QOL in a more expanded range of the reproductive age.

CONCLUSION

As per conclusion, the results of this study provide evidence that PMS have an impact on quality of life of a female individual. Result of this study also suggests that premenstrual disorder results in an economic burden both for women as well as for society. This study also revealed that PMS is prevalent yet undertreated disorder among female university students at Management and Science University (MSU) which affects their quality of life. Improvement in quality of life may reduce the complication associated with the disorder or at least make it tolerable. Thus, findings suggested that health and educational authorities need to recognize the problem and provide appropriate, tangible and emotional support as well as giving more attention to psychological methods as counseling or cognitive behavioral therapy for students with premenstrual disorders.

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