ORIGINAL ARTICLE

Association between Premenstrual Syndrome and Quality of sleep among hostilities students

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Abstract

Objective: The objective of this study was to assess the association between premenstrual syndrome and quality of sleep-in hostilities females in Lahore.

Study Design: Cross sectional study.

Setting: Data was gathered from a variety of university students residing in hostels.

Methodology: A cross-sectional study was conducted on 137 hostilities females using a non-probability convenient sampling technique. The data was obtained from university students residing in several Lahore hostels. Premenstrual Syndrome Scale was used to indicate PMS, and the Pittsburgh Sleep Quality Index (PSQI) questionnaire was used to check sleep quality. Chi Square test was used to assess the association between PMS and sleep quality.

Results: The mean age of study subjects was 22.31±1.684 years. The minimum age was 20 years and the maximum age was 25 years. 59(43.1%) hostilities females have mild symptoms, 20(14.6%) have moderate symptoms and 24(17.5%) have severe symptoms of premenstrual syndrome. In this study 72.9% female with premenstrual syndrome reveled poor sleep quality while this rate was 27.1% in participants without PMS reveled good sleep quality with the p-value is <0.001.

Conclusion: There is a significant association between premenstrual syndrome and quality of sleep. The quality of sleep can be improved by decreasing premenstrual symptoms of syndrome.

Key Words: Premenstrual syndrome, quality of sleep and PSQI, Poor Sleep, Sleep Problems

Introduction

The worldwide medical crisis caused by the COVID-19 pandemic has had a detrimental impact on the global health index, with the physical and emotional well-being of women experiencing the most[1].

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Women are almost 1.25 times greater common than men to have sleeplessness, and their lifetime prevalence of mood disorders is now at least twice as high men. Considering that sex differences in both diseases are not obvious until puberty begins, reproductive hormones were theorised as a key risk factor for sleep and mood disorders[2].

Premenstrual syndrome is characterised by psychological and physical disorders during most of the corpus luteum stage of the periodic cycle. Women typically report having trouble sleeping during the premenstrual period. In addition to poor sleep quality, tiredness, sleeplessness, and nightmares are common sleep complaints in PMS-affected women[3].

PMS starts six to twelve days before menstruation and lasts for two to four days after it starts. Female reproductive age is the time between menarche and menopause typically lasts between 15 and 49 years, though this varies by country[4].

An irregular menstrual cycle can lead to severe and multifaceted health issues such as breast cancer, obesity, cardiovascular disease, diabetes, and infertility. It can also impact a woman's mental health by making her sleepless, exhausted, anxious, and depressed[5].

The leading causes of PMS are nutritional inadequacies, environmental stressors, and abnormal hypothalamic-pituitary-adrenal axis (HPA) function, which results in a deficiency in adrenal hormone output. The endocrine system is one of the ideas used to explain the physio pathological process of PMS. Women's quality of life, as well as their abilities in the workplace and society, are impacted by PMS[6].

Physical symptoms of PMS include inflammation, breast sensitivity, headache, increased appetite, irregular heartbeat, peripheral edema, abdominal bloating fatigue, suicidal ideation, poor concentration, depression, social withdrawal, irritability, aggression, and mood swings are among the behavioural and psychological symptoms[4,7].

The cause of PMS is still unknown. Other factors, including diet (caffeine consumption, alcohol consumption, desserts, and fast food), psychotropic medicines, hypercholesterolemia, arterial hypertension, and a lack of physical activity, have also been related to PMS. Problems with serotonin and progesterone can also result in PMS. PMS harms women's lives, family responsibilities, and productivity at work, regular activities, and interpersonal relationships[8].

A person can be awakened from their unconscious sleep condition by external stimuli like sounds or smells. Sleep takes up one-third of a person's life and is essential for maintaining life and health and physical and mental rest[9].

Women between the ages of 18 and 50 report the most sleep problems during the premenstrual week, including poor sleep quality, night-time awakenings, and increased sleep latency. The link between PMS and poor sleep quality may have the same explanation as a psychomotor disorder; these women have a low level of melatonin, which disrupts the sleep-wake cycle and increases slow wave sleep, or changes in hormone levels during the menstrual cycle. Sleep Quality can be assessed through a questionnaire known as Pittsburgh Sleep Quality Index (PSQI) questionnaire[7].

It consists of a self-reported survey used to measure insomnia and sleep quality. Qualitative sleep patterns, sleep delay, length, sleeping pill use, habitual sleep activity, and daily activity disease comprise the 7 pillars of the PSQI. Every element's intensity varies between 0 and 3. A PSQI score of less than 5 indicates good sleep, but a value of more than 5 indicates poor sleep. The PSQI is a trustworthy and valid instrument.

The goal of this research was to examine the association between pre-menstrual disorder and sleep patterns in female residences.

Material & methods:

A cross sectional study was conducted on 137 hostilities females using non-probability convenient sampling technique. The sample size was calculated using the formula $n = \frac{p \times (1-p) \times (z_{1-\alpha/2})^2}{(d)^2}$. The data was gathered from various Lahore hostels. Females between the ages of 20 and 50 with menstrual cycles and no prior problems met the inclusion criteria. Females under the age of 20 and those who used contraceptive pills and menstrual problems such as amenorrhea, anxiety, or depression were excluded from the study[10].

Each subject gave their consent to participate in this study. Instructions were given to each participant. The premenstrual syndrome scale and Pittsburgh Sleep Quality Index (PSQI) questionnaire was given to each patient to check the Premenstrual syndrome symptoms and sleep quality respectively.

Premenstrual syndrome scale consists of a total of 40 items and was separated into three categories: behavioural symptoms, psychological symptoms, and physical symptoms. On a scale, the lowest possible score is 40, and the highest possible score is 200. Women who are PMS-affected display 80 points or more. The more severe the PMS, the higher the scores[8].

Data Analysis

Data was analysed by using SPSS 21. For quantitative variables mean and standard deviation was calculated. For qualitative variables frequency and percentage was calculated. Chi square was applied to find the association between PMS and quality of sleep.

Results

Female hostilities had a mean age of 22.31 1.684 years. The minimum and maximum ages were 20 and 25, respectively. (Fig-1) Out of 137 hostilities females in this study, 37 (27.0%) had good sleep quality (a PSQI score of 0 to 5 indicates good sleep quality), and 100 (70.0%) had poor sleep quality (a PSQI score of 6 to 21). (Fig-2)

In this study, 59 (43.1%) hostilities females had mild premenstrual syndrome symptoms, 20 (14.6%) had moderate symptoms, and 24 (17.5%) had severe symptoms. Premenstrual syndrome symptoms were absent in only 34 (24.8%) women. (Table-1)

Good sleep quality was linked in the study to no premenstrual syndrome symptoms, good to bad sleep quality was linked to mild symptoms, and poor sleep quality was linked to moderate to severe premenstrual syndrome symptom. (Table-2)

The Chi-square Test was used for statistical analysis. The greater the symptoms, the worse the sleep quality as the p value is 0.05, indicates that there is a significant relationship between premenstrual syndrome and sleep quality (Table-3)

Results

Fig 1: Descriptive statistics of demographic data (N %) = 137

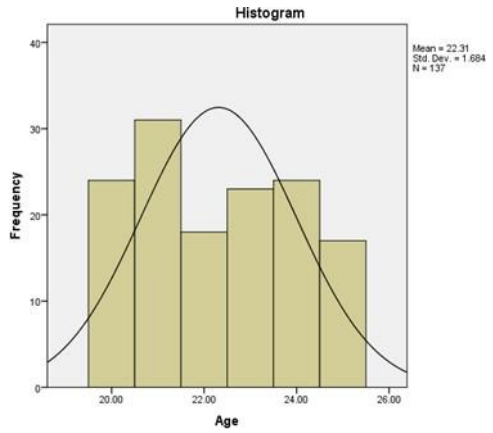

Fig 2: Descriptive statistics of Pittsburgh sleep quality index (PSQI)

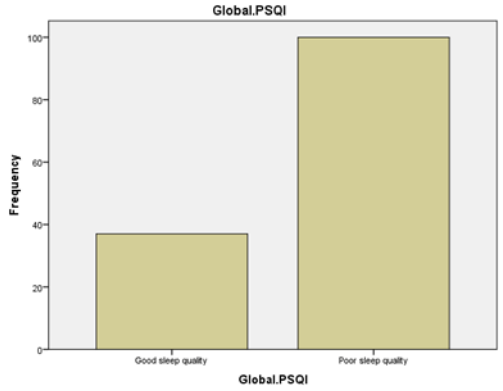

Table 1: Descriptive statistics of premenstrual syndrome

Premenstrual syndrome	Frequency	Percent
No symptoms	34	24.8
Mild symptoms	59	43.1
Moderate symptoms	20	14.6
Severe symptoms	24	17.5
Total	**137**	**100.0**

Table 2: Cross-tabulation of premenstrual syndrome and Global PSQI

Premenstrual syndrome	Global PSQI		Total
	Good quality	Poor quality	
No symptoms	34	0	*34*
Mild symptoms	3	56	*59*
Moderate symptoms	0	20	*20*
Severe symptoms	0	24	*24*
Total	**37**	**100**	***137***

Table 3: Chi Square test

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	122.556[a]	3	.000
Likelihood Ratio	136.114	3	.000
Linear-by-Linear Association	66.332	1	.000
N of Valid Cases	137		

Discussion

The prevalence of sleep issues among adults as a whole has been calculated to be 20.4%. University students tend to be at a higher risk for sleep issues than other age groups since they are an age category that is transitioning from youth to maturity.[11].

In this study 137 hostilities females have participated with the mean age 22.31±1.683. The lowest and highest ages were 20 and 25, respectively. The premenstrual syndrome and sleep quality were shown to be related in the present research. Bed time, getting up time was asked, total sleep duration was noted. They were also asked about the physiological, psychological and behavioral symptoms of premenstrual syndrome.

The result shows that 54.0% of hostilities females gone to bed at 10 am and gotten up at 6 pm. 55.5% of females get the actual sleep time of 6 hours. Sleep disturbances can be assessed using a variety of methods. The gold standard is still PSG. However, it has some limitations, including cost-effectiveness, complexity, and the need for skilled personnel, as well as the need for a sleep laboratory. While some PSQI studies produced results comparable to PSG studies, PSQI is likely to be used more frequently in clinical practice[12].

In this regard, we preferred the PSQI as a more straightforward, practical, and inexpensive instrument for assessing subjective sleep quality in PMS.

In this study 73.0% hostilities females reported poor sleep quality as the score > 5 in PSQI. A comparable study by Xiaocun Xing revealed that insomnia and irregular menstrual cycles were both substantially correlated with poor sleep quality and heavy menstrual flow. Premenstrual syndrome has been associated with sleep duration of less than 6 hours[13].

A separate study found that 29.1 percent of students with a mean PSQI score of 4.202.38 had poor sleep quality. In a survey of 445 university students, Elik et al. found that 65.4% had inadequate sleep quality.[10] In Turkey, Uysal et al. found that 41.1% of students with a PSQI mean score of 6.762.59 had poor sleep quality.[15] In this study, 24.8% females were not suffered from premenstrual syndrome while 43.1% females have moderated symptoms of premenstrual syndrome. In this study 72.9% female with premenstrual syndrome reveled poor sleep quality while this rate was 27.1% in participants without PMS reveled good quality of sleep as the p-value is <0.05.

69 females with PMS syndrome and 52 without it, were the subjects of another study. According to this study, women who have PMS are two times more likely to have sleep problems[16].

The researchers Övsen Önay et al. conducted a similar investigation. This research revealed that women with premenstrual syndrome need more time to stay asleep and even have shorter sleep durations. Participants with PMS had higher PSQI scores than participants without PMS[17].

According to the research done by Erbil et al.14, the variance in mean overall PMS and sub-scales scores between students with excellent and poor sleep quality was significantly positive[14].

Conclusion

Premenstrual syndrome has a very strong negative relationship with sleep quality. The premenstrual syndrome and sleep quality are directly related; as the premenstrual syndrome worsens, so does sleep quality. The quality of

sleep will improve as premenstrual syndrome symptoms decrease.

Author Contributions

Conception and design: *Areeba Mansoor*
Collection and assembly of data: *Amna Sharif, Areeba Mansoor*
Analysis and interpretation of the data: *Areeba Mansoor*
Drafting of the article: *Amna Sharif*
Critical revision of article for intellectual content: *Areeba Mansoor*
Statistical expertise: *Amna Sharif*
Final approval and guarantor of the article: *Areeba Mansoor*
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