

Investigating the Relationship between Mental Health and Insomnia in Pregnant Women Referred to Health Centers in Estahban

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Abstract

Pregnancy is the most sensitive period in women's life which makes many physical and mental changes. Sleep problems are one of the issues that are reported by pregnant women. It appears to be associated with psychological consequences in pregnant women. This study aims to investigate the relationship between mental health and insomnia in pregnant women referred to health centers in estahban. This descriptive-analytic study has been done on 182 pregnant women referred to health centers of Estahban in 2015 by available sampling method. Research tools used in this study were general health questionnaire 28 (GHQ 28) and insomnia severity index (ISI). Data were analyzed using Chi-Square and Pearson Correlation tests in SPSS 22 software. Research findings showed that 46.2% of women were suspected of mental disorders, and 58.8% of them suffered from insomnia. According to Chi-square test, there was a significant relationship between total score of mental health and a total score of insomnia ($r=0.58$, $p<0.05$). Also, a significant relationship was observed in all variables of mental health and insomnia ($p<0.05$). Results indicate a high level of mental disorders as well as insomnia among pregnant women; also, the mutual effect of these diseases on each other. As a result, sleep hygiene education as well as appropriate consideration and counseling to pregnant women to treat disorders for achieving a safe pregnancy are recommended.

Abstrak

Investigasi Hubungan antara Kesehatan Psikis dan Insomnia pada Ibu Hamil di Pusat Kesehatan Masyarakat di Estahban. Masa kehamilan adalah masa yang paling sensitif dalam hidup seorang perempuan yang menyebabkan perubahan fisik maupun psikis. Gangguan tidur adalah salah satu hal yang dilaporkan oleh ibu hamil. Hal ini mungkin berhubungan dengan konsekuensi psikologis seorang ibu hamil. Studi ini bertujuan untuk menganalisis hubungan antara kesehatan psikis dan insomnia pada ibu hamil di pusat kesehatan masyarakat di Estahban. Studi deskriptif dan analitik ini telah dilakukan pada 182 ibu hamil yang berkunjung ke pusat kesehatan masyarakat di Estahban pada tahun 2015. Alat ukur yang digunakan pada studi ini adalah general health questionnaire 28 (GHQ 28) dan insomnia severity index (ISI). Data dianalisa dengan Chi-Square dan uji korelasi Pearson menggunakan software SPSS 22. Hasil studi menunjukkan bahwa 46,2% sampel diduga mengalami perubahan mental, and 58,8% mengalami insomnia. Terdapat hubungan bermakna antara skor total kesehatan psikis dan skor total insomnia ($r=0,58$, $p<0,05$). Terdapat juga hubungan yang bermakna antara semua variabel keehatan psikis dan insomnia ($p<0,05$). Hasil menunjukkan adanya perubahan psikis dan juga insomnia diantara sampel pada studi ini. Oleh karena itu, edukasi dan konseling mengenai kesehatan pada masa kehamilah adalah penting.

Keywords: insomnia, mental health, pregnant women

Introduction

Pregnancy and motherhood are enjoyable and evolutionary events in women's life which are associated with physiological changes and psychological adaptations; they require special attention. In spite of this, unfortunately, physiological rather than mental aspects of these periods are considered more.¹ Women's mental condition during pregnancy has a huge impact on the health of fetus; lack

of attention to the mental condition can cause serious consequences. According to researches, severe depression in pregnant women increases the probability of complaints during pregnancy, stillbirth, suicide, and the probability of low-weight birth. Although the reasons for these disorders are not clear, studies show that genetic, biochemical, endocrine, psychological, and social factors are involved.² Sometimes mother's mental disorders avoided appropriate care about the fetus, baby or herself

and consequences were poignant.³ These disorders are risk factors for poor pregnancy outcome such as preterm birth or low birthweight.⁴⁻⁶ Shayeghian *et al.* in 2008, a study conducted in Tehran showed that growth indexes in infants of mothers with high anxiety are significantly lower than infants of non-anxious mothers; also abnormal childbirth and unwanted pregnancy in anxious women are more than non-anxious ones.⁷ The risk of mental health problems increases in husbands of women with mental health problems during pregnancy and after childbirth.⁸ Psychological changes during pregnancy occur naturally, but they are sometimes symptomatic and should seriously be considered so that about half of mental disorders during pregnancy or postpartum are related to depression; 25% are manic and 20% are psychoneurotic.⁹ Sleep disorder is the other problem that pregnant women are commonly suffered. About two third of pregnant women have abnormal sleep patterns and complain about it.¹⁰ Also, about 56% of women in premenopausal or postmenopausal periods suffer from insomnia.¹¹ According to Cunningham *et al.* in 2005, women complain about onset sleep problem, frequent awakenings, fewer sleep hours, and decreased sleep efficiency at the beginning of the 12th week of pregnancy until 2 months after childbirth.¹² Changes in pregnant women's sleep quality may affect their attitudes toward pain experience, childbirth, and the acceptance of maternal role.¹³ Sleep disorder may have different reasons including psychosocial problems, physiological and pathological changes in the body, certain diseases, stopping or taking some medications, and hormonal factors. Pregnancy and menopause are among hormonal factors.¹⁴ The quality of sleep during pregnancy complies fully with physical functions and mental health.¹⁵ Moreover, sleep disorder leads to mental changes.¹⁶ Several pieces of evidence indicate that sleep pattern is a predictor factor for depression.¹⁷ Changes in sleep pattern cause daily dysfunction, fatigue in the mother, loss of family welfare, and consequently reducing the quality of life. Also, the reduction of mental relaxation due to insomnia leads to increase in anxiety and fear of taking care of the baby and the acceptance of a maternal role in the family. In some cases, it makes postpartum sadness and negative effect on the family that indirectly leads to economic burden to society.¹⁰ According to the importance and impact of pregnancy and motherhood on women, women's need for mental health in pregnancy and postpartum periods as well as the effects of mother's health on child, family, society, and economy, also considering the importance of sleep as a vital necessity and consequences of sleep disorders on physical and mental health in pregnant women, the relationship between mental health and insomnia is investigated in this article.

Methods

This descriptive-analytic study has been done on 182 pregnant women referred to health centers of Estahban

in a 3-month period in 2015. The research sample was obtained by available sampling method. Women in all age groups were surveyed, and there were no one with a history of drug and alcohol addiction in the sample. After obtaining their consent to participate in the study, questionnaires were completed by respondents without names. Research tools included two questionnaires. The first was general health questionnaire 28 (GHQ-28) which was presented by Goldberg in 1979. It is a validated instrument measuring psychological disorder in which numbers of different questions are designed. Disorders are measured at four dimensions including "somatic symptoms", "anxiety/insomnia", "social dysfunction", and "severe depression"; each dimension is measured by 7 questions. Score 0 was devoted to "At all", score 1 to "Usual", score 2 to "More than Usual", and score 3 was devoted to "Much More than Usual" in Likert scale. Score more than 6 in each subscale and more than 22 in total indicates pathological symptoms. Indeed, people whose total score was 23 or more than 23 were considered as suspected cases of mental disorders. The validity of this questionnaire has been proven by various studies. The validity in Janbozorgi's study on 223 students was 0.94 and alpha coefficient was obtained 0.81.¹⁸ Then, the insomnia severity index (ISI) which specifies the amount of insomnia was completed by research sample. The questionnaire included seven questions, and each question has 0-4 score; the final score is 28. A score of 0-7 represents normal, 8-14 mild disorder, 15-21 moderate disorder, and 22-28 represents severe sleep disorder. According to different studies, this questionnaire is a reliable and valid tool to determine the severity of insomnia.¹⁹ Descriptive and inferential statistics (Chi-Square Test and Pearson Correlation) in SPSS 22 software were used to analyze data.

Results and Discussion

182 pregnant women were studied in this study, and about 39% were in the age group of 26-30. Only 23% of research sample had academic degrees. Of these women, 7.6% were working outside the home, and only 12.6% had a good economic situation. 51% of studied women were in the second trimester of pregnancy, 52% were pregnant for the first child, and 19.7% had abortion experience (Table 1). Findings also showed that 46.2% of women were suspected to have mental disorders and 58.8% suffer from insomnia with different levels of mild, moderate and severe; there was a significant relationship between these two disorders. Based on Chi-square test with a correlation coefficient of 0.583 and $p = 0.000$, there was a significant relationship between total score of mental health and a total score of insomnia (Table 2). According to the fact that high score in variables of mental health means the probability of subject suffering from any mental disorders, significant results were obtained in investigating the relationship

Table 1. Maternal Characteristics

Characteristic	No(%)
Age, y	
14-20	18(9.9)
21-25	52(28.5)
26-30	71(39)
30≤	41(22.5)
Education	
Their background	140(76.9)
College education	42(23)
Economic situation	
Bad	12(6.5)
Average	145(79.6)
Good	23(12.6)
Job	
Unemployed	167(91.7)
Working	14(7.6)
Gestational age	
First trimester	30(16.4)
Second trimester	93(51)
Third trimester	59(32.4)
Abortion	
Yes	36(19.7)
No	146(80.2)
Stages of pregnancy	
First child	95(52)
Second child	62(34)
Third child or more	25(13.7)

Table 2. Distribution of Insomnia in Groups with Mental Health and without Mental Health

Patient Insomnia	Yes n=84(%46.2)	No n=98(%53.8)
Yes (8-21) n=107(%58.8)	76(90.47)	31(31.60)
No (0-7) n=75(%42.2)	8(9.5)	67(68.36)
Chi-Square Test	p=0.000	

between each variable of mental health and insomnia by Chi-square test. Considering Pearson's correlation coefficients, the highest correlation was observed between anxiety and insomnia by 52% and then somatic symptoms by 48%, depression by 20%, and social dysfunction by 16%, respectively (p<0.05) (Table 3).

Several studies have been conducted in the field of mental health; but studying mental health in pregnant women has high importance and priority, considering their social and cultural differences in different parts of the world. According to the purpose of this study and

Table 3. The Relationship between Mental Health Variables with Insomnia

Mental health variables	Insomnia (%)	Un insomnia (%)	p
Social dysfunction	75 (41.2)	41 (22.5)	0.030
Anxiety and insomnia	73 (40.1)	11 (6)	0.000
Somatic symptoms	66 (36.2)	10 (5.49)	0.000
Depression symptoms	19 (10.4)	3 (1.6)	0.005

research findings, there is a significant relationship between mental disorders and insomnia in pregnant women (p=0.000). Other studies support these findings. Bei in 2015, shows that there is a relationship between poor quality of sleep and mood. Also, it may be a risk factor to create mood problems during pregnancy.²⁰

In a study to examine sleep disorders, Ford showed that 46.5% of patients with hypersomnia and 16.4% of patients with insomnia had a kind of mental disorder. In particular, the risk of new major depression was very high in people with sleep disorders. However, reviewing after one year showed that the risk of new major depression was very low in those whose sleep disorder had been treated.²¹ Skouteris also concludes that the quality of sleep in early pregnancy can highly predict depressive symptoms during later pregnancy periods. However, depressive symptoms in early pregnancy affecting the quality of sleep during later pregnancy periods are not presented in this study.²² The relationship between sleep disorders, particularly insomnia, and depression during pregnancy was confirmed in other studies.²³⁻²⁵ In contrast to the above results, the previous studies show that there is no relationship between sleep disorders and depression,^{26,27} this can be due to the difference in the research sample. While most studies on pregnant women have found a relationship between sleep disorder and depression, a significant relationship was observed between all variables of mental health and insomnia in this study. Among all variables, the relationship between anxiety and insomnia was the most significant correlation (p = 0.000); then physical symptoms, depression, social dysfunction, and insomnia were at lower levels, respectively (p < 0.05). Given the negative excitement that anxiety brings to the patient, also because some questions related to anxiety in GHQ are measured sleep status in a patient, it has been expected that the correlation between anxiety and insomnia had the highest score in this survey. Moreover, considering the importance of involving mechanic factors in mother especially in the third trimester of pregnancy.²⁸ The correlation between physical symptoms and insomnia can be explained. Results in a study on the prevalence of insomnia in various diseases showed that the prevalence of insomnia in many patients with chronic physical and mental disorders is high (50% in this sample), and it is directly related to the deterioration of their quality of life, vitality, and

general health.²⁹ This may reflect the interaction of sleep disorders and physical-mental disorders. In a study on pregnant women, 25% of women reported a high level of fear and 20.6% reported low sleep; also, there was a positive relationship between fear of childbirth, fatigue, sleep deprivation, and anxiety.³⁰ While, having disorders such as depression and anxiety together in pregnant women increase sleep disturbance, aggression, and contention; also the risk of premature birth or low-weight newborns was higher in comparison with women who had either depression or anxiety or no problem.³¹ Also, negative pressure due to mother's depression can affect child's social, physical and mental growth.³²

Conclusions

Mental health problems and sleep disorder are common problems during pregnancy which may underlie many other problems before, during and after childbirth. Therefore, ignoring each of these issues may have important consequences for public health and not only the mother will be suffered, but important and significant effects will occur in fetus/infant as well as on families. Research findings represent the importance of informing women and their families about these disorders and the effect of predisposing or resonator factors as well as the need to know how to tackle and resolve them. On the other hand, therapists' and caregivers' acquaintance about this issue is very important in helping pregnant women.

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References

- Lowdermilk F, Perry S. *Maternity & women health care*. 8th ed. Washington: Mosby; 2004.
- National Institute For Health and Clinical Excellence. *Antenatal and postnatal mental health: the nice guideline on clinical management and service guidance*. [Internet]. 2007. Available from <http://publications.nice.org.uk/antenatal-andpostnatal-mental-health-cg45>
- Bonari L, Pinto N, Ahn E, Einarson A, Steiner M, Koren G. Perinatal risks of untreated depression during pregnancy. *Can. J. Psychiatry*. 2004;49: 726-735.
- Grote NK, Bridge JA, Gavin AR, Melville JL, Iyengar S, Katon WJ. A meta-analysis of depression during pregnancy and the risk of preterm birth, low birthweight, and intrauterine growth restriction. *Arch Gen Psychiatry* 2010;67: 1012-1024.
- Grigoriadis S, VonderPorten EH, Mamisashvili L, Tomlinson G, Dennis CL, Koren G. The impact of maternal depression during pregnancy on perinatal outcomes: a systematic review and meta-analysis. *J. Clin. Psychiatry*. 2013;74:e321-341.
- Ibanez G, Charles MA, Forhan A, Magnin G, Thiebaugeorges O, Kaminski M, Saurel-Cubizolles MJ. Depression and anxiety in women during pregnancy and neonatal outcome: data from the Eden mother-child cohort. *Early Hum. Dev.* 2012;88: 643-649.
- Shayeghian Z, Rasoulzadeh Tabatabaei SK, Seddighi Louyeh E. The effect of mother's anxiety on childbirth and child's mental health during the last third trimester of pregnancy. *J. Fac. Nurs. Midwifery in Tehran Univ. Med. Sci.* (Hayat). 2008;14: 57-64.
- Lovestone S, Kumar R. Postnatal psychiatric illness: The impact on partners. *Br J. Psychiatry*. 1993;163:210-216.
- Louise B, Narcoma C, Gomes A. Depression during pregnancy. *Obstet. Gynecol. J.* 2003;68: 372-386.
- Lopes EA, Carvalho LB, Seguro PB, Mattar R, Silva AB, Prado LB, et al. Sleep disorders in pregnancy. *Arquivos Neuro-Psiquiatr.* 2004;62: 217-221.
- Da costa D, Larouche J, Dritsa M, Brender W. Psychosocial correlates of prepartum and post partum depressed mood. *J. Affect. Disord.* 2000;59: 31-34.
- Jahdi F, Rezaee E, Behboodi moghadam Z, Haghani H. The study of sleep disorders and associated factors in the second trimester of pregnancy. *Payesh Quarterly*. 2013;12: 629-635
- Lee KA, Gay Cl. Sleep in late pregnancy predicts length of labor and type of delivery. *Am. J. Obstet. Gynecol.* 2004; 191: 2041-2060.
- Evans ML, Dick MJ. Sleep during the week before labor: relationship to labor outcomes. *Clin. Nurs. Nes.* 1995;4: 238-252.
- Jomeen J, Martin CR. Assessment and relationship of sleep quality to depression in early pregnancy. *Reprod. Infant Psychol.* 2007;25: 87-99.
- Sobel RM, Markov D. The impact of anxiety and mood disorders on physical disease: the worried not-so-well. *Curr Psychiatry Rep.* 2005; 7: 206-212.
- Reid KJ, Martinovich Z, Finkel S, Statsinger J, Golden R, Harter K, Zee PC. Sleep: a marker of physical and mental health in the elderly. *Am. J. Geriatr. Psychiatry.* 2006;14: 860-66.
- Janbozorgi M. Religious orientation and mental health. *Pejouhesh.* 2007;31: 345-350.
- Bastien CH, Vallieres A, Morin CM. Validation of the insomnia severity index as an outcome measure for insomnia research. *Sleep Med.* 2001;2: 297-307.
- Bei B, Coo S, Trinder J. Sleep and mood during pregnancy and the postpartum period. *Sleep and Psychiatry in Adults.* 2015; 10: 25-33.
- Ford DE, Kamerow DB. Epidemiologic study of sleep disturbances and psychiatric disorders an opportunity for prevention?. *Am. Med. Assoc.* 1989;262: 1479-148.
- Skouters H, Germano C, Wertheim EH, Paxton SJ, Milgrom J. Sleep quality and depression during pregnancy: a prospective study. *J. Sleep Res.* 2008;17: 217-220.
- Bandad R, Abedian Z, Hassanabady H, Esmaili H. The relationship between sleep pattern and depression during the last third trimester of pregnancy. *J. Kermanshah Univ. Med. Sci(Behboud)*. 2005;9: 41-51.
- Parsaie Rad E, Amir Ali Akbari S, Sadeghniaat Kh, Alavi Majd H. Relationship between sleep disorder and pregnancy depression in primigravidae referring to health- treatment centers of ahvaz jundishapur university

- of medical sciences in 2010. *J. Shahid Sadoughi Univ. Med. Sci.* 2011;19: 454-462.
25. Asltoghiri M, Ghodsi Z. Study of the relation between sleep disorder and depression at late stage of pregnancy. *Procedia – Soc. Behav. Sci.* 2011;28: 430-434.
 26. Okun ML, Coussons-Read ME. Sleep disruption during pregnancy: How does it influence serum cytokines?. *Reprod. Immunol.* 2007;73: 158-165.
 27. Dorhem SK, Bodecic GT, Eberhard M, Bjorvant B. Subjective and objective sleep among depression and non-depression postnatal. *Acta Psychiatry Scand.* 2008;119: 128-136.
 28. Sahota PK, Jain SS, Dhand R. Sleep disorders in pregnancy. *Curr. Opin. Pulm. Med.* 2003;9: 477-483.
 29. Katz DA, McHorney CA. The relationship between insomnia and health-related quality of life in patients with chronic illness. *J. Fam. Pract.* 2002;51: 229-235.
 30. Hall WA, Hauck YL, Carty EM, Hutton EK, Fenwick J, Stoll K. Childbirth fear, anxiety, fatigue, and sleep deprivation in pregnant women. *Obstet. Gynecol. Neonatal Nurs.* 2009;38: 567-576.
 31. Field T, Diego M, Hernandez-Reif M, Figueiredo B, Deeds O, Ascencio A, Schanberg S, Kuhn C. Comorbid depression and anxiety effects on pregnancy and neonatal outcome. *Infant Behav Develop.* 2010;33: 23-29.
 32. Rahman A, Iqbal Z, Bunn J, Lovel H, Harrington R. Impact of maternal depression on infant nutritional status and illness: a cohort study. *Arch. Gen. Psychiatric.* 2004;61: 946-952.