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Association of Depression and Common Complaints of Pregnancy in Women with Sleep Disorder

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ABSTRACT

The 87.2% of the Iranian pregnant women suffer from sleep disorders. These disorders are the result of physiological, hormonal and physical changes of pregnancy occur from different causes and can affect disorders before, during and after childbirth; be involved in causing of depression during pregnancy. This study evaluated the association of depression and common complaints of pregnancy in pregnant women with sleep disorder. This cross-sectional study conducted on 972 pregnant women referring to four health care centers in Makou affiliated to Urmia University of Medical Sciences during June-Oct., 2012. Data collection tools included demographic characteristics, Pittsburgh Sleep Quality Index and Beck Depression Inventory. Sampling was done by convenient sampling and analyzed by SPSS 18. The results indicated there were significant association ($p \leq 0.05$) between depression to all common complaints of pregnancy (vomiting ($r = 0.084$), headache ($r = 0.024$), fatigue and drowsiness ($r = 0.015$), heartburn ($r = 0.065$), foot spasm ($r = 0.032$), flatulence ($r = 0.063$), constipation ($r = 0.007$), reluctance to activity ($r = 0.046$) and stress ($r = 0.069$)) except backache and urgency ($p > 0.05$). Given that a large percentage of pregnant women suffer from sleep disorders and along with it from depression. Hope this period takes place usual care, structured psychiatric interview, changing in the social circumstance, diagnostic and troubleshooting cause of the disturbance.

Key words: Depression, sleep disorder, pregnant women, Iran

INTRODUCTION

Pregnancy is one of the most vulnerable and joyful periods of woman's life (Sieber *et al.*, 2006). It can affect pregnant women's sleep pattern and ability in dealing with their daily activities due to systemic changes resulted from hormonal, mental, emotional and physical changes in pregnancy (Haas *et al.*, 2005; McKee *et al.*, 2001; Bourjeily, 2009). Changes in sleep pattern increase from 13-80% in the first trimester to 66-97% in the third trimester (Moline *et al.*, 2004). Based on National Sleep Organization report in 2007, 79% of pregnant women in the world suffer from sleep disorders. On the other hand, according to studies the poor quality of sleep in the second trimester of pregnancy is directly related to depressive symptoms in late pregnancy (Neau *et al.*, 2009; Kamysheva *et al.*, 2010). Depression during pregnancy is prevalent, the results of different studies in various years, the prevalence of depressive symptoms in pregnancy has shown 8-51% and 70% (Holcomb *et al.*, 1996; Kaplan and Sadock, 2009; Bennet *et al.*, 2004; Felice *et al.*, 2004). Depression is one the most common psychiatric and mood disorders, according to the World Health Organization (WHO) depression is the fourth urgent health problem in the world

(Kaplan and Sadock, 2009). Also the range of patient with depression who reported only somatic symptoms was 45-95% (Lerner and Noy, 1968). As studies have noted, the term “somatization” refers to a variety of phenomena. We identified three different definitions of somatization used in earlier investigations. The first emphasizes presentation with somatic symptoms. Goldberg and Bridges (1988) point out that many patients with psychiatric disorders seek care for somatic symptoms. According to this definition, patients with somatization having psychiatric disorders present with somatic symptoms. The second definition emphasizes the association between depression and medical unexplained somatic symptoms. The third definition emphasizes the denial of psychological distress and the substitution of somatic symptoms. From this perspective, somatization is a psychological defense against the awareness or expression of psychological distress (Goldberg and Bridges, 1988; Mayou *et al.*, 2005; Barsky *et al.*, 2005; Lipowski, 1987; Simon and Vonkorff, 1991; Kroenke *et al.*, 1994).

In the primary care setting, a high percentage of patients with depression present exclusively with physical symptoms. In the survey who met the criteria for depression, 69% reported only somatic symptoms as the reason for their visit. Unfortunately, depression can often go undiagnosed in these patients, as the physical symptoms associated with depression may be interpreted as symptoms of a somatic illness. Patients who present with a high number of physical symptoms may be more likely to have a mood disorder than patients who present with only a few physical symptoms. Physical symptoms are also generally accompanied by a significant level of dysfunction in depressed patients (Trivedi, 2004).

So, we tried to do a study to assess the association of depression and common complaints of pregnancy in pregnant women with sleep disorder, as a step toward improving maternal health, that indeed, are the core of the family and vulnerable groups of society to be lifted.

MATERIALS AND METHODS

In this cross-sectional study, 972 pregnant women with insomnia or poor sleep quality according to the Pittsburgh Sleep Quality index, after obtaining informed consent, were recruited who referred to four health city center shuttle in Makou affiliated to Urmia University of Medical Sciences for receiving prenatal care from Jun 2012 to the end of Nov. 2012.

Inclusion criteria included: Iranians being literate; lack of physical (medical) and psychiatric illnesses; drugs, alcohol, sleeping drugs and hormones and gestational age 15-40 weeks.

Tools used in this study were included form of demographic characteristics, Pittsburgh Sleep Quality Index (PSQI) and beck depression inventory.

Sampling was convenient (available), after obtaining an informed written consent the four-part questionnaire were given the qualified pregnant women to fill them up in the quiet room or at home and delivered the researcher as soon as possible.

After reviewing the inventory eligible questionnaire, the subjects with scores ≥ 5 based on the PSQI were diagnosed as subjects with poor sleep quality and women who had received scores of 10 and above according to Beck Depression Inventory, were identified as depression during pregnancy, then results were reviewed and analyzed by the descriptive and analytical statistics including frequency tables, independent t-test, ANOVA (*Post hoc*), Pearson, Chi square and fisher by spss version 18 software.

Also the participants with the symptom of severe depression (higher score than 31) referred to the physician.

This study excluded the thirty-six persons: 15 persons due to no desire to continue study, 12 person's preterm labor, 6 person's migration to other cities and 3 persons because of abortion.

The Pittsburgh Sleep Quality Index (PSQI) was a retrospective self-report questionnaire measured sleep patterns and disturbances that existed during the previous month. The PSQI yields a global score ranging from 0-21. The PSQI was finally designed by Buysse *et al.* (1989) with a sensitivity of 89.6%, specificity of 86.5%, validity of 88% ($r = 0.88$) and reliability of 83%. Its validity and reliability were confirmed by research in other countries and in Iran (Buysse *et al.*, 1989; Rezaei *et al.*, 2015; Zahra and Elham, 2014).

The nineteen scores of sleep assess with the PSQI in the seven “component” scores: Subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication and daytime dysfunction. The sum of scores for these seven components yields one global score. Individuals with PSQI scores <5 were categorized as good sleepers and scores ≥ 5 classified as poor sleepers.

In this study, so use of sleeping medication was exclusion criterion, so was not analyzed in the instrument dimensions and after scoring the score of it considered zero.

Depressive symptoms were assessed by using the validated and reliable 13-item short form Beck Depression Inventory that correlates highly with the long form (Beck *et al.*, 1974). The long form BDI has been validated for using with pregnant women (Holcomb *et al.*, 1996). Beck Depression Inventory questionnaire that contains 21 questions are multiple, each question is scored from 0-3, the total score of the scale is from 0-63 and finally based on the scores of the depressed persons were 1-10 normal, 11-20 mild depression, 21-30 moderate depression, 31 and above severe depression. Beck Depression Inventory is a standard questionnaire that reliability and validity have been verified in several studies in Iran.

The Ethics Committee of Tehran University of Medical Sciences approved the study proposal and corroborated its ethical considerations. All participants were informed about the purpose and methods of this study. They were informed that participation in the study was voluntary and they could refuse to participate at any time without having any negative impact on the services delivered to them.

Those who agreed to participate in the study provided signed written consent.

RESULTS

The characteristics and socio demographic data of the 936 participants are analyzed by ANOVA, Chi Square and fisher and summarized in Table 1, the mean of women age, BMI and gestational age were, respectively 26.47, 26.53 and 26.54. Most of women had primary education (41.6%), homey job (91%), moderate economical status (76.9%), nulliparous (38.1%), NVD in previous pregnancy (46.5%), consent of fetal sex in women (77.6%) and husband (76%).

Among the demographic variables, only there were significant associations ($p \leq 0.05$) between depression, education, economical status and Body Mass Index (BMI).

Finding showed women with primary education (MD = 17.73), bad economical status (MD = 23.04) and BMI 15-18.49 (MD = -0.11) had higher depression scores.

The result of independent t-test, ANOVA, Pearson and Chi Square analysis in Table 2 demonstrated there were a significant relation between depressions, all components of sleep quality and sleep quality. Very bad subjective sleep quality (MD = 4.48), high score of sleep latency ($R = 0.199$) and sleep disturbances ($R = 0.249$), 7 h or more of sleep duration ($R = -0.192$), high percent of habitual sleep efficiency ($R = -0.155$) and high score of daytime dysfunction ($R = 0.249$) and sleep quality ($R = 0.395$) indicated higher depression.

Table 1: Demographic status of pregnant women and correlation with sleep quality

Demographic status	Prevalence		M±SD	p-value*
	No.	%		
Age				
15-20	168	17.9	26.47±6.11	>0.05
21-25	291	31.1		
26-30	225	24.0		
31-35	180	19.2		
36-40	57	6.2		
41-45	12	1.3		
46-50	3	0.3		
Education				
Primary	390	41.6	-	≤0.05
Steerage	213	22.8		
Diploma	204	21.8		
Collegiate	129	13.8		
Job				
Homey	867	91.0	-	>0.05
Employed	84	9.0		
Economical status				
Good	147	15.7	-	≤0.05
Moderate	720	76.9		
Bad	69	7.4		
Gravid				
One	357	38.1	1.96±0.95	>0.05
Two	336	35.9		
Three	159	17.0		
≤Four	84	9.0		
Gestational age (week)				
15-20	456	48.7	26.54±9.67	>0.05
21-25	54	5.7		
26-30	42	4.5		
31-35	66	7.1		
36-40	318	34.0		
BMI				
15-18.49	36	3.8	26.53±4.51	≤0.05
18.5-24.99	291	31.1		
25-29.99	402	42.9		
30-34.99	171	18.3		
35-39.99	33	3.6		
40-44.99	3	0.3		
Interval from previous pregnancy				
No interval	333	35.6	2.06±1.77	>0.05
One year	84	9.0		
Two year	66	7.1		
Three year	93	9.9		
Four or more year	360	38.5		
Previous delivery				
No delivery	363	38.8	-	>0.05
C/S	138	14.7		
NVD	435	46.5		
Smoking women				
Yes	6	0.6	-	>0.05
No	930	99.4		
Smoking husband				
Yes	333	35.6	-	>0.05
No	603	64.4		
Satisfaction of fetal sex (Women)				
Yes	726	77.6	-	>0.05
No	210	22.4		
Satisfaction of fetal sex (Husband)				
Yes	711	76.0	-	>0.05
No	225	24.0		
Total	936	100.0	-	

*The p-values were tested using the ANOVA, Chi square and Fisher

Table 2: Seven component of sleep quality in pregnant women and correlation with depression

Component of sleep quality	N	%	M±SD	p-value*
Subjective sleep quality (Component 1)				
Very good	93	9.9	-	≤0.05
Good	618	66.0		MD = 4.484
Bad	180	19.3		
Very bad	45	4.8		
Sleep latency (Component 2)				
0	102	10.9	2.84±1.66	≤0.05
1-2	312	33.3		R = 0.199
3-4	363	38.8		
5-6	159	17.0		
Sleep duration (h) (Component 3)				
>7	489	52.2	6.62±1.54	≤0.05
6-7	213	22.8		R = -0.192
5-6	153	16.3		
<5	81	8.7		
Habitual sleep efficiency (%) (Component 4)				
>85	234	25.0	74.65±15.37	≤0.05
75-84	249	26.6		R = -0.155
65-74	258	27.6		
<65	195	20.8		
Sleep disturbances (Component 5)				
0	12	1.0	9.33±3.73	≤0.05
1-9	507	54.2		R = 0.249
10-18	414	44.2		
19-27	12	0.6		
Use of sleeping medication (Component 6)				
0	-	-	0	-
Daytime dysfunction (Component 7)				
0	231	24.7	2.35±1.98	≤0.05
1-2	294	31.4		R = 0.358
3-4	264	28.2		
5-6	147	15.7		
Sleep quality				
0-4	120	12.8	7.78±3.14	≤0.05
5-21	816	87.2		R = 0.395
Total	936	100.0	-	-

*The p-values were tested using the independent t-test, ANOVA (*Post hoc*), Pearson and Chi square

Comparison of depression and common complaints of pregnancy by Chi Square and Fisher exact test showed (Table 3) significant association between depression and vomiting, headache, fatigue and drowsiness, heartburn, foot spasm, flatulence, constipation, reluctance to activity and stress ($p \leq 0.05$ for all), except backache and urgency ($p > 0.05$).

DISCUSSION

The 87.2% of Iranian pregnant women also according to the National Sleep Organization; 79% of the pregnant women suffer from sleep disorders. More than 72% of pregnant women will experience waking up repeatedly during the night (Fereshte *et al.*, 2013; Skouteris *et al.*, 2008). Changes in sleep patterns end up to daily dysfunction, maternal fatigue, increased anxiety, fear of child care and accepting maternal role in the family, depression during pregnancy and after delivery, postpartum blues, negative impact on family and indirectly on society and consequently in an economic burden to society (Neau *et al.*, 2009; Kamysheva *et al.*, 2010). Findings of researches demonstrated the idea of sleep problems being a prospective risk factor for increases in depressive symptoms during pregnancy and the utility of the PSQI for assessing these disturbances (Bernard *et al.*, 1975). According to studies the poor sleep quality in the second trimester of

Table 3: Comparison of depression and common complaints of pregnancy

Common complaints of pregnancy	Depression	N	%	p-value*
Vomiting	Yes	192	20.5	≤0.05
	No	744	79.5	
Headache	Yes	138	14.7	≤0.05
	No	798	85.3	
Fatigue and drowsiness	Yes	324	34.6	≤0.05
	No	612	65.4	
Heartburn	Yes	228	24.4	≤0.05
	No	708	75.6	
Foot spasm	Yes	213	22.8	≤0.05
	No	723	77.2	
Flatulence	Yes	132	14.1	≤0.05
	No	804	85.9	
Constipation	Yes	54	5.8	≤0.05
	No	882	94.2	
Reluctance to activity	Yes	30	3.2	≤0.05
	No	906	96.8	
Stress	Yes	144	15.4	≤0.05
	No	792	84.6	
Backache	Yes	435	46.5	>0.05
	No	501	53.5	
Urgency	Yes	477	51.0	>0.05
	No	459	49.0	
Total	-	936	100.0	-

*The p-values were tested using the Chi square and Fisher

pregnancy is directly related to depressive symptoms in late pregnancy (Fereshte *et al.*, 2013). Depression during pregnancy is prevalent, several study found the prevalence of depression in pregnant women with sleep disorder 8-51 and 70% (Holcomb *et al.*, 1996; Bennet *et al.*, 2004; Felice *et al.*, 2004).

Women who experience greater frequency and severity effect of symptoms on life during earlier stages of pregnancy, also likely, suffer from poorer sleep quality at later pregnancy and this poor sleep quality is associated with depressive symptoms (Kamysheva *et al.*, 2010).

In parallel with findings of this study, several researches revealed relationships between depressive, anxiety disorders and mean number of somatic symptoms. Linear regression analysis assessed the association between maternal depression, anxiety and somatic symptoms and demonstrated women with depression and/or anxiety were significantly more likely to report somatic symptoms (Mean = 7.1, SD = 2.6) compared to women without depression or anxiety (Mean = 5.0, SD = 2.6, $p < 0.001$) (Kelly *et al.*, 2001). Whilst in contrast to results of present study Kamysheva *et al.* (2010) showed when earlier pregnancy physical symptoms and later pregnancy sleep quality were entered in the regression analysis at the same time, earlier pregnancy sleep quality was not a significant predictor of later pregnancy depressive symptom as was shown by (Skouteris *et al.*, 2008, 2009; Kamysheva *et al.*, 2010). Also one correlational study analysis indicated significant relationships between somatic symptoms and anxiety, did not showed between somatic symptoms and depressive mood (Bernard *et al.*, 1975).

Our findings suggest that antenatal depressive and sleep disorders are associated with an amplification of physical pregnancy symptoms. Eliciting and tracking somatic symptoms during prenatal visits could potentially improve detection of depressive and sleep disorders in the obstetrical sector.

Like other studies, this study had some limitations, because we did not follow women from the first trimester when dramatic rises of pregnancy related to hormones occur, given our criteria to recruit women after 12 weeks gestation; it is possible that the findings were being the result of hormone-related physical symptoms impacting on poor sleep quality which in turn may influence

on depression. Also during the answering questions may there are few mental attributes and undiagnosed disease had little impact to answer questions which was beyond the control of the researcher, the effect of changes in diet and exercise on sleep pattern could affect the study that were uncontrolled.

CONCLUSION

Given that a large percentage of pregnant women suffer from sleep disorders and along with it from depression and its complications. Hope this period, in addition to usual care, special programs for research, structured psychiatric interview take place to help women for achieving a greater sense of control on their circumstances also screen sleep problems during pregnancy and refer these difficulties to prevent the progressive or further increasing of depressive symptom at a life stage and engage in useful problem solving in health care system of Iran.

REFERENCES

- Barsky, A.J., E.J. Orav and D.W. Bates, 2005. Somatization increases medical utilization and costs independent of psychiatric and medical comorbidity. *Arch. Gen. Psychiatry*, 62: 903-910.
- Beck, A.T., W.Y. Rial and K. Rickels, 1974. Short form of depression inventory: Cross-validation. *Psychol. Rep.*, 34: 1184-1186.
- Bennet, H.A., A. Einarson, A. Taddio, G. Koren and T.R. Einarson, 2004. Prevalence of depression during pregnancy: Systematic review. *Obstetric Gynecol.*, 103: 698-709.
- Bernard, L., H.G. Sprague and R. Aleda, 1975. Mood and somatic symptoms during pregnancy. *Psychosomatic Med.*, 37: 136-146.
- Bourjeily, G., 2009. Sleep disorders in pregnancy. *Obstetric Med.*, 2: 100-106.
- Buyse, D.J., C.F. Reynold, T.H. Monk, S.R. Berman and D.J. Kupfer, 1989. The Pittsburgh sleep quality index: A new instrument for psychiatric practice and research. *Psychiatry Res.*, 28: 193-213.
- Felice, E., J. Saliba, V. Grech and J. Cox, 2004. Prevalence rates and psychosocial characteristics associated with depression in pregnancy and postpartum in Maltese women. *J. Affective Disorders*, 82: 297-301.
- Fereshte, J., R. Elham, B.M. Zahra and H. Hamid, 2013. Prevalence of sleep disorders in the pregnant women. *J. Iran. Institute Health Sci. Res.*, 12: 629-635.
- Goldberg, D.P. and K. Bridges, 1988. Somatic presentations of psychiatric illness in primary care setting. *J. Psychosom. Res.*, 32: 137-144.
- Haas, J.S., R.A. Jackson, E. Fuentes Afflick, A.L. Stewart, M.L. Dean, P. Brawarsky and G.J. Escobar, 2005. Changes in the health status of women during and after pregnancy. *J. Gen. Internal Med.*, 21: 45-51.
- Holcomb, Jr. W.L., L.S. Stone, P.J. Lustman, J.A. Gavard and D.J. Mostello, 1996. Screening for depression in pregnancy: Characteristics of the beck depression inventory. *Obstetric Gynecol.*, 88: 1021-1025.
- Kamysheva, E., H. Skouteris, E.H. Wertheim, S.J. Paxton and J. Milgrom, 2010. A prospective investigation of the relationships among sleep quality, physical symptoms and depressive symptoms during pregnancy. *J. Affective Disorders*, 123: 317-320.
- Kaplan, H.I. and B.J. Sadock, 2009. *Comprehensive Textbook of Psychiatry*. 19th Edn., Lippincott Williams and Wilkins Companies, Philadelphia.

- Kelly, R.H., J. Russo and W. Katon, 2001. Somatic complaints among pregnant women cared for in obstetrics: Normal pregnancy or depressive and anxiety symptom amplification revisited? *Gen. Hosp. Psychiatry*, 23: 107-113.
- Kroenke, K., R.L. Spitzer, J.B.W. Williams, M. Linzer, S.R. Hahn, F.V. Degruy and D. Brody, 1994. Physical symptoms in primary care: Predictors of psychiatric disorders and functional impairment. *Arch. Family Med.*, 3: 774-779.
- Lerner, J. and P. Noy, 1968. Somatic complaints in psychiatric disorders: Social and cultural factors. *Int. J. Soc. Psychiatry*, 14: 145-150.
- Lipowski, Z.J., 1987. Somatization: The experience and communication of psychological distress as somatic symptoms. *Psychotherapy Psychosomatic*, 47: 160-167.
- Mayou, R., L.J. Kirmayer, G. Simon, K. Kroenke and M. Sharpe, 2005. Somatoform disorders: Time for a new approach in DSM-V. *Am. J. Psychiatry*, 162: 847-855.
- McKee, M.D., M. Cunningham, K.R. Jankowski and L. Zayas, 2001. Health related functional status in pregnancy: Relationship to depression and social support in a multi-ethnic population. *Obstetric Gynecol.*, 97: 988-993.
- Moline, M., L. Broch and R. Zak, 2004. Sleep problems across the life cycle in women. *Curr. Treat Options Neural.*, 6: 319-330.
- Neau, J.P., B. Texier and P. Ingrand, 2009. Sleep and vigilance disorders in pregnancy. *Eur. Neural.*, 62: 23-29.
- Rezaei, E., Z.B. Moghadam and H. Hagani, 2015. The effect of sleep health behavioral education on the depression of pregnant women with sleep disorders: A randomized control trial. *Iranian Red Crescent Med. J.*, Vol. 17, No. 1. 10.5812/ircmj.11420
- Sieber, S., N. Germann, A. Barbir and U. Ehlert, 2006. Emotional well-being and predictors of birth-anxiety, self-efficacy and psychosocial adaptation in healthy pregnant women. *Acta Obstetric Gynecol. Scand.*, 85: 1200-1207.
- Simon, G.E. and M. Vonkorff, 1991. Somatization and psychiatric disorder in the NIMH epidemiologic catchment area study. *Am. J. Psychiatry*, 148: 1494-1500.
- Skouteris, H., C. Germano, E.H. Wertheim, S.J. Paxton and J. Milgrom, 2008. Sleep quality and depression during pregnancy: A prospective study. *Eur. Sleep Res. Soc.*, 17: 217-220.
- Skouteris, H., E.L. Wertheim, C. Germano, S.J. Paxton and J. Milgrom, 2009. Assessing sleep during pregnancy: A study across two time points examining the Pittsburgh sleep quality index and associations with depressive symptoms. *Women's Health*, 19: 45-51.
- Trivedi, M.H., 2004. The link between depression and physical symptoms. *Prim Care Companion J. Clin. Psychiatry*, 6: 12-16.
- Zahra, B.M. and R. Elham, 2014. The prevalence of depression in pregnant women with sleep disorder. *J. Psychiatry*, Vol. 17, No. 6.