
Insomnia in Pregnancy: Prevalence and Predisposing Factors in a Developing Country

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Abstract: This study aimed at determining the prevalence as well as correlates of insomnia among pregnant women attending the antenatal clinic of a tertiary health centre in a developing country. Insomnia was assessed using the insomnia severity index among 237 consecutive women attending the Antenatal clinic of Ekiti State University Teaching Hospital. Other relevant data such as obstetric history and psychological morbidity were collected using structured forms and the data was analysed using SPSS version 20. Logistic regression was done to determine factors associated with insomnia. Prevalence of insomnia among the respondents was 32.5% and factors associated with insomnia included high maternal age (OR = 1.092, CI = 1.013- 1.177, P value = 0.022), and having psychological morbidity (OR= 1.218, CI= 1.067 – 1.390, P value= 0.004). Though a higher number of women in the 3rd trimester had insomnia, this was however not statistically significant. This study has shown that insomnia during pregnancy is a common occurrence most especially during the last trimester of pregnancy. Common factors associated with it include older age of the patient and having a psychological morbidity. Screening for insomnia and offering some form of management may reduce some of the medical and psychological complications that may arise in the child and mother.

Keywords: Insomnia, Pregnancy, Psychological Morbidity

1. Introduction

Insomnia has been defined as the repeated difficulty with sleep initiation, duration, consolidation, or the quality that occurs despite adequate time and opportunity for sleep, and this results in some form of daytime impairment [1]. Studies have shown that it is a frequent occurrence during pregnancy, and may be caused by either a primary sleep disorder, such as obstructive sleep apnoea (OSA), movement disorders such as restless legs syndrome (RLS), or sometimes depression [2]. Various hormonal and physiologic changes occurring as a result of the growing foetus may affect the sleep of the pregnant women [3]. Physical factors and behavioural changes in a pregnant woman are among other possible factors that may affect her sleep. Pregnancy may also affect

an existing sleep disorder [3].

Prevalence of insomnia in pregnancy is high and varies from one setting to the other. A study done among Chinese pregnant women reported a rate of 56.1% [4]. While a recent study done in Norway reported a higher prevalence of 61.6% [5]. In a more recent study done in warsaw, a prevalence rate of 39.8% was reported among women in their last trimester [6]. A similar study done in Nigeria reported a prevalence rate of 47.3% with more cases of insomnia occurring during the 3rd trimester of pregnancy [7].

Studies have shown that insomnia in pregnancy might be caused by physical illnesses such as nausea, backache, and increased urinary frequency [8]. Hormonal changes, growth of fetus, and inadequate respiration are also factors linked to the insomnia in pregnancy [3, 8]. It is important to study

insomnia in pregnancy because it has been associated with increased risk of developing depression before and after delivery [9]. Also, it has been linked to perceived sadness of the infant (perceived by the mother) [10]. Sleep disturbances have also been associated with an increased risk of caesarean delivery and preterm birth throughout pregnancy [11]. The study aimed to determine the prevalence as well as correlates of insomnia among pregnant women attending the antenatal clinic of a tertiary health centre.

2. Materials and Methods

This was a cross-sectional study done among pregnant women attending the Antenatal clinic of the Ekiti State University Teaching Hospital (EKSUTH), Ado-Ekiti, south-west Nigeria. EKSUTH is a tertiary healthcare institution that serves as a referral centre for primary and secondary healthcare facilities located in State. Referral cases are also received from the neighbouring states of Ondo, Osun, Kwara and Kogi. Three trained research assistants were recruited to administer a semi-structured questionnaire which was in three sections to the women. The first section obtained information on their sociodemographic profile, details of current pregnancy and their obstetric history, the second section inquired about insomnia among them using the Insomnia severity Index and the third section assessed psychological morbidity using the General health questionnaire (GHQ- 12).

The 12 item General Health Questionnaire (GHQ -12) was derived from the original 60 item GHQ developed by Goldberg [12]. It is a validated instrument used to assess psychiatric morbidity and a cut-offpoint of 2 and 3 have been used for GHQ-12 by various international authors [13-15]. This study used a cut –off score of 2.

A total of 237 women attending the antenatal clinic of Ekiti state university teaching hospital were consecutively recruited over 3months. Those with previous history of any psychiatric illness and those that refused to give their consent to be included in the study were excluded.

2.1. Main Outcome

The main outcome of interest was insomnia. The research assistants aided the respondents in filling the Insomnia severity index questionnaire. The ISI is a validated seven-item questionnaire assessing the nature, severity and impact of insomnia on individuals with each item having a 5-point Likert scale used for rating [16]. This study used a score of 14 based on findings from previous studies that a cut-off score of 14 has a sensitivity and specificity of 94% [16, 17].

2.2. Statistical Analysis

The SPSS statistical software version 20 (SPSS Inc., Chicago, IL, USA) was used to analyse the data[18]. Various tests of association were used as appropriate. Multivariate associations of various factors with insomnia were determined by logistic regression using Odd ratio and 95% Confidence

interval. Factors with a P value ≤ 0.1 in univariate models were included into the multivariate model. All p-value of less than 0.05 were considered statistically significant.

2.3. Ethical Considerations

Ethical approval was obtained from the Ekiti State University Teaching Hospital's Ethics and Research Committee. Informed verbal and written consent was obtained from every participant and they were assured of the confidentiality of any information given. Participants were at liberty to withdraw from the study at any point without having any consequence on their care.

3. Results

The mean age of the participants was 29.81 ± 4.54 years while their age range was from 16 years to 43 years. Only 2.1% of the respondents were teenagers. Almost all the participants (97.5%) were married and most of them (80.2%) had post secondary education.

About half of the respondents (48.8%) were seen during the 3rd trimester of the pregnancy and a similar percentage (46.4%) had no previous delivery. About a third of them (32.1%) were pregnant for the first time. Table 1.

Prevalence rate of insomnia observed among the respondents in this study was 32.5%. The univariate analysis showed that age (high maternal age), having more children alive and high GHQ scores were statistically significantly associated with insomnia. Details of the various factors are in Table 2. Though a higher number of women in the 3rd trimester had insomnia, this was however not statistically significant.

Logistic regression analysis was done using the associated factors on univariate analyses and other factors with P values less than 0.1. The result showed that only older age (odds Ratio = 1.092, CI = 1.013- 1.177 and Pvalue = 0.02) and having high GHQ scores (OR = 1.218, CI = 1.067 – 1.390, P value = 0.004) were statistically significant. (Table 3)

Table 1. Sociodemographic and clinical profile of respondents.

Variable	Frequency (n)	Percentage(%)
Age(yrs)<20	5	2.1%
20-35	197	83.1%
>35	35	14.8%
Marital statusSingle	5	2.1%
Married	231	97.5%
Widowed	1	0.4%
EducationPrimary	5	2.1%
Secondary	42	17.7%
Tertiary	190	80.2%
Previous pregnancyNone (primigravida)	76	32.1%
1-4	145	61.2%
>4	16	6.8%
Trimester		
1 st	23	10.7%
2 nd	87	40.5%
3 rd	105	48.8%
Previous births		
None	110	46.4%

Variable	Frequency (n)	Percentage(%)
<2	108	45.6%
> 3	19	8.0%
No of children aliveNone	115	48.5%
1-2	109	46.0%
>3	13	5.5%

Table 2. Association between insomnia and various sociodemographic and clinical variables.

Variable	Statistical Test	P Value
Older Age	T-test = -2.766	0.006*
More previous births	T-test = -1.537	0.13
Fewer abortions	T-test = 0.309	0.76
High GHQ scores	T-test = -3.340	<0.001*
Education	Chi ² = 2.103	0.35
3rd Trimester	Chi ² = 0.546	0.76
More Children alive	Chi ² = 5.292	0.02*
unmarried	Chi ² = 0.002	0.96

Table 3. Logistic regression.

Variable	Odds Ratio	P Value	CI
Older Age	1.092	0.02*	1.013- 1.177
High Ghq Scores	1.218	0.004*	1.067 – 1.390
More Children Alive	0.507	0.32	0.134 – 1.919

*significant

4. Discussion

The prevalence rate of 32.5% obtained in this study represents almost a third of all the respondents. This rate is comparable to similar studies done in this environment and other places with reported prevalence rate between 35.5% and 47.3% [6, 7]. But much lower than rates of 56.1% and 61.6% reported from studies among Chinese and Norwegian pregnant women respectively [4,5]. The difference in the prevalence rates may be due to the different characteristics of the population of women studied and the different tools used in assessing insomnia.

We observed that almost all the respondents were married. In this environment, due mostly to religious beliefs, women shy away from getting pregnant before marriage. Similarly, most of the respondents had post-secondary education. This may not be unconnected with the fact that the hospital which is an accredited centre for the National Health Insurance Scheme (NHIS) is situated in the capital city where majority of the government ministries, banks and other private enterprises are situated. As such a high number of highly educated people working in the various public and private enterprises readily register for antenatal care in the facility.

High maternal age was found to be more associated with insomnia among these pregnant women. This was also reported by other researchers such as Hedman et al who found out that older women (>30 years) reported sleeping less than younger women. They also speculated that this may be because the older women have other children at home [19, 20].

High scores on the GHQ indicating psychological morbidity was associated with insomnia in this study. This is not surprising as insomnia is a frequent symptom in patients with

psychiatric morbidities such as depression and anxiety disorders. Similar findings were reported by other authors [2].

Having more children alive though not statistically significant in the regression model, was found to be associated with insomnia in the univariate model. This factor was also reported to be a risk factor for insomnia during pregnancy by others [19]. Possible explanation may be the increased stress of taking care of other children especially younger ones while pregnant.

This study found out that almost half of those with insomnia were in their 3rd trimester of pregnancy. Though this was not statistically significant, various studies have also reported a higher prevalence of insomnia during this period [5, 7]. Various factors that have been reported to contribute to the high rate of insomnia during the 3rd trimester include general discomfort (including backache), urinary frequency, and spontaneous awakenings or restless sleep. Foetal movements, heartburn, obesity, leg discomfort and fatigue are among other reasons [21-23].

Various reported causes of insomnia at other periods of pregnancy include nausea, backaches and urinary frequency during the first trimester; foetal movement and heartburn during the second trimester [23, 24].

Some measures of physical techniques and behavioural modifications have been advocated to improve insomnia among pregnant women. These include various relaxation techniques, avoiding caffeine, limiting fluid intake after 6 p.m. and managing low back pain with massage, local heat application and pillow support [25]. Pharmacotherapy using drugs like antihistamines (diphenhydramine) and zolpidem has also been suggested in disturbing cases [26].

5. Conclusion

Insomnia during pregnancy is a common occurrence in pregnancy most especially during the last trimester of pregnancy with a prevalence rate of 32.5% reported in this study. Common factors found to be associated with this symptom include older age of the pregnant woman and presence of psychological morbidity as reflected in high scores on the GHQ. Screening for insomnia among antenatal patients and offering some form of management may reduce some of the medical and psychological complications that may arise in the child and mother.

Authors' Contribution

DMU, AOP, AA: Designed and conceptualized the study, analyzed data and wrote the manuscript.

OLO, OA: Coordinated data entry into computer statistical software and involved in data analysis and also proof read the manuscript.

Conflict of Interest

All the authors do not have any possible conflicts of interest.

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