



A Study on Sleep Disturbances Among Antenatal Women Attending A Tertiary Care Hospital, in Chennai, Tamilnadu

KEYWORDS

Pregnancy; Sleep quality; Pittsburgh Sleep Quality Index.

Dr. SREESUPRIA.PR

Post Graduate, Department of Community Medicine, Sri Ramachandra Medical College & Research Institute, Sri Ramachandra University, Chennai
* corresponding author

Dr. Pankaj. B. Shah

Professor, Department of Community Medicine, Sri Ramachandra Medical College & Research Institute, Sri Ramachandra University, Chennai

Dr. L. Kannan

Associate Professor, Department of Community Medicine, Sri Ramachandra Medical College & Research Institute, Sri Ramachandra University, Chennai

Abinayaa.PR

Final year MBBS, Coimbatore Medical College, Coimbatore.

ABSTRACT *Introduction: Poor sleep quality during pregnancy is associated with adverse maternal and foetal outcomes.*

Objective: To estimate the prevalence of poor quality of sleep among antenatal women attending a tertiary care hospital.

Methodology: A cross sectional study was conducted among 165 antenatal women, attending outpatient clinic of a tertiary care hospital in Chennai. Quality of sleep was assessed using Pittsburgh Sleep Quality Index.

Results: Prevalence of poor quality of sleep was 57%. Subjective sleep quality was bad among 29.1% of the women. 54.5% had sleep duration <7hrs/night and 37% had habitual sleep efficiency <85%. Poor sleep quality was more common among women with gestational age >28 weeks (64.5%), compared to those with gestational age ≤28 weeks (47.2%) (p< 0.02)

Conclusion: The evaluation of sleep quality should be a part of routine antenatal checkup and information thus obtained can be used to minimize the sleep disturbances during pregnancy.

INTRODUCTION:

Pregnancy - A period of great joy, excitement and fulfilment. Various physiological, hormonal and psychological changes occurring during pregnancy causes significant changes in sleep pattern, existing into the postpartum period. Majority of pregnant women (66–94%) have trouble sleeping at some point, with unique changes in each trimester¹. According to National Sleep Foundation's Women and Sleep poll 1988, 78% of women reported more disturbed sleep during pregnancy than at other times². Optimal physical functioning and mental health during pregnancy depends on sleep quality and quantity. Spectrum of association between pregnancy and sleep disturbances range from increased incidence of insomnia, nocturnal awakening, restless leg syndrome to snoring & excessive daytime sleepiness³. Also a significant co-relation exists between poor sleep in pregnancy and the occurrence of gestational diabetes, Pregnancy Induced Hypertension and postpartum depression⁴. Several studies focussed on specific sleep disturbances such as snoring, sleep disordered breathing, etc and reports on sleep quality during pregnancy in our settings are limited. Against this background, the present study was undertaken with the following objectives.

1. To estimate the prevalence of poor quality of sleep among antenatal women attending a tertiary care hospital.
2. To assess the association between socio demographic, pregnancy related factors and poor quality of sleep.

MATERIALS AND METHODS:

The study was done as a cross sectional study among an-

tenatal women attending the obstetrics and gynaecology out-patient clinic of a tertiary care Medical College hospital in Chennai, during the month of August 2013. With an estimated prevalence of poor quality of sleep in early pregnancy as 39%⁴, limit of accuracy as 20%, non-refusal rate of 10% and at 5% level of significance, the sample size calculated was 165. Institutional Ethics Committee approval was obtained. After obtaining a written informed consent, interview was conducted using a structured pre-tested questionnaire which gathered information about details on their demographic data, gravida and parity status, gestational age and pregnancy associated morbidities. Socio economic status was assessed using Modified BG Prasad's classification, 2013. Quality of sleep was assessed using Pittsburgh Sleep Quality Index (PSQI)⁵. Global PSQI-score ≥5 indicates poor sleep quality. Data entry and analysis was done using SPSS version 15 software. Descriptive statistics were calculated for background variables and details about pregnancy. Prevalence was calculated for poor quality of sleep with 95% CI. Odds ratio with 95% CI was calculated to assess association. Chi square was used as a test of statistical significance.

RESULTS:

The age of the antenatal women ranged from 18–46 years, with a mean age of 26 ± 4.33 years. Majority of the women were in the age group of 25-34 years (52.7%) and 42.4% were <24 years. It was found that 87.3% of women had completed their high school education and 91.5% were housewives. 62.4% of women lived in a nuclear family and 50.3% belonged to Class III socio economic status.

58.2% were multigravida. 44.8%, 46.7% and 8.5% of women were nullipara, primipara and multiparous respectively. 56.4% of the women were in the third trimester and 32.7% had one or more pregnancy associated morbidities.

The prevalence of poor quality of sleep was 57% (95 CI: 54.84 – 60.84). Subjective sleep quality was reported as fairly bad among 22.4% and very bad among 6.7% of antenatal women (Figure 1). Majority (54.5%) of the women had a sleep duration of <7 hours per night (Figure 2). Habitual sleep efficiency, expressed as the percentage of number of hours slept by number of hours spent in bed was found to be <85% in 37% of the antenatal women as shown in figure 3. Also women in their third trimester perceived poorer sleep quality, had reduced sleep duration and decreased habitual efficiency.

Figure 1: Distribution of women based on subjective sleep quality

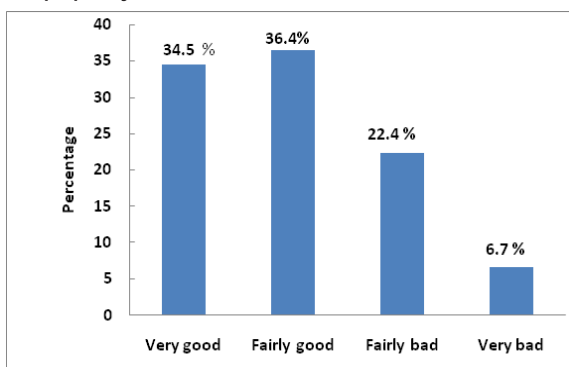


Figure 2: Distribution of women based on sleep duration

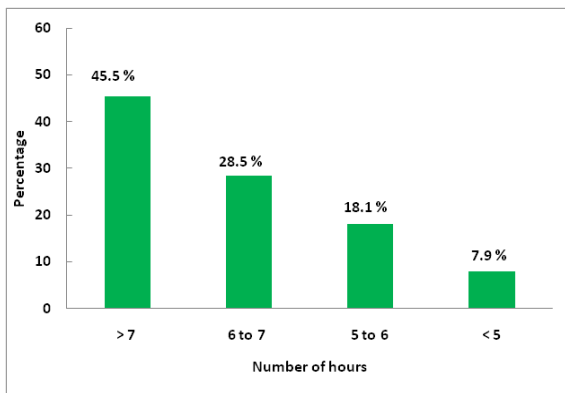
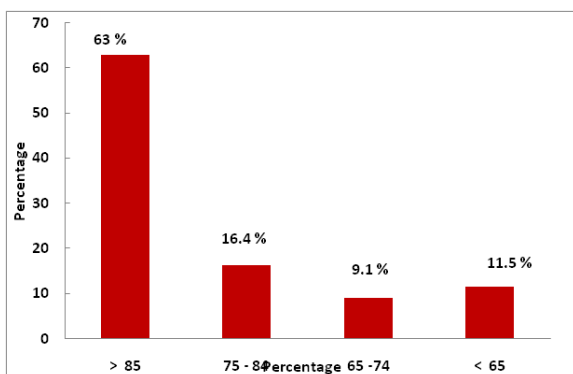


Figure 3: Distribution of women based on habitual Sleep Efficiency



The association between various factors and poor quality of sleep was calculated (Table 1). Poor quality of sleep was more common among women <24 years compared to women ≥25 years (57.1% vs 56.8%); in women residing in joint family compared to those belonging to nuclear family (58% vs 56.3%); in housewives compared to working women (58.1% vs 47%); in multigravida compared to primigravida (57.2% vs 56.2%); in primiparous and multiparous women compared to nullipara (57.1% vs 56.8%) and in women who had one or more associated morbidities compared to those who did not have any complications (59.2% vs 55.9%); however none of these differences were statistically significant.

It was observed that poor quality of sleep was more common among women with gestational age >28 weeks (64.5%) as compared to those with gestational age ≤28 weeks (47.2%) and the difference was found to be statistically significant (p < 0.02; 95% CI: 1.08– 3.81)

Table 1: Association between various factors and poor quality of sleep

| S. no | Particulars | Poor quality of sleep N (%) | Chi square value | p value | Odds ratio | 95 % CI |
|-------|-----------------------------|-----------------------------|------------------|---------|------------|---------------|
| 1 | Age group in years | | | | | |
| | <24 years (n= 70) | 40(57.1%) | 0.001 | 0.969 | 0.988 | 0.529 – 1.843 |
| | ≥25 years (n=95) | 54(56.8%) | | | | |
| 2 | Employment status | | | | | |
| | Working (n= 17) | 8 (47%) | 0.759 | 0.384 | 1.560 | 0.570 – 4.271 |
| | Not working (n=148) | 86 (58.1%) | | | | |
| 3 | Gravida | | | | | |
| | Primi (n=69) | 39 (56.2%) | 0.010 | 0.922 | 1.032 | 0.553 – 1.927 |
| | Multi(n=96) | 55(57.2%) | | | | |
| 4 | Parity | | | | | |
| | 0(n=74) | 42 (56.8%) | 0.002 | 0.960 | 1.016 | 0.547- 1.888 |
| | ≥ 1 (n=91) | 52 (57.1%) | | | | |
| 5 | Gestational age in weeks | | | | | |
| | ≤ 28 (n=72) | 34 (47.2%) | 4.951 | 0.026 | 2.032 | 1.084 – 3.808 |
| | >28 (n=93) | 60 (64.5%) | | | | |
| 6 | Type of pregnancy | | | | | |
| | Normal (n=111) | 62 (55.9%) | 0.172 | 0.679 | 1.150 | 0.594 – 2.223 |
| | Associated morbidity (n=54) | 32 (59.2%) | | | | |

DISCUSSION:

The results of this study indicate that there is a high prevalence of poor sleepers (57%) among antenatal women. This is comparable with a cross sectional study done by Ko

SH et al, where in 60% of the pregnant women had poor sleep quality compared to only 48% of the non-pregnant women⁶. Significant physiological and hormonal mechanisms unique to pregnancy is attributed to the existence of 'pregnancy associated sleep disorders', resulting in subjective perception of poor sleep quality. In our study, 11.5% and 9.1% of women had a sleep efficiency <65% and 65 – 74% respectively. Alterations in sleep efficiency during pregnancy is mostly due to interrupted sleep with increased number of nocturnal awakenings and daytime insomnia contributing to decreased REM sleep and stage 3, 4 of non – REM sleep¹.

Surprisingly in our study, more than half of the pregnant women reported a short sleep duration, when compared to the recommended 8 hours of sleep at night⁷. 7.9% of the women slept for less than 5 hours per night and 46.6% had a sleep duration between 5 to 7 hours per night. This is similar to a study done by Facco et al⁴, where 40% of the pregnant women slept less than 7 hours at night. Short sleep duration for <6 hours per night were found to have a significant impact on the duration of labor and nature of delivery. Endothelial damage and metabolic derangements provoked by elevated levels of inflammatory and oxidative stress markers due to sleep disturbances ultimately results in pregnancy complications like preterm births, pre eclampsia and fetal growth restriction^{8,9}. But however, further evaluation must be done to explore the impact of sleep disturbances on adverse pregnancy outcomes.

In the present study, increasing gestational age was found to be a significant risk factor for the development of poor quality of sleep ($p < 0.026$). Similar trend was reported by Facco et al, where in significant deterioration in sleep quality was observed with increasing gestational age (39% in the early pregnancy vs 53.5% in the third trimester) ($p < 0.001$)⁴. Also Naud et al reported that poor sleepers were 36% in the second trimester and 56% in the third trimester ($p < 0.01$)¹⁰. Multiple discomforts like frequent urination, low back ache, abdominal discomfort, restless leg syndrome, leg cramps, heart burns, sleep apnoea, breast

tenderness and anxiety during the third trimester further aggravates loss of sleep¹¹.

Our study also assessed the relationship between age, employment status, gravida and parity scores, pregnancy associated morbidities and poor sleep quality. High prevalence of poor sleepers among housewives, could be attributed to the small sample size in our study. Multigravida and multiparous women experienced poor sleep quality. This may be due to their dual nature of work in looking after the family and the first child. Sleep quality was found to be impaired in women with obstetric complications like anaemia, Pregnancy Induced Hypertension, Gestational Diabetes and thyroid disorders. This variation could be explained by the undue stress and psychological disturbances experienced by these women. Addressing these issues during the antenatal period, could lead to interventions which can improve the sleep during pregnancy.

CONCLUSION:

Poor sleep quality was common among antenatal women and it worsens as the pregnancy progresses. Sleep disturbances during pregnancy can be detrimental to maternal and child health. Hence evaluation of sleep quality should be a part of routine antenatal check-up and those women suspected to have sleep disturbances can be subjected to polysomnography. Medical professionals and health care workers should be motivated to discuss the sleep concerns with their pregnant women, suggest measures to cope up with loss of sleep and stress the importance of 'sleeping for two'.

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