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Sleep Quality and Its Predictive Factors in Nulliparous Pregnant Women.

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ABSTRACT

Sleep problems are one of the most important issues of public health. Poor sleep quality in this period of pregnancy common problem that can have harmful effects on the health of the fetus and the mother. This study aimed to determine the sleep quality and its predictive factors in nulliparous pregnant women was conducted in Hamadan city, Iran. This descriptive and cross-sectional study was conducted on 309 pregnant women, which were admitted to health centers in Hamadan city, Iran, 2016. They were allocated into case group (undesirable Sleep Quality, PSQI score of >5, n=165) and the control group (desirable Sleep Quality, PSQI score of ≤5, n=144). Written informed consent was obtained from all participants. Data obtained using demographic, obstetric and Pittsburgh Sleep Quality Index (PSQI), which were collected by census method. Analyzing the data was performed by SPSS/20, using Pearson correlation test, t-test, chi-square and multiple linear regression were analyzed. P-value<0.05 was regarded as significant. The results showed that 165 patients (53.4 percent) of the participants had poor sleep quality. Two groups in terms of age, jab, body mass index, pre-pregnancy surveillance, spouse's job, monthly income and regular prenatal care showed no significant difference (P>0.05). Between quality of sleep and gestational age, maternal education and the consent of the wife and husband's education were significant negative correlation (P <0.05). Considering the high prevalence of sleep disorders and the importance of this issue in the mental health of pregnant women should be given to improve the quality of sleep.

Keywords: Quality of sleep; Predictive factors; Pregnancy; Iran

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INTRODUCTION

Sleep is one of the necessities of life, and about one-third is allocated to human life. Get enough sleep and easily is one of the key tenets of health, because during sleep the body relaxes, lost energy is obtained and is once again ready for physical and mental activity [1]. Traditionally sleep and its disorders in medicine, psychiatry, physiology, and nursing attention and discuss it as a basic requirement [2]. Sleep problems are one of the most important issues of public health. The overall estimated incidence of poor sleep quality in the general population is estimated between 15 - 24 percent [3]. In a meta-analysis carried out by the Ranjbaran et al., (2016) the overall prevalence of poor sleep quality based on the results of 15 studies reviewed, were 56 percent [4]. Jahdi et al (2012) had reported that prevalence of sleep disorders in pregnancy in Iran expressed 87.2 percent [5].

Pregnancy, childbirth and postpartum in women's lives is a turning point. This is a profound experience, women, children and families affected and the long-term and important impact on the society [6]. Reduced quality of sleep and its disorders the most common problems in pregnancy, 79 percent of pregnant women worldwide suffer from it [5, 7, 8]. Physiological changes such as increased urination, heartburn, fetal movement, uterine contractions, pain and emotional factors like fear and accepting the new role of child care in pregnancy affect normal sleep quality [8]. Sleep pattern changes the hormonal changes during pregnancy [9]. Due to systematic changes caused by hormonal factors, emotional, mental, emotional and physical, natural pattern of sleep during pregnancy can cause sleep disturbances and reduced disrupted sleep quality [8]. The start of the 12th week of pregnancy up to 2 months postpartum sleep disorders are frequent waking at night, less sleep, and decreased sleep efficiency and quality of the [10]. Changes in sleep patterns during the first trimester of pregnancy from 13 to 80 per cent in the 66 to 97 percent in the third quarter increased [11]. Jomeen et al., (2008) studied sleep patterns during pregnancy, changes in sleep patterns in pregnant women between 49 and 66 percent stated [12]. Ahmadi Nejad et al., (2014) Prevalence of sleep disorders waking at night due to frequent urination 3/61 as stated and prevalence of sleep disorders in the form of status changes within 56% reported [13]. Women who do not have good sleep quality during pregnancy is twice more likely to develop high blood pressure, preeclampsia have reduced intrauterine fetal growth [14]. Changes in sleep quality in women in the third trimester of pregnancy causes anxiety, depression, decreased tolerance to pain, loss of emotional control, prolonged labor, increasing the likelihood of cesarean delivery and postpartum sadness is [15]. Accordingly, it is important for physical and mental health of pregnant women in prenatal care is particularly important. Despite the poor quality of sleep in pregnancy can have harmful effects on the health of the fetus and the mother as a normal complication in pregnancy is considered. Given the importance and the necessity of adequate and quality sleep during pregnancy and a high prevalence of sleep disorders, this study aimed to determine the sleep quality and its predictive factors in nulliparous pregnant women in Hamadan city, Iran, 2016.

METHOD

In this descriptive and cross-sectional study population consisted of all pregnant women admitted to nine health centers in Hamadan city, Iran, 2016. According to previous studies (5) to examine the prevalence of sleep disorders, the number of samples using the formula $z2pq/d^2$ (d=0.05 and p=0.7), 322 women expressed interest in the study. Thirteen women were excluded due to failure to meet inclusion criteria or declining interest. They were assigned in the case group (undesirable Sleep Quality, PSQI score of >5) (n=165) and the control group (desirable Sleep Quality, PSQI score of ≤5) (n=144). Health centers in Hamadan city according to geographical location were divided into 4 regions and from the south, east and west of the city, each with 2 clinics were randomly selected and the northern part of the city that more people are living in that area was selected third clinic, a total of nine clinics were studied. Sampling survey was conducted from December 2015 until March 2016 and then subjects were recruited by convenience sampling. Inclusion criteria include being pregnant, singleton pregnancy, planned pregnancy, and lack of psychiatric disorders, according to the psychiatrist, the current lack of obstetric complications in pregnancy, literacy, and non-occurrence of stressful life events over the last 6 months. Then the pregnant woman who met the inclusion criteria and was pleased to participate in this study was Pittsburgh Sleep Quality Index.

The self-report indices in 1989 by Daniel et al in the Psychiatric Institute of Pittsburgh with a sensitivity of 89.6%, specificity 86.5% and 88% narrative made [16], these indicators a global standard for

measuring the quality of sleep that a person's attitude on your sleep quality during the past 4 weeks and has 9 general question, whether the seven domains examined include: Subjective sleep quality, Sleep latency (the amount of time a person goes to bed until sleep onset), Sleep duration, sleep efficiency (actual sleep time than when the person is in bed), Sleep disturbances, use of sleeping medication and daytime dysfunction. Questions 1 to 4 for open, short, single answer Questions 1 to 4 for open, short, single answer And Question 5 (with 10 questions), and Question 6 to 8 is just four choice And as one of the modes: never (0 points) less than once a week (score 1), one or two times a week (score 2) and three or more times a week (score 3), respectively. Question 9 also options for responding to very good (score of 0), good (score 1), a relatively bad (score 2) or very bad (score 3) is set.

Since Question 5 includes 10 sub-items, so the entire questionnaire with 19 items in a Likert 4-point is scored from 0 to 3. Due to the use of sedation (field 6) in preventing pregnancy and avoiding the use of these drugs among the study's criteria, This sub-scale scores in calculating the sleep score in all cases, according to the professors determine the validity and reliability were equally 0.

Each of the areas between the questionnaire score was 0-3 and scored 0, 1, 2 and 3 in each area respectively represent a normal situation, the problem of low, medium and hard difficulty sleeping. The sum of the scores of the seven areas that make up the total score is between 0-21. Getting inadequate sleep quality score will be higher than the 5 represents. It is also appropriate to examine the quality of sleep during pregnancy [17].

In Iran, Ahmadvand et al, 0.99 retest reliability of the questionnaire set [18], Hossein Abadi et al., (2008) Validity (R =0.88) and test-retest reliability of the tool (R =0.84) was determined [19] and Syed Ahmadinejad et al., (2014) calculated the reliability of this person 0.77 [13]. In this study, Cronbach's alpha reliability index was calculated at 0.73. Validity and to survey persian version of the 10 members of the faculty of the school of nursing and midwifery university of medical sciences was and reforms were necessary. After taking the free and informed consent of all participants was emphasized that participation in the study is completely optional and to withdraw from the study at any stage of the intervention without limitation and there. This study was approved by Hamadan University of Medical Sciences, Iran. Data on 309 pregnant women referred to health centers of using SPSS version 20 and using the Pearson correlation test, t-test, chi-square and multiple linear regressions were analyzed. The P - value less than 0.05 were considered significant.

RESULTS

In this cross-sectional study was carried out through the census, 309 people were eligible to be analyzed, of which Pittsburgh Sleep Quality Index score of 165 won the top 5 and had poor sleep quality. The poor sleep quality among the subjects 53.4 percent, respectively (Table 2). The mean age of subjects with low sleep quality of 27.09 ± 4.39 and the average age of people with good sleep quality 27.72± 38.5 was not significantly different (P =0.20). Chi-square test and Pearson correlation coefficient showed no significant difference in the underlying variables (Table 1). The results also show that the average sleep quality score of the subjects in this study in poor quality sleep 9.30 ± 2.64 and in the group with good sleep quality 3.88 ± 1.24 and is generally 6.77 ± 3.42, The highest average (1.85 ± 0.85) in sleep quality and sleep disturbances business was down from the second area and the majority of subjects suffering from delayed sleep phase (Table 2). Pearson chi-square test results showed that 57.6 percent of poor sleep quality and 68.8% of the Group has good sleep quality Subjective sleep quality were relatively good. The average time delay sleep in the group with 1.85 ± 0.85 and in the group with good sleep quality 0.93 ± 0.68 were reported. 81.3 percent of people with high-quality sleep more than seven hours of sleep at night if the 21.8% of people with impaired sleep quality were more than 7 hours of sleep at night. 78.5 percent of people with good sleep quality were more than 85 percent sleep efficiency, while 27.3 percent of patients had greater than 85 percent sleep efficiency. Sleep disorders in the group with poor quality sleep, 1.78 ± 0.52 and in the group with high sleep quality 1.20 ± 0.46, respectively. 1.20 ± 0.74 of those with low sleep quality and 0.55 ± 0.60 from people with sleep quality, daily function disorder (Table 2). To determine the predictive quality of sleep in pregnancy, maternal demographic variables (age, education, occupation and body mass index), gestational age, pre-pregnancy care, regular prenatal care, jobs and education wife, the consent of the wife and monthly income were entered into multivariate linear regression model. Finally, maternal education (P =0.02), Education wife (P =0.04), the consent of the wife (P =0.04), gestational age (P <0.001) were pregnancy predictor of sleep quality (Table 3).

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Table 1: Comparison of some demographic to distinguish between desirable and undesirable sleep quality in participants

Variables		Desirable sleep quality PSQI* ≤5 Frequency (Percent) (N=144)	Undesirable Sleep Quality PSQI >5 Frequency (Percent) (N=165)	P-value**
Age (years)		27.72± 38.5	27.09 ± 4.39	0.20
Job	Employed	5(3.5)	15(9.1)	0.08
	Housewives	139(96.5)	150(90.9)	
BMI (kg / m²)	<18.5	4(2.8)	7(4.2)	0.19
	18.5-25	95(66.0)	89(53.9)	
	25-30	37(25.7)	56(33.9)	
	>30	8(5.6)	13(7.9)	
Pre-pregnancy care	Yes	53(36.8)	57(34.5)	0.67
	No	91(63.2)	108(65.5)	
Regular prenatal care	Yes	130(90.3)	147(89.1)	0.73
	No	14(9.7)	18(10.9)	
Jobs wife	Employed	39(27.1)	55(33.3)	0.69
	Self-employed	98(68.1)	102(61.8)	
	Retired	1(0.7)	1(0.6)	
	Unemployed	6(4.2)	7(4.2)	

* Pittsburgh Sleep Quality Index (PSQI), **Pearson test

Table 2: Comparison of different aspects of sleep quality in participants

Variables		Desirable sleep quality (PSQI ≤5)		Un desirable sleep quality (PSQI >5)		P-value*
		Frequency (Percent) N=144	Mean(SD)	Frequency (Percent) N=165	Mean(SD)	
Sleep quality score		144(46.6)	3.88(1.24)	165(53.4)	9.30(2.64)	<0.001*
Subjective sleep quality		-	0.75(0.50)	-	1.40(0.65)	
Subjective sleep quality	very good	40(27.8)	-	6(3.6)	-	<0.001**
	Fair	99(68.8)		95(57.6)		
	Rather bad	5(3.5)		55(33.3)		
	very bad	0(0.0)		9(5.5)		
Sleep latency		-	0.93(0.68)	-	1.85(0.85)	<0.001**
Sleep latency	0	39(27.1)	-	9(5.5)	-	
	1-2	76(52.8)		46(27.9)		
	3-4	29(20.1)		70(42.2)		
	5-6	0(0.0)		40(24.2)		
Sleep duration		-	0.21(0.47)	-	1.45(1.04)	<0.001**
Sleep duration	≥7 hours	117(81.3)	-	36(21.8)	-	
	6-6.59 hours	23(16/0)		51(30.9)		
	5-5.59 hours	4(2.8)		45(27.3)		
	≤4.59 hours	0(0.0)		33(20.0)		
Habitual sleep efficiency		-	0.23(0.47)	-	1.60(1.20)	<0.001**
Habitual sleep efficiency	≥85%	113(78.5)	-	45(27.3)	-	
	75-84.9%	28(19.4)		31(18.8)		
	65-74.9%	3(2.1)		34(20.6)		
	≤64.9	0(0.0)		55(33.3)		
Sleep disturbances		-	1.20(0.46)	-	1.78(0.52)	<0.001**
Sleep disturbances	0	4(2.8)	-	0(0.0)	-	
	1-9	107(74.3)		44(26.7)		
	10-18	33(22.9)		112(67.9)		
	19-27	0(0.0)		9(5.5)		
Daytime dysfunction		-	0.55(0.60)	-	1.20(0.74)	<0.001**
Daytime dysfunction	0	72(50.0)	-	21(12.7)	-	
	1-2	64(44.4)		101(61.2)		
	3-4	8(5.6)		32(19.4)		
	5-6	0(0.0)		11(6.7)		

* Independent t-test, ** Pearson test

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Table 3: Estimated regression coefficients of variables with sleep quality in pregnant women

Variables	Factor B	OR	P-value	Confidence interval 95%	
				Minimum	Maximum
Age (years)	0.007	1.007	0.80	0.95	1.06
Job	0.008	1.008	0.98	0.34	2.93
education	0.47	1.60	0.002*	1.19	2. 17
Gestational age (week)	0.100	1.10	<0.001*	1.05	1.16
Pre-pregnancy care	0.13	1.13	0.66	0.62	2.06
Regular pregnancy care	0.22	1.24	0.63	0.50	3.10
BMI (kg / m^2)	0.14	1.15	0.49	0.76	1.76
Jobs wife	-0.88	0.91	0.71	0.57	1.46
Education wife	-0.29	0.74	0.04*	0.54	0.97
Consent of wife	-0.56	0.57	0.04*	0.31	0.98
Monthly income(Toman)	0.33	1.39	0.26	0.77	2.52

DISCUSSION

This study aimed to assess the quality of sleep during pregnancy and some related factors in women pregnant stamp referred to health centers in Hamadan. Based on the results of this study mean score of Pittsburgh Sleep Quality Index in subjects 6.77 ± 3.42 to 53.4 percent of them suffer from poor sleep quality. Syed Ahmadinejad study (2015), the average score of Pittsburgh Sleep Quality 8.27 ± 2.41, which 88.89% of the subjects had poor sleep quality possessed were some people who were older and had less physical activity, poor sleep quality had higher [13]. Jahdi et al., (2014), the average score of sleep quality in pregnant women in the second trimester of pregnancy 7.78 ± 3.14 estimated that at the end of the 312 patients, 272 patients (87.2 percent) with sleep disorders or poor quality sleep were [5] Of course they were in only their second trimester of pregnancy were enrolled in this study is very applicable Because in this study, all pregnant women at any gestational age were enrolled. In this regard, Taskran (2011) Prevalence of sleep disorders in pregnant women as 89 percent, corresponding to the mean sleep quality scores 8.23 ± 3.02 [20] Consistent with this study is that the study is consistent. The study, Philip et al., (2009) showed that the majority of pregnant women sleep quality (90.4 percent) in the period before the pregnancy has been better than during pregnancy [21]. Based on the results of this studyThe second area of impaired quality of sleep (sleep latency) Most of the subjects had impaired that Jahdi and colleagues concluded in their study that "sleep disorder" was the most common disorders in pregnant women in their study (5) While the Jahanpak and colleagues (2013) The third area of sleep disorders (sleep time) the highest prevalence in pregnant women filed and the prevalence of insomnia (sleep less than 7 hours) in pregnant women, 49 percent said they [22] as a result of their study is not consistent with the present study are likely to pay more attention to insomnia have concluded in their study. In this study, the factors associated with pregnancy sleep quality, Variables maternal education, father's education, the consent of the wife and gestational age on sleep quality in pregnant women effective and such factors were considered predictors of sleep quality. In other studies reported that demographic characteristics education level and weight gain were significantly correlated with increased sleep disorders in pregnancy, so that the quality of sleep decreases with increased maternal education level that is consistent with the results of our study, Perhaps because the mind engaged and further study in various fields including pregnancy and delivery complications resulting in more stress and less sleep quality is this group of people [5, 23-25]. Gestational age of the components of an impact on the quality of sleep is pregnant, Jahanpak et al (2013) in their study found that it's important with increasing gestational age pregnancy increases sleep quality score as a result of these increases in sleep disturbance [22] And MicheleOkun et al., (2011) concluded that increasing gestational age and sleep disturbance in pregnant women at any gestational age is a significant correlation [26], other studies in their study concluded that Sleep quality third trimester of the first trimester reduced by the present study [27-31] that for the same reason the population is consistent with the findings of this research, The reason for it to increase the size of the uterus and increased pressure on the bladder, waking up at night and increased fetal movements noted. But Sayed Ahmadinejad et al study (2013) for the same reason gestational age of the subjects, all of whom were in the third trimester of pregnancy was significantly associated with sleep quality [13]. In a study Taskiran et al there was no gestational age limit it was concluded that gestational age is not effective on sleep quality [20]. Unfortunately a study of the role of satisfaction of the spouse or spouse's education level on sleep quality in pregnant women review not found and the role of

wife in pregnant women sleep quality is generally ignored And given the crucial role of husband and wife supporting pregnant women recommended in future studies, more attention has to be decided according to the results. We hope the results of this research are to find and implement effective strategies for this disorder effective step towards improving women's quality of sleep.

CONCLUSION

According to the results of this research and the importance of maintaining physical and mental health of pregnant women and poor sleep quality and sleep disorders because of the common complaints during pregnancy and this Less importance is located, since sleep problems during pregnancy may underlie the major problems during the course of pregnancy and childbirth and postpartum It is suggested that during prenatal care programs for sleep study and its problems are documented in pregnant women to be with early diagnosis and holding training classes and consulting and providing books and educational pamphlets to solve the problems of pregnant women in the field of sleep and its disorders positive step taken. Considering the high prevalence of sleep disorders and the importance of this issue in the mental health of pregnant women should be given to improve the quality of sleep.

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REFERENCES

[1] Sadock BJ, Sadock VA. Lippincott Williams & Wilkins 2011.
[2] Akbarzadeh MSF, Mahjub H, Ebrahimi R. Iranian J Obstet Gynecol Infertil 2014;17(105):1-9.
[3] Aloba OO, Adewuya AO, Ola BA, Mapayi BM. Sleep Medicine 2007; 8(3):266-70.
[4] Ranjbaran M. Razi Journal of Medical Sciences 2016; 23(143):1-7.
[5] Jahdi F, Rezaei E, Moghadam ZB, Hagani H. Journal of the Iranian Institute for Health Sciences Research 2013;12:629-35.
[6] Dombrowski MAS, Anderson GC, Santori C, Burkhammer M. The American Journal of Maternal/Child Nursing 2001; 26(4):214-6.
[7] Shobeiri F, Jenabi E. Iranian J Obstet Gynecol Infertil 2014;17(96):1-5.
[8] Lopes EA, Carvalho LBCd, Seguro PBdC, Mattar R, Silva AB, Prado LB, et al. Arquivos de neuro-psiquiatria 2004;62(2A):217-21.
[9] Lee KA, Gay CL. American Journal of Obstetrics and Gynecology. 2004;191(6):2041-6.
[10] Cunningham F, Leveno K, Bloom S, Hauth J, Gilstrap L. Williams JW editors. Williams obstetrics. New York: McGraw Hill Professional; 2010.
[11] Moline M, Broch L, Zak R. Current treatment options in neurology 2004;6(4):319-30.
[12] Jomeen J, Martin CR. Journal of evaluation in clinical practice 2008;14(3):391-8.
[13] Seyed Ahmadi Nejad F, Golmakani N, Pour NA, Shakeri MT. Scientific Journal of Hamadan Nursing & Midwifery 2015;22(4):53-60.
[14] Santiago JR, Nolledo MS, Kinzler W, Santiago TV. Annals of Internal Medicine 2001; 134(5):396-408.
[15] Evans ML, Dick MJ, Cark AS. Clinical Nursing Research 1995; 4(3):238-49.
[16] Smyth C. Best Practices in Nursing Care to Older Adults 2012; 6(1):1-2.
[17] Skouteris H, Wertheim E, Germano C, Paxton S, Milgrom J. Women's Health Issues 2009;19(1):45-51.
[18] Ahmadvand A, Sepehrmanesh Z, Ghoreishi F, Mousavi G. Kashan University of Medical Sciences 2009;13(4):313-20.
[19] Hossein Abadi R, Noroozi K, PourEsmaili Z, Karimloo M, Maddah B. Rehabil 2008;9(2):8-14.
[20] Taskiran N. Turkish Soci of Obs and Gyn 2011; 8(3):181-7.
[21] Philip N, Benedicte T, Pierre I. European Neurology 2009; 62:23-9.
[22] Jahanpak N, Razmjoo N, RezeiArdani A, Mazloom R, Bonakdaran S. IJOGI 2013; 16(60):9-17.
[23] Jenabi E, Shobeiri F, Hazavehei SMM, Roshanaei GH. Oman Medical Journal 2015; 30 (3): 151–156.
[24] Shobeiri F, Nazari M. Southeast Asian J Trop Med and Public Health 2006; 37 (suppl 3):174-177.
[25] Soltani F, Shobeiri F. The Iraian J of Obstetrics, Gynecology & Infertility 2011; 14(1): 28-36.
[26] MicheleOkun L, Schetter CD, LauraGlynn M. Sleep Medicine 2011; 34(11).

[27] FrancescaFacco L, Kramer J, Kim H, Phyllis C, William Grobman A. Williams & Wilkins 2010; 115(1):77-83.
[28] Shobeiri F, Nazari M. Int J Fertil Steril 2014;8(3):267-72.
[29] Shobeiri F, Tehranian N, Nazari M. BMC Research Notes. 2014;7(1):733.
[30] Keramat A, Masoomi SZ, Mousavi SA, Poorolajal J, Shobeiri F, Hazavhei SMM. Journal of research in health sciences 2013;14(1):57-64.
[31] Shobeiri F, Nazari M. Pakistan journal of biological sciences: PJBS 2007;10(19):3470-2.