

Sleep Disturbances among Primi Gravidae

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Abstract

Transition Aim: The current study aimed to identify the patterns of sleep disturbance among primigravida pregnant mother women and their possible contributing factors. **Setting:** the study was conducted at ante-natal care out patient clinic at Benha University hospital. **Design:** A descriptive study design. **Sampling:** Purposive sample of 200 primigravida women. **Tools:** Three tools were used to collect data, structured interviewing questionnaire, (insomnia rating scale, Epworth scale, Berlin scale and leg cramps); factors contributing to sleep disturbances during pregnancy; Pittsburgh Sleep Quality Index. **Results:** Poor quality of sleep was significantly more common during last trimester among young primigravidae younger than 25 years. Insomnia, day time sleepiness, snoring were the most reported patterns of sleep disturbances followed by breathing disturbances and leg cramps. Patterns of sleep disturbances were statistically significant to demographic characteristics and gestational age of pregnancy ($p < 0.05$). **Conclusion:** poor quality of sleep was prevalent among healthy primigravida women during pregnancy. Insomnia, snoring, breathing disturbances, day time sleepiness and leg cramps are the most common pattern of sleep disturbances among primigravida. Adverse obstetrical disorders, physical and psychosocial factors are associated with their sleep during pregnancy. ($p < 0.05$). **Recommendation:** Discussing factors that lead to sleep disturbances should be included in routine antenatal care.

Key words: Sleep disturbances, Primigravida.

Introduction

The Pregnancy is associated with many physical, hormonal, and physiological changes which may influence the sleep; pattern of pregnant mother mean while 66 to 94% of women reports sleep disturbances during pregnancy, one manifestation of which is insomnia. The rate of sleep disturbances also changes across trimesters, ranging from 13% in the first trimester, 19% in the second and 66% in the third. At the beginning of pregnancy, the incidence of

insomnia is lower at 12.6% and then increases as pregnancy progresses (Hutchison et al., 2012).

Moreover, pregnancy is one of the causes of sleep disturbances. Decreased sleep quality is one of the common complaints during pregnancy; mostly occurring in the third trimester of pregnancy as the women approaches the end of pregnancy while, the incidence of sleep disorders has been reported around 75% in the third trimester of pregnancy (Golmakani et al., 2015).

Sleep disturbances had also been consistently reported during pregnancy such as variations in sleep duration and sleepiness, increase in nocturnal awakenings, snoring and restless legs syndrome, and increase, decrease or stabilization in apnea and hyponea. These disturbances in sleep characteristics progressively increase during pregnancy (*O'Brien et al., 2014*).

Education of sleep healthy behaviors in conventional prenatal care as a routine disciplinary care plan as well as, an appropriate counseling in this period to prevent sleep disorders is very important to improve maternal health also, for modification of most complaints concerning physical problems disturbing sleep in pregnancy such as nausea, vomiting, headache, excessive sleep and tiredness, heart burn, low back pain, leg cramps, flatulence, constipation, urine frequency, and lack of daily activities due to fear of a miscarriage (*Rezaei et al., 2014*).

Nurse role in health teaching cannot be over emphasized. Most women don't think about their sleep. This means that they also don't recognize the importance of routine sleep or consider the factors that influence good sleep. In addition there are many myths regarding what constitutes good sleep and what factor contribute to sleep quality. The nurse may also be involved in teaching relaxation techniques such as meditation, guided imagery, progressive muscle relaxation or controlled breathing exercise while the use of these techniques has been linked to sustained benefits of woman with primary insomnia (*Spielman et al., 2014*).

The nurse should encourage women to develop strategies to improve sleep. Specifically, information on the mechanisms of sleep and the importance of circadian rhythm and how will be

provided. Specific attention will be given to the difference between active and quiet sleep. Furthermore, to clarify many misconceptions associated with sleep and in particular, napping. women will have information of how to manage naps in order to improve daytime fatigue without disrupting their subsequent night of sleep (*Kempler et al., 2012*).

Aim of the study

The study aimed to:

- 1- Identify the pattern of sleep disturbances during pregnancy among primigravida women.
- 2- Identify the possible contributing factors to sleep disturbances during pregnancy among primigravida women .

Research questions:-

- What are the patterns of sleep disturbances among primigravida?
- What are factors contributing to sleep disturbances during pregnancy among primigravida women ?

Subjects and Method

Research Design:

A descriptive design was used.

Setting of the study:

The study was conducted at ante natal care out patient clinic at Benha University hospitals.

Sample: purposive sample.

Sample Size: A total of 200 primigravidae that meet the inclusion criteria, Pregnant women who are

Primigravidae, single ton gestation, free from physical and psychiatric illnesses, or taking sedative drugs and complain from sleep disturbances attending to the pre mentioned setting for aperiod of six months.

Tools of data collection:

Three tools were used for collecting data:

Tool I: Structured interviewing questionnaire:

It consists of three parts

Part (1) Socio demographic data included age, level of education, occupation, type of work, residence and the type of family.

Part (2) Anthropometric measurement included weight during pregnancy, height, no result for BMD.

Part (3) Obstetric history to assess obstetric and gynecological history included last menstrual period, current pregnancy duration and the number of fetus.

Par (4) This part consisted of four categories included insomnia rating scale adopted from **Douglas et al., (2003)**, to asses sleep habit, Epworth scale adopted from **Johne (2005)**, to asses day time sleepiness, Berlin scale adopted from **Philip (2010)**, to asses snoring and breathing disturbances and leg cramps.

Tool II: Factors contributing to sleep disturbances during pregnancy

This tool was developed by the researcher after review of current relevant literature **Suman, (2014), Gabriel et al.,**

(2010) and Da Costa et al., (2010)It consisted of (3) section

- **Section (1)** physical factor related to sleep disturbances it included (10) items, respiratory distress, uncomfortable position during sleep, back pain and frequent going to bath room at night.
- **Section (2)** obstetric factors related to sleep disturbances it included (6) items, vaginal infection and itching, contraction of the uterus, vomiting and nausea.
- **Section (3)** psycho social factors related to sleep disturbances it included (9) items, worries regarding fetus sex, watching television for long time, presence of mother in low at house and negative thinking about labor

Tool III: Pittsburgh Sleep Quality Index (**PSQI**) was adopted from **Carole, (2007)** to measure the quality and patterns of sleep during the previous month. It consisted of (19) statments about the nature of sleep during the past month. PSQI yielded seven domains related to sleep habits, including: subjective sleep quality(1 statement), sleep latency (2 statement), sleep duration(1 statement), habitual sleep efficiency (2 statement), sleep disturbance(10 statement), sleeping medication(1 statement) and daytime dysfunction (2 statement).

Content validity and reliability:

The revision of tools was done by a panel of (3) expertise professors of the Obstetric and women health at faculty of Nursing and faculty of Medicine, Benha university to measure the validity of tools and necessary modification was done accordingly. Reliability for factors affecting sleep disturbances during

pregnancy by Chronbach,s Alpha equal 0.69, while for sleep disturbances during pregnancy (Pittsburg scale it is adopted not adpted so it is not indicated for reliability) equal 0.77.

Ethical considerations:

- Each woman was informed about the purpose and benefits of the study at the beginning of interview and time throughout the study.
- An oral consent was obtained from each woman before starting data collection.
- Confidentiality was ensured throughout the study process, where personal data were not disclosed, and the women were assured that all data was used only for research purpose.
- Each woman are informed that, participation is voluntary and her withdrawal will not affect her care.

Pilot study:

- The pilot study was carried out. It involved ten percent from duration (18 day) the pilot study was done 10% (n= 20), it took a duration of 18 days to be accomplished to test the clarity and applicability of study tools as well as, estimation of the time needed to fill the questionnaire. Required modification was done in the form of omission of some questions. Women involved in the pilot study were excluded from the study.

Field work:

The field work of the current study was carried out from the beginning of august, 2015 till the end of January 2016

covered six months. The study setting was visited by the researcher 4times/week from 9 Am to 1 Pm. At the beginning of the interview took oral consent, for full filling the interviewing questionnaire sheet that, it took about 15 minute. Measuring weight and height, making equation of body mass index (BMI) =weight (in kilogram/height (in meters). assessing factors affecting sleep disturbances such as (physical, obstetric, and psychosocial factors) that, it talk about 15 minutes.

- Pattern of sleep disturbances was assessed by four scales, insomnia rating scale, Epworth scale, Berlin scale and leg cramps scale and measured quality of sleep for primigravidea through Pittsburg sleep quality index which contains (7) domains that took 5-10 minutes. All questions sheet took about 30 - 45 minutes.

Statistical design:

- Data was verified prior to computerized entry. The statistical package for social sciences (SPSS version 20). Was used for that purpose, followed by data tabulation and analysis. Descriptive statistics were applied (e.g(mean frequency and SDstandard deviation) frequency and percentages).Test of significance (chi- square) were used.

Results

Table (1)shows that more than three quarters (82.5%) of the studied women were in age group 20 < 30 years with mean age 22.3±2.7 years, less than half of them (49.5%) have university education, less than three quarters (74.5%) are unemployed while (51.5%) have office work. More than two thirds (69%) live in rural areas, half (50%) of

women has nuclear family and half (50%) has extended family.

Figure (1) concerning the gestation of pregnancy among the studied women illustrates that more than half (57.5%) of studied women were in third trimester while, in relation to less than half (42.5%) of them were in second trimester of pregnancy.

Figure (2) studied women's sleep was moderately affected by obstetric, physical and psycho social factors 66.5%, 60.5% and 71% respectively. Meanwhile, 4% of studied women was highly affected by psycho social factors.

Table (2) Regarding this table shows that, the studied women have average subjective sleep quality, long sleep latency, long sleep duration, low sleep efficacy, sleep disturbances three or more times per week and day time dysfunction (77%, 45%, 50.5%, 46.5%, 76.5%, 100% and 77.5% respectively).

Table (3) concerning this table demonstrates that there were statistical significance difference ($P < 0.05$) between total quality of sleep and (age, educational level, natural of work and address). Mean while there's no statistical significance difference ($p > 0.05$) between total sleep quality and (occupation, type of family). **Tables (4)** there were statistical significance difference ($p < 0.05$) between total sleep quality and physical factors affecting sleep disturbances during pregnancy. Mean while there's no statistical significance difference ($p > 0.05$) between total sleep quality and obstetrics, psychological factors.

Table (5) there were difference between second and third trimester as regards insomnia, leg cramps, snoring, total sleep quality and short sleep duration. Meanwhile, there was no difference as regards day time sleep and snoring.

Table (1): Distribution of studied women according to socio- demographic characteristics.

Socio-demographic characteristics	No n=200	%
Age (years)		
<20	21	10.5
20-< 30	165	82.5
30-<40	14	7.0
Mean ±SD	22.3±2.7	
Educational level		
Illiterate	13	6.5
Basic education	9	4.5
Secondary education	79	39.5
University education	99	49.5
Occupation		
Employed	51	25.5
Unemployed	149	74.5
Nature of work(n=51)		
Office work	36	70.6
Hard work	15	29.4
Residence		
Rural	138	69.0
Urban	62	31.0
Type of family		
Nuclear family	100	50.0
Extended family	100	50.0

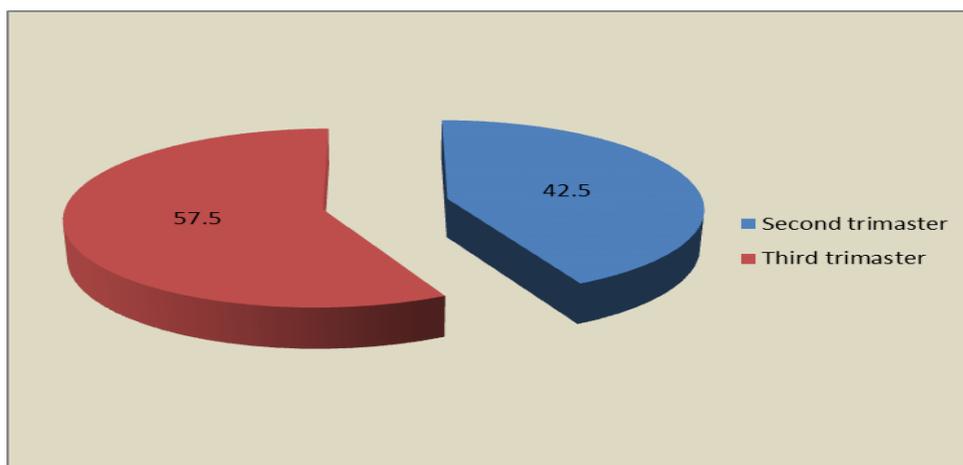


Figure (1): Distribution of studied women regarding gestation of pregnancy(n=200).

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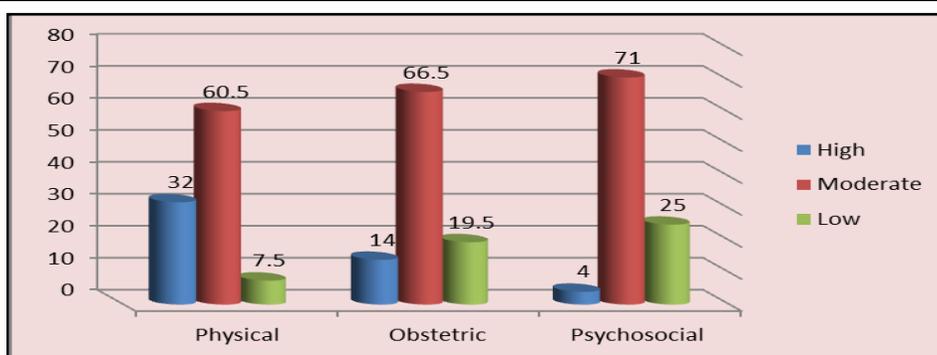


Figure (2): Distribution of factors affecting sleep disturbances during pregnancy among the derailed women. (n=200).

Table (2) Distribution of the studied women according to their various sleep disturbances during pregnancy.

Parameter	No n=200	%
Subjective sleep quality		
Poor	32	16.0
Average	154	77.0
Good	14	7.0
Sleep latency(minutes)		
Good(short<15m)	59	29.5
Average(average 15-30)	51	25.5
Poor(long >30)	90	45.0
Sleep duration(hours)		
Short<7	47	23.5
Average 7-9	52	26.0
Long>9	101	50.5
Sleep disturbance (present)		
>85%	47	23.5
75-84%	24	12.0
65-74%	36	18.0
<65%	93	46.5
Sleep disturbances		
Not during the past month	0	0.0
Less than once a week	4	2.0
Once or twice per week	43	21.5
Three or more times a week	153	76.5
Day time dysfunction		
Not during the past month	12	6.0
Less than once a week	155	77.5
Once or twice a week	31	15.5
Three or more times a week	2	1.0

Table (3) Distribution of studied women according the relation between socio-demographic characteristics and total sleep quality among the studied women n= 200.

Parameter	Good n=200		Average n=200		Poor n=200		x ²	p-value
	No	%	No	%	No	%		
Age(years)								
<20	9	4.5	11	5.5	1	0.5	38.99	0.00**
20< 30	16	8.0	113	56.5	36	18.0		
30-40	0	0.0	4	2.0	10	5.0		
Educational level								
Illiterate	1	0.5	2	1.0	10	5.0	23.55	0.001**
Basic education	1	0.5	7	3.5	1	0.5		
Secondary education	11	5.5	50	25.0	18	9.0		
University education	12	6.0	69	34.5	18	9.0		
Occupation								
Working	7	3.5	35	17.5	9	4.5	1.3	0.52
House wife	18	9.0	93	46.5	38	19.0		
Nature of work								
Office work	7	3.5	13	6.5	10	5	12.84	0.012*
Hard work	3	1.5	10	5	8	4		
Residence								
Rural	19	9.5	81	40.5	38	19.0	5.61	0.06*
Urban	6	3.0	47	23.5	9	4.5		
Type of family								
Nuclear family	14	7.0	62	31.0	24	12.0	0.5	0.77
Extended family	11	5.5	66	33.0	23	11.5		

*Statistically significance (p<0.05)

** Highly statistically significance (p<0.001)

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Table (4) the relation between total sleep quality and factors affecting sleep disturbances during pregnancy among pregnant women n=200.

Factors	Good		Average		Poor		x2	p-value
	No	%	No	%	No	%		
physical factor								
Low	5	2.5	6	3.0	4	2.0	10.51	0.033*
Moderate	17	8.5	77	38.5	27	13.5		
High	3	1.5	45	22.5	16	8.0		
Obstetrics factors								
Low	6	3.0	27	13.5	6	3.0	2.08	0.72
Moderate	16	8.0	84	42.0	33	16.5		
High	3	1.5	17	8.5	8	4.0		
Psycho social factors								
Low	9	4.5	34	17.0	7	3.5	5.53	0.23
Moderate	16	8.0	89	44.5	37	18.5		
High	0	0.0	5	2.5	3	1.5		

*Statistically significance (p<0.05) ** highly statistically significance (p<0.001)

Table (5) Distribution of studied women according comparison between second and third trimester n=200.

Parameters	Second trimester		Third trimester		x2	p-value
Insomnia level	No	%	No	%		
<9 clinically insignificant	13	6.5	12	6.0	4.05	0.03*
≥ 9 clinically significance	72	36.0	103	51.5		
Epworth scale day time sleep						
Mild sleepiness	67	33.5	100	50.0	3.9	0.142
Moderate sleepiness	14	7.0	14	7.0		
Severe sleepiness	4	2.0	1	0.5		
Leg cramps						
Mild	37	18.5	38	19.0	18.8	0.000**
Moderate	31	15.5	72	36.0		
Severe	17	8.5	5	2.5		
Snoring						
More than three times	68	34	73	36.5	9.09	.028
Twice	0	0	5	2.5		
Once	5	2.5	16	8		
Nothing	12	6	21	10.5		
Total sleep quality score						

Good	10	5	15	7.5	6.14	0.04*
Average	62	31	66	33		
Poor	13	6.5	34	17		
Short sleep duration						
>7	13	6.5	15	7.5	6.28	0.04*
6-7	10	5	9	4.5		
5-6	46	23	55	27.5		
<5	16	8	36	18		

Discussion

Sleep disturbances has become a major public health because of its detrimental effects on cognitive functioning over time, accidents and errors in the workplace, and alterations in metabolic and endocrine function of individuals. Increasing evidence also suggests that sleep disturbances may increase mortality ([Jen Jen Chang et al., 2010](#)) Sleep disturbances during pregnancy are associated with poor pregnancy outcomes for both mother and fetus. There are emerging associations between maternal sleep and several major risk factors for stillbirth, maternal obesity, preeclampsia, gestational diabetes, and intra-uterine growth restriction. More pain and discomfort during labor, higher rates preterm delivery, greater likelihood of caesarean deliveries and postpartum depression are associated with impaired maternal sleep ([Ko et al., 2013](#)). *This study aimed to.....*

Aim of the study is to:

- 1- Identify pattern of sleep disturbances during pregnancy among primigravida women.
- 2- Identify possible contributing factors to sleep disturbances during pregnancy among primigravida women .

Regarding the characteristics of the studied women, the findings of the present study revealed that more than three quarters of the studied women's age

ranged from 20 - 30 years old with mean age 22.3±2.7years. This may be due to all of the studied women were primigravida. This finding is in accordance with [Samar and Rasha \(2012\)](#) who found that more than one half of women aged less than 25years and more than one third, aged between 25 to less than 35 years. As regards the duration of pregnancy, the findings of the present study showed that more than half of women were in the third trimester with mean gestational age 32.15±6.6 weeks. This finding is supported by [Keefe and Onge \(2015\)](#) who found that two thirds of the studied sample were in the third trimester. [Hutchison et al., \(2012\)](#) mentioned that all studied sample were in the third trimester with a median gestation of 36 weeks.

Concerning total factors affecting women's sleep during pregnancy, the findings of the present study illustrated that, two thirds were moderately affected by obstetric factors, less than two thirds of studied women moderately affected by physical factors and more than two thirds of studied woman's sleep moderately affected by psycho social factors. These findings are in accordance with [Soner et al., \(2014\)](#) who found that sleep patterns and sleep quality in pregnant women are disturbed by problems, such as increasing abdominal discomfort as a result of the pressure to the diaphragm made by growing fetus, nocturia, back pain and leg cramps.

Moreover, [Kumer et al., \(2015\)](#) found that women during the third trimester of pregnancy experienced

various levels of psychological difficulties than non-pregnant women of similar age group and other socio-demographic status. While, the pregnant women during third trimester experienced more somatization, interpersonal sensitivity, depression, anger hostility, phobic anxiety, psychotism and disturbance in sleep and appetite than non-pregnant women.

The findings of the present study demonstrated that more than half of studied women are strongly affected in their sleep by frequent micturation at night, uncomfortable position during sleep, back pain, heart burn, insomnia and leg cramps. This may be because pregnancy physical changes cause significant discomfort and can impair the ability to fall asleep. This finding is congruent with **samar and Rasha. (2012)** who revealed that nocturnal awakening was the most reported pattern of sleep disturbances among pregnant woman followed by insomnia, lack of dream sleep and light sleep. Frequent nocturia, abdominal discomfort, breathing disorders, low backache and restless leg syndrome were the most given reasons for sleep disturbances among the suffered study women.

In the same context, Sousa et al., (2015) mentioned that women in the second trimester of pregnancy complain of low back pain. Moreover **Avnur et al., (2012)** found that more than one half of the pregnant women participating in this study experienced insomnia. Also, it was revealed that the reasons for insomnia detected in this study in the frequent visits to the toilet, not finding a comfortable position while sleeping, and restless legs.

As regard total various sleep disturbances as a component of Pittsburg scale, the findings of the present study demonstrated that more than three quarters of the studied women have

average subjective sleep quality, sleep disturbances three or more times a week, day time dysfunction . About half of women have long sleep latency, long sleep duration and low sleep efficacy. Mean while all of the studied women don't tak medication to help to sleep during the past month. These findings are supported by **Nevertity, (2015)** who found that the studied women have average subjective sleep quality, long sleep latency, long sleep duration, low sleep efficacy, sleep disturbances three or more times per week, don't tak medication to help to sleep during the past month and day time dysfunction(52.5%, 38.5%, 63%, 42.5%, 53.5%, 88.5%, and 50.5%) respectively.

As regards the relation between total sleep quality and socio demographic characteristics, the findings of the present study reported a highly statistical significance difference ($p < 0.01$) between total sleep quality and age. This finding is agreed with **GörevlisiNihal , (2011)** who found that 86% of the pregnant women involved in their study have bad sleep quality. It was determined that sleep quality in pregnant women is related with age ($p < 0.05$).

Concerning relation between total sleep quality and gestational age, the findings of the present study showed a statistically significant difference ($p < 0.05$) between total sleep quality and gestational age. This may be due to pressure on the bladder, as a result of increasing uterine size, frequent urination, heart burn, backache, itching, increasing fetal movements, and physical changes cause discomfort and can impair ability to fall to sleep. This finding is supported by **Hutchison (2012)** who showed that a reduction in maternal sleep quality in the third trimester compared with before pregnancy.

Concerning relation between total sleep quality and factors affecting sleep disturbances, the findings of the present study showed that a statistically significant difference ($p < 0.05$) between total sleep quality and physical factors affecting sleep disturbances. This may be due to general physical discomfort, frequent urination, back and neck pain, vivid dreams, nasal congestion, leg cramps, fetal movements, and uterine contractions. These findings agree with [Mindell and Jacobson, \(2010\)](#) who revealed that a large percentage of the women experienced sleep disturbances during pregnancy; these problems included frequent night waking, difficulty falling asleep, and symptoms of sleep apnea.

The finding of the present study showed a statistically significant difference between insomnia and obesity degree during pregnancy. This finding disagree with [Kennelly et al. \(2011\)](#) who found no relationship between sleep habit and BMI.

As regards the comparison between second and third trimesters sleep as regards averages **disturbance** the findings of the present study demonstrated that sleep disturbances occur in the third trimester more than second trimester. This mean that there were statistical difference ($p < 0.05$) between second and third trimester as regards insomnia, leg cramps, snoring, total sleep quality score and short sleep duration. This finding are supported by [ALLawati \(2009\)](#) who reported that during the third trimester nearly 40% of women reported sleeping on average less than 7 hours per night, and more than 16% reported frequent snoring.

Conclusion

- In the light of results of the present study, it was concluded that poor sleep quality was prevalent among healthy primigravida women during their pregnancy. While, insomnia, snoring, breathing disturbances, day time sleepiness and leg cramps are the most common pattern of sleep disturbances. And it was significantly related to demographic characteristics such as: age, educational levels, nature of work, residence, gestational age of pregnancy and obesity degree. As well as adverse obstetrical disorders, physical and psychosocial factors associated with their pregnancy.

Recommendations

The present study recommended that:

- Discussing factors that lead to sleep disturbances should be included in routine antenatal care for pregnant women.
- Educate women about how to improve sleep pattern during pregnancy

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