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The Relationship Between Body Image and Anxiety and Depression in Pregnant Women in Türkiye

Türkiye'deki Gebe Kadınlarda Beden İmajı ile Anksiyete ve Depresyon Arasındaki İlişki

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ABSTRACT

Objective: This study was conducted to examine the relationship between body image and anxiety and depression during pregnancy.

Materials and Methods: A cross-sectional and correlational study was conducted with 300 pregnant women in a public hospital and family health centers between October 2022 and February 2023. Data were collected with the Personal Information Form, Body Understanding Scale for Pregnancy (BUMPs) and Hospital Anxiety and Depression (HAD) Scale. Mean, percentage, Independent Sample t-test, One-Way ANOVA, Correlation and Multiple Linear Regression were used for data analysis.

Results: Correlation analysis showed significant positive correlations between Body Image and Anxiety and Depression in Pregnancy. In the multiple linear regression analysis, it was found that 13% (R^2 adj. = 0.13) of the variance in the HADS-A subscale variable was explained by independent variables. It was found that 27% of the variance in the HAD-D subscale variable (R^2 adj.= 0.27) was explained by independent variables.

Conclusions: This study showed that body image during pregnancy is a multifaceted problem that affects anxiety and depression in pregnant women. The high prevalence of prenatal anxiety and depression highlights the importance of this condition as a public health problem.

Keywords: Anxiety, body image, depression, pregnancy, regression

ÖZ

Amaç: Bu çalışma gebelikte beden imajının anksiyete ve depresyon ile ilişkisini incelemek amacıyla yapılmıştır.

Materyal ve Metot: Bu çalışma Ekim 2022 ile Şubat 2023 tarihleri arasında bir devlet hastanesi ve aile sağlığı merkezlerinde 300 gebe ile kesitsel ve korelasyonel bir çalışma yapılmıştır. Veriler Kişisel Bilgi Formu, Gebelikte Beden Algısı Ölçeği (GBAÖ) ve Hastane Anksiyete ve Depresyon (HAD) Ölçeği ile toplandı. Veri analizi için ortalama, yüzde, Bağımsız Örneklem T Testi, Tek Yönlü ANOVA, Korelasyon ve Çoklu Doğrusal Regresyon kullanıldı.

Bulgular: Korelasyon analizi, Gebelikte Beden İmajı ile Anksiyete ve Depresyon arasında anlamlı pozitif korelasyonlar olduğunu gösterdi. Çoklu doğrusal regresyon analizinde HAD-A alt boyutu değişkenindeki varyansın % 13'ünün (R^2 adj.= 0,13) bağımsız değişkenler tarafından açıklandığı bulunmuştur. HAD-D alt ölçeği değişkenindeki varyansın (R^2 adj.= 0,27) %27'sinin bağımsız değişkenler tarafından açıklandığı bulunmuştur.

Sonuç: Bu çalışmada gebelikte ki beden imajının gebe kadınlarda anksiyeteyi ve depresyonu etkileyen önemli bir faktör olduğunu göstermiştir. Doğum öncesi anksiyete ve depresyonun yüksek prevalansı, bu durumun bir halk sağlığı sorunu olarak önemini vurgulamaktadır.

Anahtar Kelimeler: Anksiyete, beden imajı, depresyon, gebelik, regresyon

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INTRODUCTION

Body image is a multifaceted construct thought to have emotional and perceptual components that are based on one's efforts to change the thoughts one has about the physical dimension of one's body, a mental reflection of what one thinks how one's body should or should not look like.[1] Body image in women is more at the forefront than in men. It differs from person to person physiologically and psychologically in life periods such as pregnancy, postpartum, pre-menopause, menopause, and adolescence.[2] While pregnancy is a physiological process per se, pregnant women go through a series of psychological, emotional, and physical changes in their bodies in a short time, and they sometimes have difficulty adapting to these changes.[3] Although these changes are considered normal during pregnancy, pregnant women may feel the urge to stay slim as they compare their bodies with others due to social pressure, leaving them with low self-esteem, unhappiness, and emotional distress. Physical and emotional changes experienced during this period, which can affect maternal and infant health, can take a toll on pregnant women's body image and, thus, give rise to stress and anxiety.[4,5] It has been reported that pregnant women find their bodies unattractive, especially in the third trimester.[6] In some studies in the literature, it was stated that women with high BMI (Body Mass Index) were dissatisfied with their bodies during pregnancy.[5,7] A study found that fear of weight gain during pregnancy leads some women to adopt poor diets, risking severe health issues for both mother and child. Negative body image during pregnancy can cause depression, low breastfeeding rates, and poor mother-infant bonding, with increased susceptibility to psychiatric disorders.[8] Stress, anxiety, and depression during pregnancy can have a deteriorating effect on maternal and fetal health. Therefore, identifying and preventing factors that can cause stress, anxiety, and depression during pregnancy is essential for maternal and infant health.[9]

Pregnancy-related body image and its impact on women's anxiety and depression is a critical issue for both maternal and infant health. This study aims to guide midwives and nurses in supporting women during pregnancy. This study will examine body image during pregnancy from both physiological and psychological perspectives, focusing on its direct relationship with anxiety and depression.

MATERIALS AND METHODS

Ethics Committee Approval: Ethics committee approval (Date: 25.11.2022, decision no: 292/12) from Bayburt University and institutional permission from Bayburt Provincial Health Directorate were obtained before the study. The Declaration of Helsinki informed participants about the investigation, and their consent was obtained with an Informed Consent Form. Informed consent was obtained from the legal representatives of the illiterate and underage participants in the study.

Study design: This cross-sectional and correlational study was conducted in a state hospital and family health centers between October 2022 and February 2023.

Population and sample: Three hundred pregnant women from a state hospital and family health centers participated in this study between October 2022 and February 2023. The sample size, calculated with G*Power for 95% confidence, 5% margin of error, and 80% power, was set at 270 and increased by 10% to account for potential losses, totalling 300 participants. As a result of post hoc analysis, when the number of samples obtained as a result of the study, the effect size of d = 0.3 and the error rate (1-α) are kept constant at 5%, the power of the test is obtained as 98%. Inclusion criteria included being 4-6 weeks pregnant, having a single healthy fetus, being communicative, free of mental disorders, having a spontaneous pregnancy, and consenting to participate.

Data collection tools: Data were collected face-to-face with a "Personal Information Form," the "Body Understanding Measure for Pregnancy Scale" (BUMPs), and the "Hospital Anxiety and Depression Scale" (HAD).

Personal Information Form: The researchers developed a personal information form based on a literature review. It included 12 items on sociodemographic details such as age, education, occupation, economic status, family type, spouse's employment and education, place of residence, number of pregnancies, gestational week, kinship with a spouse, and marital satisfaction.[2,3,5]

Body Understanding Measure for Pregnancy Scales (BUMPs): Güleç and Satır conducted the Turkish validity and reliability study of the scale, developed initially by Kirk and Preston in 2019 in 2021.[10,11] The scale Cronbach's alpha value is 0.87. It is a 17-item, five-point Likert-type scale. The lowest score that can be obtained from the scale is 17 points, and the highest score is 85. The higher the score indicates, the higher the level of negative body image in pregnancy.[10] The Cronbach's alpha value of this study was 0.80.

Hospital Anxiety and Depression (HAD) Scale: Zigmond and Snaith[12] developed this scale in 1983. Aydemir et al.[13] conducted the scale's Turkish validity and reliability study in 1997. HAD is a 14-item scale comprising two subscales: anxiety (HAD-A) and depression (HAD-D). Of the 14 items on the scale, all odd-numbered items are about anxiety and

even-numbered items about depression. HAD is a four-point Likert-type assessment tool, and the scores for each item are between 0-3. The cut point for the anxiety subscale of HAD Turkish was set at 10, and the cut point for the depression subscale was set at 7. Individuals with scores above these two points can be considered a risk group.[13] Aydemir et al.[13] determined that Cronbach's Alpha coefficient for the anxiety and depression sub-dimensions of the scale was 0.85 and 0.78, respectively. While the Hospital Anxiety and Depression Scales (HADS) was initially designed to identify depression and anxiety in clinical populations, Matsudaira et al.[14] have confirmed that this measurement is also appropriate for nonclinical populations. The Cronbach's alpha value found in our study or the scale's anxiety and depression sub-dimensions was 0.70 and 0.65, respectively.

Data analysis: Data analysis was conducted using SPSS 26.0 (Chicago, IL, USA). Normality was assessed via skewness and kurtosis, with values between ±1 considered acceptable.[15] Descriptive statistics were presented as numbers, percentages, means, standard deviations (SD), and min-max values. Parametric tests were employed due to the normal distribution of data. Independent Samples t-tests and One-Way ANOVA were used to compare participants' descriptive characteristics and scale scores. Pearson's correlation analysis examined relationships between variables, and Multiple Linear Regression identified associations between dependent and independent variables. Statistical significance was set at $p<0.05$ and $p<0.001$.

RESULTS

Table 1 presents the mean BUMPs, HAD-A, and HAD -D scores, along with their associations with participants' sociodemographic and obstetric characteristics. Significant differences in BUMPs total scores were observed based on place of residence (p=0.001), spouse's employment status (p=0.000), family type (p=0.032), gestational week (p=0.003), number of pregnancies (p=0.001), and marital satisfaction (p=0.000). Subscale analyses revealed associations between weight gain anxiety and physical difficulty scores and factors such as place of residence (p=0.000), spouse's employment status (p=0.002), family type (p=0.005), gestational week (p=0.003), marital satisfaction (p=0.000), and kinship with spouse (p=0.003). Body Image in Pregnancy subscale scores significantly differed by age (p=0.005), education level (p=0.011), place of residence (p=0.013), number of pregnancies (p=0.000), and marital satisfaction (p=0.029). HAD-A scores were significantly associated with age (p=0.029), employment (p=0.001), education (p=0.029), spouse's family type (p=0.006), and marital satisfaction (p=0.000). HAD-D scores showed significant differences based on education (p=0.041), spouse's employment status (p=0.001), family type (p=0.000), number of pregnancies (p=0.001), gestational week (p=0.002), marital satisfaction (p=0.000), and kinship with spouse (p=0.003; Table 1).

Table 1. Comparison of the sociodemographic and some obstetric characteristics of pregnant women with the scale mean scores (n= 300).

Variables		n (%)	HAD-A	HAD-D	BUMPs total score	BUMPs-Weight gain concerns and physical difficulty sub-dimension score	BUMPs-Satisfaction with the pregnancy outlook sub-dimension score
Year	19 years and under[1]	13 (4.3)	9.84±4.33	6.69±3.90	42.76±6.27	27.23±5.86	15.53±2.60
	20-24 years[2]	42 (14.0)	8.52±4.04	7.00±3.34	44.52±10.75	28.21±7.99	16.30±4.51
	25-29 years[3]	123 (41.0)	7.82±3.60	6.54±3.76	43.73±9.70	27.13±7.98	16.60±4.81
	30-34 years[4]	94 (31.3)	9.23±3.28	7.01±2.99	46.05±10.54	27.70±8.33	18.35±5.28
	35 years and above[5]	28 (9.4)	9.07±2.85	7.85±3.55	47.53±10.44	28.07±8.86	19.46±6.00
Statistical analysis			F=2.729[a] **p=0.029****	F=0.899 p=0.465	F=1.352 p=0.251	F=0.192 p=0.942	F=3.794[b] **p=0.005****

*: Independent T test; **: One-Way ANOVA; ***: According to pregnant women's own statements; [a]: Bonferroni= 3<4; [b]: Games-Howell= 1<4, 1<5; [c]Scheffe= 2>5; [d]: Scheffe= 2>3; [e]: Scheffe= 2>3; [f]: Games-Howell= 1<2, 1<3; [g]: Bonferroni= 1<3; [h]: Bonferroni= 1<2, 1<3; [j]: Games-Howell= 1<2, 1<3; [k]: Games-Howell= 2>3; [m]: Bonferroni= 2>3; [n]: Games-Howell= 2>3. BUMPs: Body Understanding Measure for Pregnancy Scales; HAD: Hospital Anxiety and Depression Scale; HAD-A: Anxiety scale; HAD-D: Depression scale.

Table 1. Continue.

	Literate/ Illiterate[1]	17 (5.7)	10.11±2.34	8.17±3.18	49.35±6.67	32.82±4.50	16.52±4.50
Educational status	Primary school[2]	31 (10.3)	8.93±3.05	8.03±3.32	47.41±6.23	27.03±6.31	20.38±5.09
	Middle school[3]	40 (13.3)	8.52±3.85	6.97±3.53	43.97±8.93	27.10±7.65	16.87±5.12
	High school[4]	80 (26.7)	8.61±3.18	7.08±3.48	45.15±10.58	27.97±8.77	17.17±4.80
	University[5]	132 (44.0)	8.27±3.94	6.29±3.42	43.83±11.05	26.88±8.28	16.94±5.10
Statistical analysis			F=1.105 p=0.354	F=2.520 **P=0.041****	F=1.788 p=0.131	F=2.194 p=0.070	F=3.309[c] **p=0.011****
Economic level***	Income is less than expenses	53 (17.7)	8.94±3.47	7.24±3.40	47.16±11.59	29.43±8.97	17.73± 4.83
	Income equals expenses	189 (63.0)	8.69±3.67	6.89±3.37	44.64±9.78	27.35±7.68	17.28±5.08
	Income is more than expenses	58 (19.3)	7.81±3.34	6.51±3.82	43.60±9.53	26.48±8.25	17.12±5.31
Statistical analysis			F=1.718 p=0.181	F=0.612 p=0.543	F=1.886 p=0.153	F=2.020 p=0.134	F=0.227 p=0.797
Working status	I am working	88 (29.3)	8.48±3.63	7.19±2.90	46.11±10.69	28.71±8.82	17.39±5.27
	I am not working	212 (70.7)	8.60±3.57	6.75±3.67	44.38±9.83	27.07±7.69	17.30±4.99
Statistical analysis			t=-0.253 p=0.801	t=1.097 p=0.274	t=1.356 p=0.176	t=1.608 p=0.109	t=0.149 p=0.882
Husband's education	Primary school	39 (13.0)	8.84±2.80	7.94±3.45	46.25±8.72	29.66±7.58	16.58±4.19
	Middle school	34 (11.3)	9.38±3.02	7.17±3.35	45.38±7.67	26.79±6.83	18.58±5.15
	High school	99 (33.0)	9.09±4.05	6.97±3.37	45.96±10.36	28.51±8.38	17.45±5.20
	Universty	128 (42.7)	7.86±3.45	6.40±3.52	43.50±10.77	26.37±8.11	17.12±5.18
Statistical analysis			F=3.055 **p=0.029****	F=2.169 p=0.092	F=1.454 p=0.227	F=2.407 p=0.067	F=1.065 p=0.364
Residential area	Village[1]	36 (12.0)	8.52±3.50	7.19±3.42	43.88±9.07	28.69±7.07	15.19±4.13
	District [2]	80 (26.7)	9.05±3.41	7.42±3.13	48.42±9.19	30.23±7.54	18.18±3.93
	Province [3]	184 (61.3)	8.36±3.67	6.58±3.59	43.54±10.35	26.16±8.17	17.37±5.55
Statistical analysis			F=1.006 p=0.367	F=1.805 p=0.166	F=6.967[d] **p=0.001****	F=7.848[e] **p=0.000****	F=4.442[f] **p=0.013****
Husband's employment status	I am working	272 (90.7)	8.43±3.68	6.67±3.45	44.37±10.30	27.10±7.99	17.27±5.18
	I am not working	28 (9.3)	9.92±1.94	8.89±2.87	49.82±6.18	31.93±7.50	17.89±3.86
Statistical analysis			t=-3.486 **p=0.001***	t=-3.274 **p=0.001***	t=-4.105 **p=0.000***	t=-3.054 **p=0.002***	t=-.781 p=0.440
Family type	Nuclear family	241 (80.3)	8.31±3.65	6.44±3.36	44.26±10.13	26.90±7.97	17.36±5.06
	Extended family	59 (19.7)	9.62±3.07	8.66±3.32	47.40±9.69	30.20±7.94	17.20±5.14
Statistical analysis			t=-2.830 **p=0.006***	t=-4.538 **p=0.000***	t=-2.149 **p=0.032***	t=-2.846 **p=0.005***	t=.214 p=0.831
Number of pregnancies	1[1]	112 (37.3)	8.44±3.77	6.04±3.30	42.25±9.48	26.31±7.56	15.93±4.81
	2[2]	106 (35.3)	8.37±3.79	6.97±3.58	45.65±10.59	28.23±8.26	17.45±4.36
	3 and more	82 (27.4)	8.98±3.01	7.91±3.26	47.45±9.55	28.37±8.33	19.07±5.72
Statistical analysis			F=.775 p=0.462	F=7.235[g] **p=0.001****	F=7.056[h] **p=0.001****	F=2.151 p=0.118	F=9.621[j] **p=0.000****
Gestational week	1-12 mid-week[1]	19 (6.3)	9.78±2.85	8.00±3.60	47.63±5.79	29.52±4.78	18.10±4.05
	13-27 mid-week[2]	53 (17.7)	9.41±3.02	8.20±2.57	48.60±11.31	30.66±8.82	17.94±4.07
	28-40 mid-week[3]	228 (76.0)	8.27±3.71	6.48±3.54	43.79±9.87	26.67±7.91	17.12±5.34

*: Independent T test; **: One-Way ANOVA; ***: According to pregnant women's own statements; [a]: Bonferroni= 3<4; [b]: Games-Howell= 1<4, 1<5; [c]Scheffe= 2>5; [d]: Scheffe= 2>3; [e]: Scheffe= 2>3; [f]: Games-Howell= 1<2, 1<3; [g]: Bonferroni= 1<3; [h]: Bonferroni= 1<2, 1<3; [j]: Games-Howell= 1<2, 1<3; [k]: Games-Howell= 2>3; [m]: Bonferroni= 2>3; [n]: Games-Howell= 2>3. BUMPs: Body Understanding Measure for Pregnancy Scales; HAD: Hospital Anxiety and Depression Scale; HAD-A: Anxiety scale; HAD-D: Depression scale.

Table 1. Continue.

Statistical analysis			F=3.412 p=0.034	F=6.621[k] **p=0.002**[**]	F=5.795[m] **p=0.003**[**]	F=6.065[n] **p=0.003**[**]	F=.799 p=0.451
Satisfaction with marriage	Pleased	224 (74.7)	8.18±3.75	6.32±3.46	43.08±9.94	26.08±7.55	17.00±5.35
	Not satisfied	76 (25.3)	9.71±2.76	8.52±2.93	50.18±8.68	31.89±8.00	18.28±3.99
Statistical analysis			t=3.781 **p=0.000**[*]	t=5.391 **p=0.000**[*]	t=5.543 **P=0.000**[*]	t=5.706 **p=0.000**[*]	t=2.209 **p=0.029**[*]
Kinship status	Yes	47 (15.7)	9.08±2.96	8.23±3.67	47.46±10.38	30.76±8.44	16.70±4.28
	No	253 (84.3)	8.47±3.68	6.63±3.37	44.40±10.00	26.96±7.86	17.44±5.20
Statistical analysis			t=1.073 p=0.284	t=2.947 **p=0.003**[*]	t=1.915 p=0.056	t=3.011 **p=0.003**[*]	t=-0.924 p=0.356

*: Independent T test; **: One-Way ANOVA; ***: According to pregnant women's own statements; [a]: Bonferroni= 3<4; [b]: Games-Howell= 1<4, 1<5; [c]Scheffe= 2>5; [d]: Scheffe= 2>3; [e]: Scheffe= 2>3; [f]: Games-Howell= 1<2, 1<3; [g]: Bonferroni= 1<3; [h]: Bonferroni= 1<2, 1<3; [j]: Games-Howell= 1<2, 1<3; [k]: Games-Howell= 2>3; [m]: Bonferroni= 2>3; [n]: Games-Howell= 2>3. BUMPs: Body Understanding Measure for Pregnancy Scales; HAD: Hospital Anxiety and Depression Scale; HAD-A: Anxiety scale; HAD-D: Depression scale.

Table 2 shows the scale mean scores of pregnant women participating in the study, their min-max values, and the cut points. With the HAD-A cut point set at 10, it was determined that 30% of pregnant women were at risk for anxiety. With the HAD-D cut point set at 7, it was determined that 49% of pregnant women were at risk for depression (Table 2).

Table 3 shows the correlation between Body Image in Pregnancy and anxiety and depression. A positive, r: 0.378, and statistically significant correlation was found between the HAD-A sub-dimension and BUMPs total scores (p: 0.001; p<0.001). There was a positive, r: 0.520 moderate and statistically significant correlation between HAD-D sub-dimension and BUMPs total scores (p: 0.001; p<0.001, Tablo 3).

Table 4 presents the multiple linear regression analysis of factors predicting Body Image in Pregnancy and its subscales. The model demonstrated a good fit (F/p) and was statistically significant (p<0.001).

Table 2. Scale score averages, min-max values and cut-off points.

Scales	n	Min- Max	Min-Max that can be taken from the scale	Mean±SD	Anxiety (over 10 points) and depression (over 7 points) level
BUMPs	300	19-80	17-85	44.88±10.10	
BUMPs-Weight-gain concerns and physical difficulty sub-dimension	300	11-55	11-55	27.55±8.06	
BUMPs-Satisfaction with the pregnancy outlook sub-dimension	300	6-29	6-30	17.33±5.07	n **(%)**
HAD-A	300	0-21	0-21	8.57±3.58	89 **(%30)**
HAD-D	300	0-14	0-21	6.88±3.46	147 **(%49)**

BUMPs: Body Understanding Measure for Pregnancy Scales; HAD: Hospital Anxiety and Depression Scale; HAD-A: Anxiety scale; HAD-D: Depression scale.

Table 3. Inter-scale correlation coefficients.

Variables		1	2	3	4	5
BUMPs	r	1				
	p	-				
BUMPs-Weight-gain concerns and physical difficulty sub-dimension	r	0.868[**]	1			
	p	0.001	-			
BUMPs-Satisfaction with the pregnancy outlook sub-dimension score	r	0.613[**]	0.140[*]	1		
	p	0.001	0.015	-		
HAD-A	r	0.378[**]	0.312[**]	0.258[**]	1	
	p	0.001	0.001	0.001	-	
HAD-D	r	0.520[**]	0.438[**]	0.340[**]	0.503[**]	1
	p	0.001	0.001	0.001	0.001	-

Pearson correlation; *: p<0.05 (two-tailed); **: p<0.001 (two-tailed); BUMPs: Body Understanding Measure for Pregnancy Scales; HAD: Hospital Anxiety and Depression Scale; HAD-A: Anxiety scale; HAD-D: Depression scale.

Independent variables explained 12% of the variance in BUMPs total scores, 10% in the weight gain anxiety and physical difficulty subscale, and 6% in the Body Image in Pregnancy subscale (adjusted R^2 = 0.12, 0.10 and 0.06, respectively; p<0.001).

Table 5 shows a multiple linear regression analysis model of the predictive factors of depression and anxiety subscales according to the Body Understanding Measure for Pregnancy Scale subdimensions. A multiple linear regression model examined the relationship between BUMPs and HAD-D and HAD-A (Table 5). The result of the analysis showed a significant regression model ($F_{(2,297)}$= (25.03), p<0.001) and that independent variables explained the variance in the HAD-A subscale variable to 13% (R^2 adj.= 0.13). BUMPs weight gain anxiety and physical difficulty subscales predict HAD-A positively and significantly (β=0.282, t (297) =5.19, p<0.001, pr^2=0.083). BUMPs Body Image in Pregnancy subscale indicates HAD-A positively and significantly (β=0.218, t (297) =4.02, p<0.001, pr^2=0.051). The analysis results between HAD-D and independent variables revealed a significant regression model ($F_{(2,297)}$ = 55.15, p < 0.001). Additionally, 27% of the variance in the HAD-D subscale was explained by the independent variables (R^2 adj. = 0.27). BUMPs weight gain anxiety and physical difficulty subscales predict HAD-D positively and significantly (β=0.398, t (297) =7.94, p<0.001, pr^2=0.17). BUMPs Body Image in Pregnancy subscale indicates HAD-D positively and significantly (β=0.285, t (297) =5.68, p<0.001, pr^2=0.097).

Table 4. Multiple linear regression analysis models of the predictive factors of pregnancy-specific body image and sub-dimensions according to some characteristics of pregnant women.

Scale	Variables	Statistics					95,0 Cl		
		B	SE	β	t	p	Lower	Upper	Model fit
BUMPs-Weight-gain concerns and physical difficulty sub-dimension	**(Constant)**	14.618	0.606	-	5.609	0.000	9.489	19.748	**Adj. R^2 = 0.06 F = 5.924**
	Number of pregnancy	1.545	0.366	0.243	4.220	**0.000**	.824	2.265	
	Gestational week	-0.332	0.521	-0.038	-0.636	0.525	-1.357	0.694	
	Satisfaction with marriage	-0.674	0.703	-0.058	-0.959	0.338	-2.057	0.709	
	Kinship status	1.369	0.796	0.098	1.719	0.087	-0.198	2.935	
BUMPs-Satisfaction with the pregnancy outlook sub-dimension score	**(Constant)**	48.510	4.038	-	12.013	0.000	40.563	56.456	**Adj. R^2 = 0.10 F = 10.187**
	Number of pregnancy	0.262	0.567	0.026	.462	0.644	-0.854	1.378	
	Gestational week	-0.786	0.807	-0.057	-.974	0.331	-2.375	0.803	
	Satisfaction with marriage	-5.106	1.089	-0.276	-4.691	**0.000**	-7.249	-2.964	
	Kinship status	-2.879	1.233	-0.130	-2.335	0.020	-5.306	-0.452	
BUMPs	**(Constant)**	63.128	5.057	-	12.483	0.000	53.176	73.080	**Adj. R^2 = 0.12 F = 10.350**
	Number of pregnancy	1.807	0.710	0.143	2.544	**0.011**	0.409	3.204	
	Gestational week	-1.117	1.011	-0.064	-1.105	0.270	-3.107	0.872	
	Satisfaction with marriage	-5.780	1.363	-0.249	-4.240	**0.000**	-8.463	-3.097	
	Kinship status	-1.510	1.544	-0.054	-0.978	0.329	-4.549	1.529	

Adj.R^2: Adjusted R square; B: Partial regression coefficient; β: Standard partial regression coefficient; 95% CI: 95% confidence interval**;** BUMPs: Body Understanding Measure for Pregnancy Scales

Table 5. Multiple linear regression analysis model of the predictive factors of depression and anxiety sub-dimensions according to pregnancy-specific body image scale sub-dimensions.

Scale	Variables	Statistics					95,0 CI		
		B	SE	β	t	p	Lower	Upper	Model fit
HAD-A	**(Constant)**	2.442	0.892	-	2.737	0.007	0.686	4.198	**Adj. R^2 = 0.13**
	BUMPs-Weight-gain concerns and physical difficulty sub-dimension	0.125	0.024	0.282	5.198	**0.000**	0.078	0.173	**F = 25.036**
	BUMPs-Satisfaction with the pregnancy outlook sub -dimension score	0.154	0.038	0.218	4.027	**0.000**	0.079	0.230	
HAD-D	**(Constant)**	-1.196	0.796	-	-1.503	0.134	-2.762	0.370	**Adj. R^2 = 0.06 F = 55.156**
	BUMPs-Weight-gain concerns and physical difficulty sub-dimension	0.171	0.022	0.398	7.949	**0.000**	0.129	0.213	
	BUMPs-Satisfaction with the pregnancy outlook sub -dimension score	0.194	0.034	0.285	5.686	**0.000**	0.127	0.262	

Adj.R^2: Adjusted R square; B: Partial regression coefficient; β: Standard partial regression coefficient; 95% CI: 95% confidence interval.

DISCUSSION AND CONCLUSION

This study examined the relationship between body image, anxiety, and depression in pregnant women, identifying several influencing factors. Women living in urban areas, with employed spouses, in nuclear families, experiencing their first pregnancy, in later gestational weeks, or satisfied with their marriage reported a more positive body image. The literature highlights the variability in findings due to differences in measurement tools used to assess body image in pregnancy. Meireles et al.[16] demonstrated that body appreciation was significantly higher in women during the third trimester compared to the first and second trimesters, consistent with the findings of this study. Przybyła-Basista et al.[17] reported a positive correlation between negative appearance evaluation, maternal age, and anxious pregnancy attitudes. In contrast, Şeker et al.[18] found no significant relationship between body image during pregnancy and variables such as education, employment status, income level, place of residence, age, or number of pregnancies.

This study identified a significant relationship between body image and anxiety and depression, with 30% of pregnant women found to be at risk for anxiety. Similarly, Patel et al.[19] reported mild, moderate, and severe anxiety in 51.54%, 46.92%, and 0.76% of pregnant women, respectively, while Khan et al.[20] found these rates to be 21.18%, 23.53%, and 14.12%. Cena et al.[8] observed a 6.8% prevalence of comorbid anxiety and depression. In this study, lower anxiety levels were associated with having a spouse with a university education, being aged 25–29, having an employed spouse, living in a nuclear family, and being satisfied with one's marriage.

A notable finding of this study was that the participants' anxiety levels were influenced by their husbands' education and employment status rather than their own. Previous studies have shown that anxiety decreases with higher education levels,[19] is higher in working women,[19] increases with age,[8,19] is lower in those living in nuclear families, decreases with higher family income,[8,19,20] and is less likely in women with adequate social support.[8] Variations in findings across studies may be attributed to differences in cultural contexts and study variables. These results highlight the multifactorial nature of anxiety during pregnancy.

This study found that 49% of pregnant women were at risk for depression. Patel et al.[19] reported moderate, mild, and severe depression in 68.46%, 27.69%, and 3.85% of pregnant women, respectively, while Khan et al.[20] identified a 52.94% prevalence. Studies in India[21] and Poland[17] found depression rates of 25.6% and 22%, respectively. A systematic review and meta-analysis reported pooled prevalence rates of 20.7% for any prenatal depression and 15% for major prenatal depression.[22] In this study, lower depression levels were observed in women with a university degree, a working spouse, living in a nuclear family, without kin marriage, satisfied with their marriage, experiencing their first pregnancy, and in weeks 28–40 of gestation.

Dahiya et al.[23] found no association between factors such as the number of pregnancies, gestational week, age, occupation, family income, or type of household and the likelihood of depression. Similarly, Meireles et al.[16] reported no variation in depressive symptoms across trimesters. Prabhu et al.[24] noted a

higher risk of depression in younger pregnant women. At the same time, Patel et al.[19] identified increased depression levels in women over 35 with lower education and employment but lower levels in those with higher income or living in nuclear families. The literature highlights numerous factors associated with prenatal depression, including low education, urban residence, poor social support, unplanned pregnancy, history of depression, fear of childbirth, and experience of violence.[21,22,25] Variability in findings may stem from differences in study populations, cultural contexts, and screening tools.[23]

This study identified marital satisfaction and the number of pregnancies as key predictors of body image during pregnancy. Anxiety about weight gain, physical discomfort, and dissatisfaction with body appearance were significant predictors of prenatal anxiety and depression, with lower body image satisfaction correlating with higher anxiety and depression levels. Similarly, Cevik and Yanikkerem[25] found a strong relationship between body image and depression scores in women whose husbands viewed their weight gain negatively. At the same time, Przybyła-Basista et al.[17] highlighted body dissatisfaction as a major factor in prenatal depression. These findings underscore the critical impact of body image dissatisfaction on psychological well-being during pregnancy and the need for adequate social and psychological support.

In conclusion, the study found a significant positive correlation between BUMPs and both HAD-A and HAD-D. Integrating screening and diagnostic tools for anxiety and depression into prenatal care is essential to provide timely support and protect maternal and infant health. This study has limitations, including the use of self-report measures, regional focus, and cross-sectional design, which limits causal conclusions. Additionally, clinical assessments for depression and anxiety were not conducted. However, its strengths include being the first study to examine the impact of body image on anxiety and depression in pregnancy, using the Body Sense in Pregnancy Measure, and being a public health focus on prenatal mental health.

Ethics Committee Approval: Ethics committee approval (Date: 25.11.2022 Decision no: 292/12) from Bayburt University and institutional permission from Bayburt Provincial Health Directorate were obtained before the study. The Declaration of Helsinki informed participants about the investigation, and their consent was obtained with an Informed Consent Form. Volunteer participants were included in the study. Informed consent was obtained from the legal representatives of the illiterate and underage participants in the study.

Conflict of Interest: No conflict of interest was declared by the authors.

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