

Quality of Sleep in the First Trimester of Pregnant Women

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Abstract:

Back ground:

Sleep is a multidimensional, biobehavioral process that is essential to human health and function. During the child bearing phase of life a woman's sleep can be profoundly altered with increased risk to the woman and her fetus. Sleep quality is an issue that is rarely discussed nor given any importance in the department of obstetrics. Thus, a study was designed to assess the quality of sleep in pregnant women in the Obstetrics Out Patient Department (OPD) of Christian Medical College, Vellore.

Materials and Methods: A descriptive longitudinal study is being done on 40 pregnant women in their three trimesters attending the Obstetrics and Gynecology OPD who fulfilled the inclusion criteria. Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI) and the demographic data were also collected. Data was summarized using mean (SD)/median (IQR) for continuous variables based on normality and the categorical data was expressed as number along with percentages.

Results: The finding of this study indicates that 32.5% of pregnant women in their first trimester have poor sleep quality. Percentage of pregnant women who have >7 hours of sleep is 52.78%. This study shows that more than half of the women 58.33% had mild and 33.33% of woman had moderate sleep disturbance.

Conclusion: The result of the study will help in proper identification of sleep disturbances during pregnancy and will help the midwives and physicians to manage and improve the quality of sleep in pregnant women. This is the interim result of the pregnant women's quality of sleep in their first trimester.

Key words – sleep quality, Pittsburgh Sleep Quality Index

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I. Introduction

Pregnancy is the most sensitive and most enjoyable part of a woman's life. Sleep patterns, are affected by systematic variations caused by hormonal, emotional, mental, and physical factors. Sleep is essential for the normal growth and development of both mind and body. A good sleep is important for a healthy pregnancy. 1,2 Pregnant women need adequate sleep for the normal growth and development of the fetus and as such, there is also an increased need for sleep during pregnancy. Adequate sleep during pregnancy gives them the energy that they need for their labour and delivery process. 3,4 Sleep disturbances and sleep disorders are common during pregnancy. 5 According to the National Sleep Foundation Women and Sleep poll, 79% of the pregnant women suffer from sleep disorders. Sleep disturbances have been observed right from the first trimester of pregnancy till the end of the third trimester. Sleep deprivation leads to decrease in function of immune system, hypothalamus, pituitary and adrenal. Therefore, it causes to reduce glucose tolerance, hypertension and ability of individuals, while indirectly increases risk of cardiovascular events (7-9). Lack of sleep can cause drowsiness during the day and can increase social and occupational problems. Also, irritability, aggressive behavior and less social interaction among people who are suffering from sleep deprivation significantly is higher than other people (10, 11). However, the percentage of sleep disorder and sleep disturbances are more in the third trimester of pregnancy. To our dismay, a change in sleep pattern is associated with adverse pregnancy outcomes both in the woman and fetus, sleep disturbances are usually under reported. In this regard, The quality of sleep in first trimester was obtained

II. Methodology

A descriptive longitudinal approach is being used in this study. A total of 40 pregnant women attending the Obstetrics and Gynecology OPD who fulfilled the inclusion criteria was included in the study.

Inclusion criteria

1. All primigravida woman attending OG Out Patient Department (OPD) in CMC.
2. Primigravida Women who can understand English or Tamil.

Exclusion criteria

- 1.Pregnant women with pre-existing hypertension, diabetes and Cardiac diseases.
- 2.Pregnant women with Psychiatric disorders.

The data collection instrument had two sections.

Section 1. Consisted of the woman’s **demographic data**. Such as age, education, occupation, (If employed) length of work hours, type of family and family income.It also included some clinical data such as obstetric score, medical problems, any surgeries done,on any long-term medication and if they do any exercise/yoga.

Section 2. Consisted of the Pittsburgh Sleep Quality Index (PSQI). It is a self- rating questionnaire that measures sleep quality in the previous month. The PSQI has seven component scores like subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication and day time dysfunction. Each of which has a range of 0-3 points. In all cases, a score of 0 indicates no difficulty, while a score of 3 indicates severe difficulty. The seven component scores are then added to yield one global score, with a range of 0-21. 0 indicates no difficulty and 21 indicates severe difficulty.A score of >5 is considered as poor sleep quality. The PSQI has an internal consistency and reliability coefficient (Cronbach’s alpha) of 0.83 for the seven components. Various studies that have used PSQI and support it for high validity and reliability.

The study is being conducted in the Obstetrics Out Patient Department (OPD) of Christian Medical College, Vellore. The data collection was started after the approval of the Internal Research Committee and the Heads of the Department of Obstetrics and Gynecology.

Participant recruitment was done by obtaining the list of the pregnant women who would be attending the OPD every day in the morning. After the pregnant women was seen by the faculty in the Nurse Led Clinic the women’s chart was checked for inclusion criteria and the women was allotted into the study.

Explanation of the study was given to the women fulfilling the inclusion criteria. Information sheet was also provided. If the pregnant women accept to participate in the study then consent form was given for completion and signature obtained.

The women’s Demographic data and clinical variable was collected by the investigator. Then the questionnaire on of Sleep Quality called Pittsburgh Sleep Quality Index (PSQI) was administered to the pregnant women. Then the collected data was analyzed.

III. Results

Demographic data

Mean age of the women enrolled in the study is 23.85 years and the range were from 18-31 years that similar to age of the subjects in the study, done in Indira Gandhi Medical College and Research Institute (IGMC&RI), Puducherry on pregnant women’s sleep quality which was 25.33±4.21 and they range from 19-37 years. Many of them were under graduates (48.72%), (28.21%) were with higher secondary education and (20.51%) were postgraduates. Most of them were homemakers (84.21%) like in the study conducted by the courtesy of Tehran University of Medical Sciences were 88 % pregnant women were housewives, (73.68%) of them resided in joint families. The family income of most of them (60%) was Rs.10,000 – 20,000/- The result of PSQI in the first trimester was analyzed.

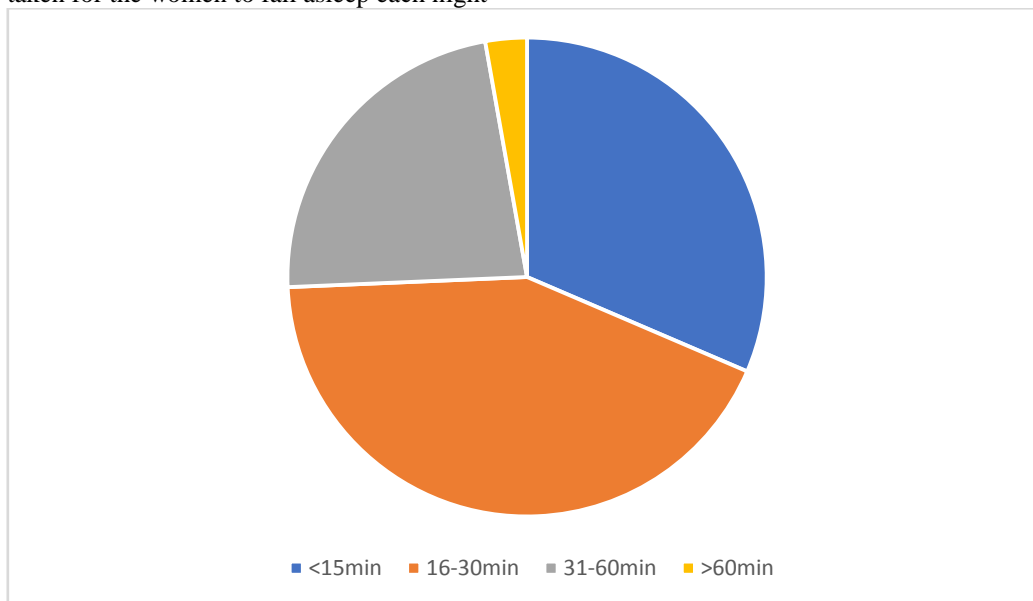
Table 1.Component 1. Subjective sleep quality that rated overall sleep quality past month.

Score	No.of women	percentage
0 (very good)	17	42.5%
1 (fairly good)	19	47.5%
2 (fairly bad)	3	7.5%
3 (very bad)	1	2.5%

Indicates that most women have very good to fairly good sleep and only 7.5% of the women suffer with fairly bad sleep and 2.5% of women suffer with very bad sleep quality.

Figure 1. Component 2. Sleep latency

a. Time taken for the women to fall asleep each night



Indicates that 42.86% of women take 16 – 30 minutes to fall asleep. 22.86% of women take 31- 60 minutes to fall asleep.

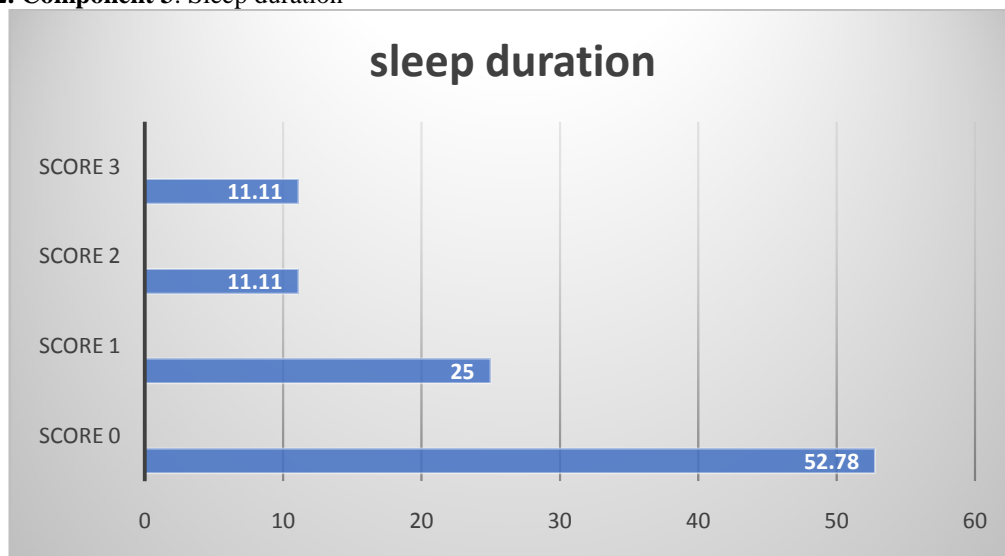
Table 2. Component 2 Sleep latency

b. Difficulty falling asleep within 30 minutes

Frequency and score	No. of women	Percentage
Not in the past month - 0	19	48.72%
Less than once a week - 1	6	15.38%
Once or twice a week - 2	4	10.26%
3 or more times a week - 3	10	25.64%

Indicates that 25.64% of pregnant women have difficulty in falling asleep within 30 minutes 3 or more times a week. 48.72% of women have no difficulty in falling asleep within 30 minutes in the past month.

Figure 2. Component 3: Sleep duration



Percentage of pregnant women who have >7 hours of sleep (score 0) is 52.78%, 6 -7 hours of sleep (score 1) is 25.00%, 5-6 hours of sleep (score 2) is 11.11% and < 5 hours of sleep (score 3) is 11.11%.

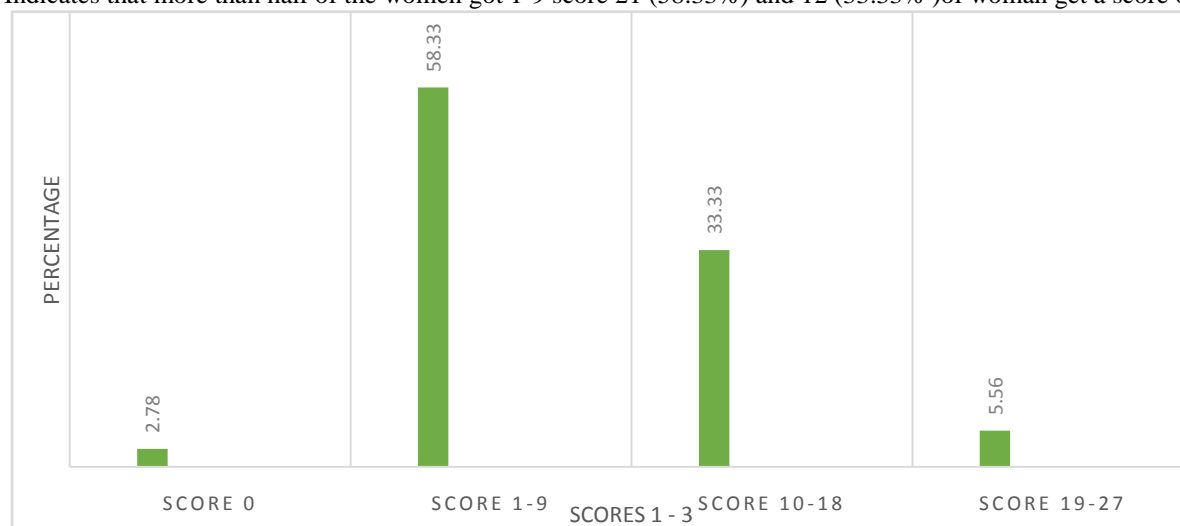
Table 3.Component 4: Habitual sleep efficiency

Habitual Sleep efficiency	Score	No.	Percentage
>85 %	0	32	97.97%
75 – 84 %	1	1	3.03%
65 – 74%	2	0	Nil
<65%	3	0	Nil

Indicates that sleep efficiency is >85% in 32 (96.97%) of pregnant woman and 75-84% in 1 (3.03%) of pregnant women in their first trimester.

Figure 3 .Component 5: sleep disturbances

Indicates that more than half of the women got 1-9 score 21 (58.33%) and 12 (33.33%)of woman get a score of



10-18.

Table 4.Component 6:use of sleeping medication

Response	Score	Frequency	Percentage
Not during the past month	0	35	89.74%
Less than once a week	1	4	10.26%
Once or twice a week	2	Nil	-
Three or more times a week	3	Nil	-

Indicates that89.74% of women did not use medication to fall asleep.10.26% of woman use medication less than once a week to fall asleep.

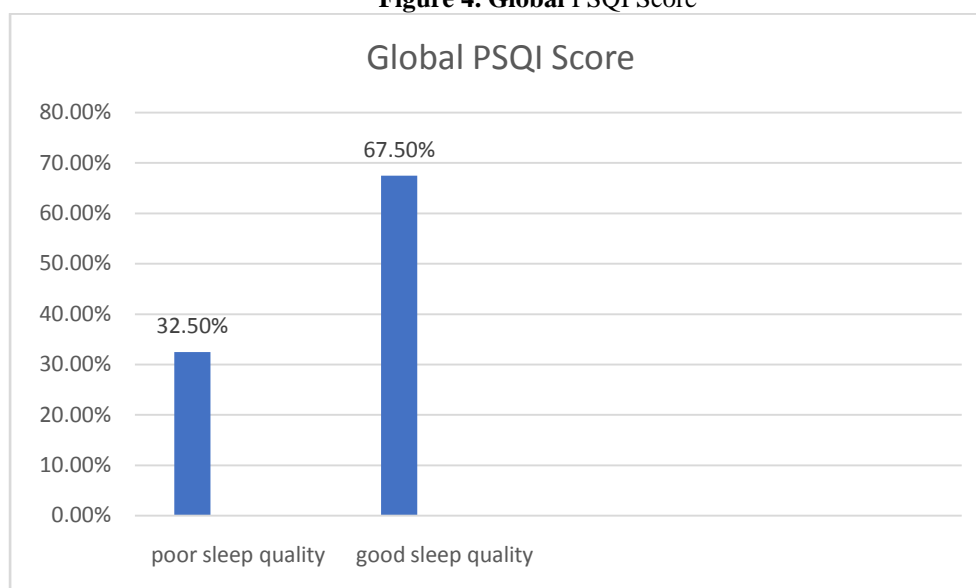
Table5.Component 7: Daytime dysfunction

(Trouble staying awake during daytime and sustain enthusiasm to get things done)

Score	frequency	Percentage
0	23	57.5%
1	12	30%
2	3	7.5%
3	2	5.00%

Indicates that 57.5% of pregnant women have did not have any daytime dysfunction and 30% of them have mild daytime dysfunction 7.5% had moderate daytime dysfunction and 5% of them had severe daytime dysfunction.

Figure 4. Global PSQI Score



Indicates that 32.5% of women have poor sleep quality and 67.5% of women have good sleep quality.

IV. Discussion

Sleep disturbances has been observed right from the first trimester of pregnancy till the end of the third trimester. The finding of this study indicates that 32.5% of pregnant women in their first trimester have poor sleep quality this is slightly less than the result of a descriptive cross-sectional questionnaire-based study done on 90 healthy pregnant women by Venugopal L et al. which gave a result of 44% of pregnant women in the first trimester having poor sleep quality.

Percentage of pregnant women who have >7 hours of sleep is 52.78% according to this study which is in accord with the survey done by Hedman et al, have found that the mean hours of total sleep per 24 hours before pregnancy was 7.8 hours and increased to 8.2 hours during the first trimester.

Sleep disturbances are common during pregnancy and numerous researchers have focused on exploring the factors affecting the sleep. Disturbance in sleep pattern varies from 13% to 80% in the first trimester in the study done by Venugopal L et al. In the present study more than half of the women 58.33% had mild and 33.33% of woman had moderate sleep disturbance. The study is ongoing will be done in the second and third trimesters on the same women to see the quality of sleep in each trimester.

Nursing implications of the study

1. A better understanding of the problem, quality of sleep among pregnant women will be obtained.
2. The problem of poor quality of sleep will be addressed with more intensity.
3. Education on sleep hygiene can be made a routine teaching for women based on the findings.
4. Thus, the problems of poor sleep will be prevented, the quality of sleep in the pregnant women will improve and adverse effects on the pregnancy will reduce.

V. Conclusion

This descriptive study provides evidence that pregnant women suffer poor sleep quality. Pregnant women should be aware of the effects of sleep deprivation and adverse outcomes related to it. Proper identification of sleep disturbances and a good awareness on the effects associated with sleep deprivation during pregnancy will help the obstruction to manage and prevent the adverse maternal and fetal outcomes. Hence regular sleep quality assessment needs to be done in the antenatal OPD and education on sleep hygiene will enhance good sleep quality.

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