ORIGINAL ARTICLE

Antenatal depression: Prevalence and risk factors in a hospital based Turkish sample

Emre Yanikkerem,[1] Semra Ay,[2] Selviye Mutlu,[3] Asli Goker[4]

Abstract

Objective: To assess the prevalence and associated risk factors for antenatal depression.

Methods: From April to September 2011, a total of 651 pregnant women who had no chronic diseases, were at low risk for obstetric complications and who had no diagnosed depression before pregnancy were recruited for interview at Merkez Efendi Hospital, Maternal and Child out-patient department in western Turkey. The evaluation of depression was scored according to the Beck Depression Inventory. Statistical analysis was carried out using Chi-square, Fisher exact, t test and stepwise multiple regression analyses.

Result: Of the total, 71 (10.9%) women scored ≥17 on the inventory. Low level of education, unplanned pregnancy, lack of social support and pregnancy-related physical symptoms were found to be the most important risk factors for antenatal depression.

Conclusion: Early identification and treatment of antenatal depression may improve pregnancy outcomes, and healthcare providers need to be sensitive to the risk factors for depression and strengthen the women's skills in coping with stress to improve their emotional health.

Keywords: Antenatal depression, Prenatal depression, Pregnancy-related physical symptoms, Unplanned pregnancy, Social support. (JPMA 63: 472; 2013)

Introduction

Pregnancy is supposed to be one of the happiest times of a woman's life, but many women experience physiological, psychological and social changes, and attempt to adapt to these changes during pregnancy. Antenatal depression (AD) is a mood disorder just like clinical depression. Hormonal changes can affect brain chemicals, which are directly related to depression. In this period, depression may be diagnosed if emotional disturbances last longer than two weeks, disturbances occur in memory and concentration, the woman experiences weightloss and loss of appetite or wakes up early in the morning. Depression is likely if the woman feels a general loss of interest and energy, generalised guilt and hopelessness, and has thoughts of self-harm.[1-3]

Detection and adequate treatment of AD are critical public health issues for researchers, clinicians and policymakers to address. Unidentified and untreated depression can lead to detrimental effects on the mother and the child. Depressed women are more likely to have unhealthy practices during pregnancy and to have higher rates of poor nutrition, in part due to a lack of appetite, leading to poor weightgain during pregnancy and risking intrauterine growth. Depressed women are less compliant with prenatal care and feel less invested in the care toward their pregnancy. Women with depression also have increased pain and discomfort during their pregnancies, reporting worse nausea, stomach pain, shortness of breath, gastrointestinal symptoms, heart pounding, and dizziness.[4-6]

Untreated depression in pregnancy has been also associated with poor pregnancy and birth outcomes such as, maternal pre-eclampsia, low birthweight, smaller head circumference, increased risk of premature delivery, increased surgical delivery interventions, lower APGAR scores, and is considered to be the strongest risk factor for postpartum depression.[5,7,8]

Previous studies found that the prevalence of AD was 14.2% in Brazilian women,[9] 19% in Jordan,[10] 15.5% in Malta,[8] 25% in Jamaica,[11] 48.4% in Pakistan,[12] and 32.0% in Japan.[13] The literature on depression during pregnancy among Turkish women is scarce, with only a few published studies reporting prevalence rates ranging from 25.0% to 30.0%.[1-3,14]

Most studies related to AD have focused on establishing the factors that affect postpartum depression and measures needed to be taken to prevent it because of the negative effects of depression on the mother and the baby.[1,7,10,11,15,16] Some researchers also stated that

[1]School of Health, [2]Vocational School of Health, [3]Institute of Health Sciences, [4]Faculty of Medicine, Celal Bayar University, Istasyon mevki, Manisa, Turkey.
Correspondence: Asli Goker. Email: asligoker@gmail.com

pregnancy-related physical symptoms are associated with AD.[6,17,18] The aim of the study was to evaluate how often pregnant women experienced AD, and to determine the associated risk factors that affect the development of AD.

Subjects and Methods

The study was conducted on pregnant women who presented for antenatal care at the Maternal and Child Out-patient Department of Merkez Efendi Hospital, in Manisa, Turkey, from April to September 2011. According to the registration records of the data-collection period, 1861 women came for prenatal care. Some women attended the clinic more than once during the period but were included only once in the study. A total of 704 pregnant women applied to the outpatient clinic during this period. However, 21 women did not want to take part in the study, and four had pre-eclampsia, seven women had risk of pre-term birth, three women had stillbirth and 18 women had depression before pregnancy. Therefore, the final sample size was 651 (92.47%) pregnant women who agreed to participate, had no chronic diseases, were at low risk for obstetric complications and had no diagnosed depression before pregnancy.

The cross-sectional study was conducted using a questionnaire which consisted of three parts. The first part comprised questions about women's socio-demographic and reproductive characteristics, such as age, education, income status, number of pregnancies, birth and children. Depression was measured by the Beck Depression Inventory (BDI) which was developed by Beck et al. (1979), and was adapted for Turkish use by Hisli (1988).[19] The tool is a self-reporting instrument with 21 items that measure the emotional, somatic, cognitive and motivational symptoms seen in depression. It has been reported[19] that a BDI score of 17 or higher has a 90% level of confidence in being able to differentiate those who need treatment for depression. On evaluation, every item is scored between 0 and 3, and the scores from every item are added up to give the depression score. The highest possible score from the instrument is 63. The last part included Pregnancy-related physical symptoms questionnaire (PPSQ) which was developed by Bakici (1990) and includes 24 symptoms. The validity and reliability of the questionnaire was not done, but the PPSQ included the common list of problems which are raised in pregnancy. On evaluation, every item is scored between 1 and 2, and the scores from every item are added up to give the total PPSQ score. The PPSQ included symptoms such as indigestion, nausea and vomiting, increased or decreased appetite, constipation, frequent urination, haemorrhoids, backache, dyspnoea, headache, leg cramps, feeling tired, decreased sexual desire etc. Higher scores indicate higher pregnancy-related physical problems and the potential questionnaire range is 24 to 48.[20]

Approval for the study was obtained from the Ethics Committee of the University of Celal Bayar and informed consent was obtained from all women. The questionnaires were administered by means of a face-to-face interview before consultation in the out-patient clinic of the hospital, in a room separated from the clinic, and the took approximately 20-30 minutes to complete. Women with a total BDI score of 17 or higher were sent to the clinical psychologist.

Statistical analysis were done using SPSS 11.5. Chi square test and Fisher test were used in order to identify the relationship between women's sociodemographic variables and BDI scores. We used t-test to analyse whether there is difference in BDI scores when compared according to age (years), number of pregnancy, number of birth, number of children, and PPSQ score. BDI scores were grouped, based on as women with no depression (BDI scores <17) and women with depression (BDI scores =17). A value of $p<0.05$ was considered statistically significant.

Univariate analyses was used at the first stage of statistical analysis to determine significant differences between independent variables (women's characteristics) and dependent variables (BDI scores). Significant parametres for independent variables (education of women, family type, satisfaction with marital life, perceived social support, wanted pregnancy, planned pregnancy, trimester of pregnancy, age of women, number of pregnancy, parity and children and PPSQ score) were examined using stepwise multiple regression analysis. In the models, the error term analysis evaluated the data normality, linearity and constant variance (homoscedasticity). There was a significant auto-correlation between number of pregnancies, parity and children, and, therefore, the number of pregnancies and children were excluded from the model. Afterwards 10 significant variables were kept in the depression model and Durbin-Watson was calculated.

Results

Over half of the women (n=362; 55.6%) had qualified from primary school, most (n=571; 87.7%) were unemployed, and 74.2% (n=483) women stated that their income level was medium. Overall, 50 (7.7%)

Table-1: Women characteristics associated with antenatal depression.

		Depression score			
		Women with no depression (<17)	Women with depression (≥17)		
Characteristic of women	**n (%)**	**n (%)**	**n (%)**	**Test**	**P-value**
Education level of women					
Not illiterate	126 (19.4)	99 (78.6)	27 (21.4)		
Primary	362 (55.6)	329 (90.9)	33 (9.1)		
High school	163 (25.0)	152 (93.3)	11 (6.7)	χ^2=18.451	<0.000
Education level of husband					
Not illiterate	32 (4.9)	26 (81.3)	6 (18.8)		
Primary	409 (62.8)	365 (89.2)	44 (10.8)		
High school	210 (32.3)	189 (90.0)	21 (10.0)	χ^2=2.213	<0.331
Employment status					
Housewife	571 (87.7)	505 (88.4)	66 (11.6)		
Employed	80 (12.3)	75 (93.8)	5 (6.3)	Fisher's Exact test	<0.182
Perceived income level					
Low	89 (13.7)	80 (89.9)	9 (10.1)		
Middle	483 (74.2)	428 (88.6)	55 (11.4)		
High	79 (12.1)	72 (91.1)	7 (8.9)	χ^2=0.513	<0.774
Health insurance					
Yes	572 (87.9)	515 (90.0)	57 (10.0)		
No	79 (12.1)	65 (82.3)	14 (17.7)	Fisher's Exact test	<0.052
Family type					
Nuclear family	501 (77.0)	455 (90.8)	46 (9.2)		
Extended family	150 (23.0)	125 (83.3)	25 (16.7)	Fisher's Exact test	<0.016
Satisfied with marital life					
Yes	389 (59.8)	356 (91.5)	33 (8.5)		
No	262 (40.2)	224 (85.5)	38 (14.5)	Fisher's Exact test	<0.021
Perceived social support					
Yes	601 (92.3)	542 (90.2)	59 (9.8)		
No	50 (7.7)	38 (76.0)	12 (24.0)	Fisher's Exact test	<0.007
The wanted status of pregnancy					
Wanted	552 (84.8)	505 (91.5)	47 (8.5)		
Unwanted	99 (15.2)	75 (75.8)	24 (24.2)	Fisher's Exact test	<0.000
The planning status of pregnancy					
Planned	441 (67.7)	406 (92.1)	35 (7.9)		
Unplanned	210 (32.3)	174 (82.9)	36 (17.1)	Fisher's Exact test	<0.001
Trimester of pregnancy					
First	71 (10.9)	58 (81.7)	13 (18.3)		
Second	219 (33.6)	203 (92.7)	16 (7.3)		
Last	361 (55.5)	319 (88.4)	42 (11.6)	χ^2=7.124	<0.028
Total	651 (100.0)	580 (89.1)	71 (10.9)		

χ^2= Chi Square.

women did not perceive social support from a significant person emotionally during pregnancy. In all 441 (67.7%) reported that their present pregnancy was planned, and 99 (15.2%) reported it was unwanted.

Overall, 71 (10.9%) women scored ≥17 on the BDI, indicating AD. Depressive symptoms were found in 27 (21.4%), 33 (9.1%), and 11 (6.7%), respectively for the women with no formal education, primary education, and high school education. Women who were dissatisfied with their marriage 38 (14.5%) were more likely to be depressed than women who were satisfied 33 (8.5%). It was found that BDI scores were ≥17 in women who had no perceived support from a significant person 12 (24.0%). Overall, 24 (24.2%) women with unplanned and 36 (17.1%) women with unwanted pregnancy had a significantly higher rate of depression than the planned and wanted pregnancy groups 47 (8.5%) and 35 (7.9%), respectively). The BDI score was found ≥17 in 13 (18.3%) women in the first

Table-2: Distribution of some variations by antenatal depression.

	Depression score						
	Women with no depression (<17)		Women with depression (≥17)				
Variables	Mean	SD	Mean	SD	t test	df	P-value
Age (years)	25.4	4.9	27.8	6.7	-2.900	79.660	<0.005
Number of pregnancies	2.1	1.3	2.8	2.1	-2.878	76.526	<0.005
Number of birth	0.9	1.1	1.6	1.8	-3.427	76.219	<0.001
Number of children	0.8	1.0	1.5	1.7	-3.155	76.644	<0.002
Score of pregnancy-related physical symptoms questionnaire	33.9	3.7	36.7	3.4	-6.005	649	<0.000

Table-3: Factors related to depression during pregnancy in multiple regression analysis.

	Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
	B	Std. Error	Beta	t	p-value	Lower Bound	Upper Bound
(Constant)	-18.987	2.925		-6.492	0.000	-24.730	-13.244
Age of women	0.790	0.512	0.060	1.543	0.123	-0.216	1.796
Education level of women	-1.492	0.373	-0.152	-4.005	0.000	-2.224	-0.760
Family type	0.258	0.553	0.017	0.467	0.641	-0.829	1.345
Parity	-0.545	0.537	-0.004	-0.102	0.919	-1.109	1.000
The wanted status of pregnancy	0.717	0.835	0.039	0.858	0.391	-0.923	2.356
The planning status of pregnancy	1.413	0.605	0.101	2.335	0.020	0.225	2.601
Trimester of pregnancy	0.187	0.330	0.020	0.568	0.570	-0.460	0.834
Dissatisfaction in marital life	0.606	0.480	0.046	1.262	0.207	-0.337	1.548
Perceived social support	2.421	0.873	0.099	2.774	0.006	0.707	4.135
Total pregnancy-related physical symptoms score	0.678	0.060	0.394	11.369	0.000	0.561	0.795

trimester, 16 (7.3%) and 42 (11.6%) in the second and the last trimester, respectively (p <0.05) (Table-1).

The mean age of women with depression was 27±6.7 years while it was 25.4±4.9 years for those with no depression (p=0.005) (Table-2).

The regression analysis showed four factors to affect AD as follows: lower education level of women, unplanned pregnancy, lack of social support during pregnancy and higher total score of PPSQ. The descriptive strength of this model was determined to be 0.244 (Table-3).

Discussion

Depression is a major public concern that needs to be at the forefront of antenatal assessments in Turkey as in other countries. Health professionals in prenatal settings are in a unique position to detect AD. In this study, about one out of 10 women had depressive symptoms and this finding was lower than earlier studies conducted in Turkey (30.0%, 27.9%, 27.3%, and 27.5%, respectively).[1-3,14] Previous studies reported AD prevalence rates ranging from 14.2% to 32.0%.[7,8,13] The rates of AD are similar to rates reported in countries such as Hong- Kong and Japan.[21,22] The reason for the lower rate of AD was probably because the study sample did not include women who had a history of depression before pregnancy. The findings show that the prevalence of AD may vary in women with different cultural backgrounds and the importance of asking all pregnant women about their feelings so that supportive care can be given.

Many factors under investigation were associated with AD. For this reason, health professionals who provide prenatal care need to be sensitive to the risk factors for depression and strengthen the women's skills in coping with stress to improve their emotional health. In the study, older women had higher AD symptoms. This was similar to findings reported from Turkey,[1,14] Australia,[7] and USA.[15] Older women may benefit from routine AD screening for early diagnosis and intervention. The relationship of education to the experience of depression throughout adult life is unclear. Similiar to other studies, our findings show that low educational levels were significantly associated with AD.[2]

Our findings show that being a housewife influenced the experience of AD. Similarly, one study in Jamaica found employment to be a protective factor for depression.[11] Being a housewife in a traditional Turkish family structure can restrict social relationships and economic independence. The relationship between income level and depression may be quite complex and contrary to our findings, previous studies stated that financial problems were associated with AD.[7,10]

Women who reported dissatisfaction with their marriages had more depressive symptoms. This finding is supported by a study in Turkey.[1] For this reason, this problem should be considered when providing prenatal care. Lack of social support has been linked to the risk of developing AD and it seems to be crucial to women's psychological well-being during pregnancy. Similar findings were reported in Turkey,[1] Jamaica,[11] Australia,[7] and USA.[16] On the basis of the findings, it is important for the health professionals to provide support for women during pregnancy in order to reduce depressive symptoms. Opportunities need to be provided for women to talk through their pregnancy experiences, gain a better understanding of the sequence of event, and to express their feelings in relation to pregnancy, baby and birth.

In the study, BDI scores of the women with unplanned pregnancies were higher than those of women with planned pregnancies. Consistent with other study findings,[1,2,10,11,23] unplanned pregnancy may have negative effects on the psychology in the prenatal periods, and the woman may need more support. For this reason, women who report unplanned pregnancies during prenatal care, must be educated of their increased risk; the provision of modern family planning education can prevent unplanned pregnancies and improve the level of psychological health of pregnant women.

While some studies show that multiparity is a risk factor for AD,[14] others reveal no association between parity and AD.[24] The influence of parity on AD is also not consensual. In the study, the BDI score of multiparas was significantly higher than that of primiparas. In the study the highest prevalence of depressive disorders was found in the first trimester; the lowest in mid-pregnancy. Similar findings were reported by other studies.[23,24]

Pregnancy-related physical symptoms are unpleasant and may have negative effects on women's daily life. Similar with other studies,[4,5] women with AD reported more indigestion, decreased appetite, constipation, tooth or gum pain, dyspnoea, skin irritation, bloating, headache, leg cramps, reduction in motion, clumsiness, feeling tired, and decreased sexual desire. Depressive symptoms such as fatigue and decrease of appetite may lead to poor nutrition and affect women's health negatively. Some studies found that nausea and vomiting are associated with depression.[6,18,25] The relationships found between pregnancy-related physical symptoms and AD suggest that healthcare providers need to be alert to the importance of screening when pregnant women describe any one of them. For this reason, it is necessary to address physical problems in addition to psychological problems while providing care.

Healthcare providers can evaluate pregnant women for AD risk factors, can arrange for additional followup, provide preventive care and, when necessary, assist with early diagnosis and treatment to improve the health of mothers and babies. Targeted interventions for AD may reduce both the symptom severity and incidence of AD. More information is needed, however, on the subject, and it is recommended that further research be conducted to support the findings of this study.

Conclusion

Unplanned pregnancy, lack of social support, lack of education of women, and pregnancy-related physical symptoms were found to be associated with AD. Health providers caring for women should be aware of personal and epidemiological factors that place women most at risk for AD. In addition, open discussion about AD may help reduce the stigma associated with depression and encourage women to seek help.

References

1. Karacam Z, Ancel G. Depression, anxiety and influencing factors in pregnancy: a study in a Turkish population. Midwifery 2009; 25: 344-56.
2. Yanikkerem E, Ay S, Piro N. Planned and unplanned pregnancy: Effects on health practice and depression during pregnancy. J Obstet Gynaecol Res 2013; 39: 180-7.
3. Caliskan D, Oncu B, Kose K, Ocaktan ME, Ozdemir O. Depression scores and associated factors in pregnant and non-pregnant women: a community-based study in Turkey. J Psychosom Obstet Gynaecol 2007; 28: 195-200.
4. Benute GR, Nomura RM, Reis JS, Fraguas Junior R, Lucia MC, et al. Depression during pregnancy in women with a medical disorder: risk factors and perinatal outcomes. Clinics (Sao Paulo) 2010; 65: 1127-31.
5. Marcus SM, Heringhausen JE. Depression in childbearing women: when depression complicates pregnancy. Primary Care 2009; 36: 151-65.
6. Koken G, Yilmazer M, Cosar E, Sahin FK, Cevrioglu S, Gecici O. Nausea and vomiting in early pregnancy: relationship with anxiety and depression. J Psychosom Obstet Gynaecol 2008; 29: 91-5.
7. Leigh B, Milgrom J. Risk factors for antenatal depression, postnatal depression and parenting stress. BMC Psychiatry 2008; 8: 24.

8. Felice E, Saliba J, Grech V, Cox J. Prevalence rates and psychosocial characteristics associated with depression in pregnancy and postpartum in Maltese women. J Affect Disorders 2004; 82: 297-301.
9. Pereira PK, Lovisi GM, Pilowsky DL, Lima LA, Legay LF. Depression during pregnancy: prevalence and risk factors among women attending a public health clinic in Rio de Janeiro, Brazil. Cad Saúde Pública 2009; 25: 2725-36.
10. Mohammad KI, Gamble J, Creedy DK. Prevalence and factors associated with the development of antenatal and postnatal depression among Jordanian women. Midwifery 2010; 27: e238-45.
11. Pottinger AM, Trotman-Edwards H, Younger N. Detecting depression during pregnancy and associated lifestyle practices and concerns among women in a hospital- based obstetric clinic in Jamaica. Gen Hosp Psychiat 2009; 31: 254-61.
12. Shah SM, Bowen A, Afridi I, Nowshad G, Muhajarine N. Prevalence of antenatal depression: comparison between Pakistani and Canadian women. JPMA 2011; 61: 242-6.
13. Ishikawa N, Goto S, Murase S, Kanai A, Masuda T, Aleksic B, et al. Prospective study of maternal depressive symptomatology among Japanese women. J Psychosom Res 2011; 71: 264-9.
14. Golbasi Z, Kelleci M, Kisacik G, Cetin A. Prevalence and correlates of depression in pregnancy among Turkish women. Matern Child Health J 2010; 14: 485-91.
15. Luke S, Salihu HM, Alio AP, Mbah AK, Jeffers D, Berry EL, et al. Risk factors for major antenatal depression among low-income African American women. J Womens Health (Larchmt) 2009; 18: 1841-6.
16. Spoozak L, Gotman N, Smith MV, Belanger K, Yonkers KA. Evaluation of a social support measure that may indicate risk of depression during pregnancy. J Affect Disord 2009; 114: 216-23.
17. Trivedi MH. The link between depression and physical symptoms. Prim Care Companion J Clin Psychiatr 2004; 6: 12-6.
18. Chou F, Lin L, Cooney A, Walker L, Riggs M. Psychosocial factors related to nausea, vomiting, and fatigue in early pregnancy. J Nurs Scholarsh 2003; 35: 119-25.
19. Hisli N. A study on the validity of beck depression inventory. Turk J Psychol 1988; 6: 118-22.
20. Bakici A. Determination of physical symptoms during pregnancy and the factors which was affected the symptoms. Ege University Institute of Healthy Science; 1990; pp 50-6.
21. Lau Y, Keung DW. Correlates of depressive symptomatology during the second trimester of pregnancy among Hong Kong Chinese. Soc Sci Med 2007; 64: 1802-11.
22. Kitamura T, Yoshida K, Okano T, Kinoshita K, Hayashi M, Toyoda N, et al. Multicentre prospective study of perinatal depression in Japan : incidence and correlates of antenatal and postnatal depression. Arch Womens Ment Health 2006; 9: 121-30.
23. Bunevicius R, Kusminskas L, Bunevicius A, Nadisauskiene RJ, Jureniene K, Pop VJ. Psychosocial risk factors for depression during pregnancy. Acta Obstet Gynaecol Scand 2009; 88: 599-605.
24. Teixeira C, Figueiredo B, Conde A, Pacheco A, Costa R. Anxiety and depression during pregnancy in women and men. J Affect Disord 2009; 119: 142-8.
25. Swallow BL, Lindow SW, Masson EA, Hay DM. Psychological health in early pregnancy: relationship with nausea and vomiting. J Obstet Gynaecol 2004; 24: 28-32.