

DEPRESSION IN PREGNANT WOMEN: RELATIONSHIP FACTORS AND EFFECT OF BODY IMAGE ON DEPRESSION

Seda Eryılmaz¹, Neşe Çelik²

¹ Department of Midwifery, Faculty of Health Sciences, Kırşehir Ahi Evran University, Kırşehir, Türkiye

² Department of Midwifery, Faculty of Health Sciences, Eskisehir Osmangazi University, Eskisehir, Türkiye

ORCID: S.E. 0000-0002-6102-8467; N.Ç. 0000-0002-2071-5615

Corresponding author: Neşe Çelik, **E-mail:** ncelik@ogu.edu.tr

Received: 25.11.2022; **Accepted:** 12.10.2023; **Available Online Date:** 31.01.2024

©Copyright 2021 by Dokuz Eylül University, Institute of Health Sciences - Available online at <https://dergipark.org.tr/en/pub/jbachs>

Cite this article as: Eryılmaz S, Çelik N. Depression in Pregnant Women: Relationship Factors and Effect of Body Image on Depression. J Basic Clin Health Sci 2024; 8: 39-45.

ABSTRACT

Purpose: Depression is an important problem that needs to be taken into consideration, since it affects maternal and infant health. This study was conducted to determine the depressive symptoms of pregnant women and investigate their body image and some related factors.

Material and Methods: A cross-sectional design was used in the study, and it was conducted with the participation of 520 pregnant women in Türkiye. The data collection tools included the Personal Information Form, Beck's Depression Inventory, and Body Cathexis Scale.

Results: In the study, 24.6% of the pregnant women have depressive symptoms. Pregnant women's low educational level, poor income, chronic diseases, "low" BMI, and whether they smoke or not were found to be related factors to depressive symptoms ($p<0.05$). Besides, pregnant women with depressive symptoms have lower body image satisfaction ($p<0.05$). The study found that body image affects depressive symptoms in the ratio of 0.971 times (Beta: -0.029 ; $p<0.05$).

Conclusion: This study presented that one-fourth of pregnant women have depressive symptoms. It was found that pregnant women's low educational level, poor income, chronic diseases, and low BMI score and whether they smoke or not are the factors related to the depressive symptoms. Besides, body image is a risk factor affecting the depressive symptoms for pregnant women.

Keywords: Body image, depression, pregnant women

INTRODUCTION

Pregnancy is an important period which has been associated with physiological and psychological changes in women. Many pregnant women have difficulties in adapting to the changes in pregnancy and experience psychological problems. Depression is one of the most common psychological problems during pregnancy. Epidemiological studies presented that the frequency of depression increases among pregnant women. According to the results of studies conducted among different countries with high, middle, and low income levels the prevalence of depression in pregnant women was between 9.2-81%

(1-6). Many factors can affect depression during pregnancy. Influencing factors include hormonal and physiological changes, as well as sociodemographic and obstetric factors (1, 5).

Body image is an internal presentation of appearance and a universal issue. Pregnancy is an important period in which the perception of body image is affected. Dissatisfaction with the body image can lead to depression in pregnant women (7). Depression and dissatisfaction with the body image during pregnancy can spoil the process of pregnancy. Depression is an important psychological problem that needs to be taken into consideration since it affects both maternal

and infant health. For this reason, this study aimed to determine the depressive symptoms of pregnant women and investigate their body image and some related factors.

MATERIAL AND METHODS

Study design and sample

This cross-sectional study was conducted with pregnant women who applied to a state university's training and research hospital, obstetrics and gynecology clinics in Türkiye between April 28 and August 31, 2016.

Power analysis was used to determine the sample of the study. A pre-application was executed and data were computed to the G-power 3.1.9.2 software. When the effect size (f^2) = 0.28, I. type error probability $\alpha = 0.05$ and the power of test $1-\beta = 0.95$ (%95) were acquired, the minimum number of pregnant women to be included in the study was calculated as 312. The study was completed with 520 pregnant women considering the probabilities of lost cases, pregnant women's unwillingness to participate, or their status of having unacceptable inclusion criteria.

Measures and procedure

In this study, the Beck Depression Inventory (BDI), the Body Cathexis Scale (BCS) and the Personal Information Form (consisting of the questions about the pregnant women's sociodemographic and obstetric characteristics) were used as data collection tools.

BDI: The BDI was developed in 1961 by Beck. Hisli (1989) conducted its reliability and validity study in Turkish. Those with a total score of 17 points or more are considered to have 'depressive symptoms' and those below 17 points are considered to have 'no depressive symptoms' (8).

BCS: This scale was developed by Secord and Jourard in 1953. Its validity and reliability study was done by Hovardaoglu (1993) in Turkey. The scale measures satisfaction with a person's body. It consists of 40 questions with 5-point Likert type. The lowest and highest scores that can be taken from the scale are 40 and 200, respectively. A higher score means a higher positive body image (9).

In the study, the fact that pregnant women were older than the age of 35 is considered a risk factor for maternal and infant health. Those who smoke 1 cigarette per day were considered as regular smokers; those who consume alcohol at least once a

week were considered to be using alcohol. Nuclear family was defined as the mother, father and their children living in the same house. Extended family was defined as a family consisting of two parents, their children, and their relatives such as grandparents all living in the same house. Gestational weeks were divided into trimesters. The first trimester is from week 1 to 12. The second trimester is from week 13 to 26. The third trimester is from week 27 to the birth. As for, concerning the status of exercise, it was accepted to exercise for 30 minutes at least 3 times a week. Number of pregnancies was used to define pregnant women, and the ones who would give birth for the first time were considered as primiparous, and those who had more than one birth were considered as multiparous. Data collection forms were filled in the form of face to face interview by the researcher. This process took about 30 minutes.

Statistical analysis

We analyzed the study data on the SPSS (version 22.0). Numerical variables were presented as frequency and percentage. Scores of the pregnant women which were taken from the scales were presented as mean and standard deviation. For the categorical variables, the chi-square test and the independent samples t-test were used. The relationships between the scores obtained from the scales were assessed by Binary logistic regression analysis. Statistical significance was accepted as $p < 0.05$.

Ethical statement

The study was approved by a state university's ethics committee (Date: 27.04.2016, No: 2016-05/06). Additionally, the written informed consent forms were obtained from the pregnant women included in the study.

RESULTS

The average age of the pregnant women was 25.82 ± 5.29 and 94% were below 35 years old. Also, 61.2% of the pregnant women were in the third trimester, 57.5% were multiparous, and 86.0% had planned pregnancy. The number of pregnant women having depression symptoms in the study group was determined as 128 (24.6%) according to the BDI score. Distribution of the pregnant women having depressive symptoms according to the socio-demographic and obstetric characteristics was given in Table 1-2. Pregnant women who indicated their low

Table 1. Distribution of the pregnant women' depressive symptoms according to sociodemographic characteristics

Characteristics	Depressive Symptom		Total	Test; p
	Absent (BDI Score<17)	Present (BDI Score≥17)		
Total	n (%) [†] 392 (75.4)	n (%) [†] 128 (24.6)	n (%) ^{††} 520 (100.0)	x ² ; p
Age				
≤34	368 (75.3)	121 (24.7)	489 (94.0)	0.003; 0.955
≥35	24 (77.4)	7 (22.6)	31 (6.0)	
Educational level				
Primary school	160 (72.7)	60 (27.3)	220 (42.3)	6.202; 0.045
High school	147 (73.5)	53 (26.5)	200 (38.5)	
Bachelor's degree	85 (85.0)	15 (15.0)	100 (19.2)	
Employment				
Unemployed	314 (79.6)	108 (20.4)	98 (18.8)	0.889; 0.346
Employed	78 (74.4)	20 (25.6)	422 (81.2)	
Economic level				
Income is less than expenses	12 (57.1)	9 (42.9)	21 (4.0)	7.877; 0.019
Income is equal to expenses	257 (73.6)	92 (26.4)	349 (67.1)	
Income is more than expenses	123 (82.0)	27 (18.0)	150 (28.9)	
Family type				
Nuclear family	299 (75.7)	96 (24.3)	395 (76.0)	0.086; 0.769
Extended family	93 (74.4)	32 (25.6)	125 (24.0)	
Health insurance				
Absent	47 (73.4)	17 (26.6)	64 (12.3)	0.053; 0.817
Present	345 (75.7)	111 (24.3)	456 (87.7)	
Inhabitation				
City	270 (75.6)	87 (24.4)	357 (68.7)	0.037; 0.847
County/ village	122 (74.8)	41 (25.2)	163 (31.3)	
Duration of the marriage				
0-5 years	258 (75.4)	84 (24.6)	342 (65.8)	1.703; 0.427
6-10 years	79 (79.0)	21 (21.0)	100 (19.2)	
11≤ years	55 (70.5)	23 (29.5)	72 (15.0)	
Smoking				
Smoker	15 (50.0)	15 (50.0)	30 (5.8)	9.810; 0.002
Non-smoker (stopped /never smoked)	377 (77.1)	112 (22.9)	490 (94.2)	
Alcohol use				
Absent	391 (75.8)	125 (24.2)	517 (99.4)	--; 0.150
Present	1 (33.3)	2 (66.7)	3 (0.6)	
Exercise				
Absent	264 (76.1)	83 (23.9)	347 (66.7)	0.272; 0.602
Present	128 (74.0)	45 (26.0)	173 (33.3)	

The percentages were calculated according to [†]Row Total, ^{††}Column Total; x²: chi-square test

education level, poor income and whether they smoke or not had a significantly higher incidence of depressive symptoms ($p < 0.05$ for each) (Table 1). Also pregnant women who indicated their chronic disease, "low" BMI and negative body perception had a significantly higher incidence of depressive symptoms ($p < 0.05$ for each) (Table 2).

In the study, it was found that BCI score affects depressive symptoms 0.971 times (Beta: -0.029; $p < 0.001$). According to the regression analysis between

the BCS scores averages of pregnant women and depressive symptom condition, pregnant women with lower body image have more risk of having depression symptoms (Table 3).

DISCUSSION

This study spotted that one-fourth of the pregnant women has depressive symptoms. Similar results have been reported from our country and the different countries. According to these results, the prevalence

Table 2. Distribution of the pregnant women' depressive symptoms according to obstetric characteristics and some variables that may be related

Characteristics	Depressive Symptom		Total	Test; p
	Absent (BDI Score<17)	Present (BDI Score≥17)		
	n (%) [†]	n (%) [†]	n (%) ^{††}	x ² ; p
Total	392 (75.4)	128 (24.6)	520 (100.0)	
Gestational week				
First trimester	47 (78.3)	13 (21.7)	66 (12.6)	0.417; 0.812
Second trimester	86 (76.1)	27 (23.9)	136 (26.2)	
Third trimester	259 (74.6)	88 (25.4)	318 (61.2)	
Number of pregnancies				
Primiparous	169 (76.5)	52 (23.5)	221 (42.5)	0.244; 0.621
Multiparous	223 (74.6)	76 (25.4)	299 (57.5)	
Status of the pregnancy				
Unplanned	49 (67.1)	24 (32.9)	73 (14.0)	2.627; 0.105
Planned	343 (76.7)	104 (23.3)	447 (86.0)	
Chronic disease				
Absent	172 (81.0)	40 (19.0)	211 (40.6)	6.126; 0.013
Present	221 (71.5)	88 (28.5)	309 (59.4)	
Previous abortion				
Absent	335 (76.1)	105 (23.9)	440 (84.6)	0.628; 0.428
Present	57 (71.2)	23 (28.7)	80 (15.4)	
Body mass index (BMI) during pregnancy				
Low (<18.5)	2 (33.3)	4 (66.7)	6 (1.2)	12.748; 0.005
Normal (18.5-24.99)	120 (82.2)	26 (17.8)	146 (28.1)	
Over weight (25.0-29.99)	158 (76.6)	48 (23.4)	205 (39.4)	
Obese (30 and higher)	113 (69.3)	50 (30.7)	163 (31.3)	
Change in the body perception during pregnancy				
Negative	181 (69.3)	80 (30.7)	261 (50.2)	10.288; 0.001
Positive	211 (81.5)	48 (18.5)	259 (49.8)	

The percentages were calculated according to [†]Row Total, ^{††}Column Total; x²: chi-square test

of depressive symptoms among the pregnant women is between 12% and 51%, and depression is a frequently encountered health problem in pregnancy (3, 10-17). For the maternal and infant health during pregnancy, depression is a common health problem that should not be neglected.

In this study, pregnant women with low educational levels and poor income showed higher depressive symptoms. Studies presented that there is a strong relationship between low education level and low income (2, 5, 18, 19). Low education level causes women not to benefit from job opportunities and poor income. Poor income makes living conditions difficult, and these difficulties can cause depression.

Smoking is a substance that pregnant women should avoid in order to protect the health of their baby. In this study, pregnant women who smoke regularly demonstrated higher depressive symptoms. Studies reported that smoking during pregnancy and depression are related (20-23). Smoking may be a

way that pregnant women use to cope with their psychological problems. Additionally, smoking may be a risk factor for depression during pregnancy.

Pregnant women who expressed that they have chronic disease in this study had a higher incidence of depressive symptoms. The presence of a disease in pregnant women's lives makes it difficult to carry on daily life, and may cause them to experience more difficulties in pregnancy. Our study's results are compatible with the literature (2, 11, 19).

Pregnant women, who perceive their body change negatively showed higher depressive symptoms in this study. While it is thought that depression seen in pregnancy is caused by the negative life experiences, similar results were reported in different studies, as well (10, 11, 24). Moreover, pregnant women who have lower BMI had a significantly higher incidence of depressive symptoms. This result in our study suggested that pregnant women with low BMI might be experiencing stress and anxiety about body image

Table 3. Comparison and regression analysis of the pregnant women' BCS scores according to depressive symptoms

Depressive symptoms	BCS		Test [‡]	p		
	Mean (± S.D.)	Median (Min-Max)				
Absent	141.10 (23.77)	138.00 (88.00-198.00)	6.714	0.001		
Present	125.11 (22.18)	129.00 (99.00-157.00)				
Total	136.73 (21.78)	135.50 (88.00-198.00)				
	β	S. E.	Wald	df	OR (%95 CI)	p
BCS score	-0.029	0.005	38.017	1	0.971 (0.962-0.980)	0.001
Invariant	2.798	0.629	19.815	1	16.416	0.001

-2 Log likelihood = 536.999

Cox & Snell R Square = 0.080

Nagelkerke R Square = 0.119

Accuracy Rate = %74.8

[‡] Independent samples t-test; S.D.: Standard deviation; β: Beta; S.E.: Standard Error; df: degree of freedom; OR: Odds ratio; CI: Confidence interval

and the development of their baby. Studies have also reported that BMI negatively affects the psychology of pregnant women (6,11,13, 25). In addition, having low BMI may lead to dissatisfaction with body image and depression.

Pregnant women's satisfaction with the body image is positively higher than the average in this study. Similar results were reported from Türkiye and the different countries. (7, 17, 25-27). Changes in a woman's body in pregnancy can affect body image positively or negatively. It is generally thought that increase in the body weight and change in body form would affect body image negatively in pregnancy. However, pregnancy is a unique time when the woman is aware that she is going to gain weight with the baby she carries.

In this study, pregnant women with depressive symptoms have lower-level satisfaction with the body image. Psychological wellbeing can be effective on body image perception. In the other studies, it was stated that there is a negative relationship between the body image perception and depression (7, 12, 13, 25, 26, 28, 29). Pregnant women's dissatisfaction with the body image may increase the incidence of depression.

In this study, it was also found that satisfaction with the body image is a factor affecting the frequency of depressive symptoms. Similar results to our study's results were reported in another study (17). According to the result of this study, it can be said that satisfaction with the body image is a risk factor for depression in pregnancy. The relationship between satisfaction with the body image and depression can be two-sided. While negative body image might

cause depression in pregnancy, existing depression might affect satisfaction with the body image negatively, as well (7, 26, 30).

CONCLUSION

In the study, one-fourth of the pregnant women have depressive symptoms. Pregnant women' low educational level, poor income, chronic diseases, low BMI, and whether they smoke or not were found to be related factors to depressive symptoms. The study found that body image affects depressive symptoms, and it is a risk factor. As a result, depression during pregnancy may cause poor obstetric outcomes. For this reason, healthcare professionals should closely monitor pregnant women psychologically and evaluate their satisfaction with the body image, recognize the factors that may be related with depression, and be able to guide them correctly.

Limitations

The data of this study is limited with the participation of the pregnant women of the center where the study was conducted. In order to improve the generalization, multi-centered studies with larger samples are necessary. The results of the study are also limited with the results of the scales used in the study.

Acknowledgement: The authors hereby thank all of the pregnant women who participated in this study for their collaboration.

Author contribution: Research idea: SE, NÇ. Design of the study: SE, NÇ. Acquisition of data for the study: SE. Analysis of data for the study: SE, NÇ. Interpretation of data for the study: SE, NÇ. Drafting the manuscript: NÇ. Revising it critically for important

intellectual content: SE, NÇ. Final approval of the version to be published: SE, NÇ.

Conflict of interests: No potential conflict of interest was reported by the authors.

Ethical approval: The study was approved by Kırşehir Ahi Evran University Ethics Committee (Date: 27.04.2016, No: 2016-05/06).

Funding: The authors received no financial support for the research, authorship, and/or publication of this article.

Peer-review: Externally peer-reviewed.

REFERENCES

- Jafri SAM, Ali M, Ali R, Shaikh S, Abid M, Aamir IS. Prevalence of depression among pregnant women attending antenatal clinics in Pakistan. *Acta Psychopathol* 2017;3(5):54.
- Kartal B, Simsek N. The prevalence of depression during pregnancy and the affecting factors. *J Contemp Med* 2017;7(3):217-224.
- Sheeba B, Nath A, Metgud CS, et al. Prenatal depression and its associated risk factors among pregnant women in Bangalore: A hospital based prevalence study. *Front Public Health* 2019;7:108.
- Okagbue HI, Adamu PI, Bishop SA, Oguntunde PE, Opanuga AA, Akhmetshin EM. Systematic review of prevalence of antepartum depression during the trimesters of pregnancy. *OAMJMS*. 2019;7(9):1555-1560.
- Dadi AF, Miller ER, Woodman R, Azale T, Mwanri L. Antenatal depression and its potential causal mechanisms among pregnant mothers in Gondar town: Application of structural equation model. *BMC Pregnancy Childbirth* 2020;20:168.
- Yu Y, Zhu X, Xu H, et al. Prevalence of depression symptoms and its influencing factors among pregnant women in late pregnancy in urban areas of Hengyang City, Hunan Province, China: A cross-sectional study. *BMJ Open* 2020;10(9):e038511.
- Clark A, Skouteris H, Wertheim E, Paxton S, Milgrom J. The relationship between depression and body dissatisfaction across pregnancy and the postpartum: A prospective study. *J Health Psychol* 2009;14(1):27-35.
- Hisli N. A study on the validity of Beck Depression Inventory for university students. *J Psychol* 1989;7(23):3-13.
- Hovardaoglu S. Body cathexis scale. I. Dag (Editorial) *Psychological scales used in Turkey. J 3P, Special edition with tests* 1993;1(2):26-27.
- Tunc S, Yenicesu O, Cakar H, Ozcan H, Pekcetin S, Danisman N. Anxiety and depression frequency and related factors during pregnancy. *JGON* 2012;9(35):1431-1435.
- Cakir L, Can H. Relation between sociodemographic variables with the levels of depression and anxiety in pregnancy. *TJTFP* 2012;3(2):35-42.
- Bahaadinbeigy K, Garrusi B, Etminan A, Nematallahee VR. Contributing factors affecting body satisfaction among pregnant women with an emphasis on self-esteem and depression. *IJCS* 2014;7(2):530-537.
- Roomruangwong C, Kanchanatawan B, Sirivichayakul S, Maes M. High incidence of body image dissatisfaction in pregnancy and the postnatal period: Associations with depression, anxiety, body mass index and weight gain during pregnancy. *Sex Reprod Healthc* 2017;13:103-109.
- Sahin S, Ilcioglu K, Unsal A. Domestic violence, depression, and anxiety during pregnancy. *JERN* 2017;14(3):204-211.
- Azami M, Badfar G, Shohani M, et al. The prevalence of depression in pregnant Iranian women: A systematic review and meta-analysis. *Iran J Psychiatry Behav Sci* 2018;12(3):e9975.
- Zaman FK, Ozkan N, Toprak D. Depression and anxiety in pregnancy. *Konuralp Med J* 2018;10(1):20-25.
- Riquin E, Lamas C, Nicolas I, et al. A key for perinatal depression early diagnosis: The body dissatisfaction. *J Affect Disord* 2019;245:340-347.
- Pereira B, Figueiredo B, Pinto TM, Míguez MC. Effects of tobacco consumption and anxiety or depression during pregnancy on maternal and neonatal health. *Int J Environ Res Public Health* 2020;17(21):8138.
- Zhang L, Yang X, Zhao J, et al. Prevalence of prenatal depression among pregnant women and the importance of resilience: A multi-site questionnaire-based survey in Mainland China. *Front Psychiatry* 2020;11:374.
- Seker F, Aydogdu M, Akgur SA. Relationship between depression and anxiety levels of pregnant women with smoking and caffeine. *J Dependence* 2019;20(1):21-31.
- Tuksanawes P, Kaewkiattikun K, Kerdcharoen N. Prevalence and associated factors of antenatal depressive symptoms in pregnant women living in an urban area of Thailand. *Int J Womens Health* 2020;12:849-858.

22. Tojal C, Costa R. Anxiety and depression symptoms among pregnant women with different smoking habits. *Psychol Health Med* 2020;25(4):410-417.
23. Silva MMJ, Lima GS, Monteiro JCS, Clapis MJ. Depression in pregnancy: Risk factors associated with its occurrence. *SMAD, Rev Eletrônica Saúde Mental Álcool Drog* 2020;16(1):1-12.
24. Benute GR, Nomura RM, Reis JS, Fraguas-Junior R, Lucia MC, Zugaib M. Depression during pregnancy in women with a medical disorder: Risk factors and perinatal outcomes. *Clinics (Sao Paulo)* 2010;65(11):1127-1131.
25. Meireles JFF, Neves CM, Carvalho PHB, Ferreira MEC. Body image, eating attitudes, depressive symptoms, self-esteem and anxiety in pregnant women of Juiz de Fora, Minas Gerais, Brazil. *Ciênc. Saúde Colet* 2017;22(2):437-445.
26. Skouteris H, Carr R, Wertheim EH, Paxton SJ, Duncombe D. A prospective study of factors that lead to body image dissatisfaction during pregnancy. *Body Image* 2005;2(4):347-361.
27. Inanir S, Cakmak B, Nacar MC, Guler AE, Inanir A. Body image perception and self-esteem during pregnancy. *IJWHR* 2015;3(4):196-200.
28. Rauff EL, Downs DS. Mediating effects of body image satisfaction on exercise behavior, depressive symptoms, and gestational weight gain in pregnancy. *Ann Behav Med* 2011;42(3):381-390.
29. Sweeney AC, Fingerhut R. Examining relationships between body dissatisfaction, maladaptive perfectionism, and postpartum depression symptoms. *JOGNN* 2013;42(5):551-561.
30. Silveira ML, Ertel KA, Dole N, Chasan-Taber L. The role of body image in prenatal and postpartum depression: A critical review of the literature. *Arch Womens Ment Health* 2015;18(3):409-421.