The Relationship Between Body Mass Index of Pregnant Women and Maternal Perception, Body Perception, Distress and Fear of Birth

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ABSTRACT

Objective: The study aimed to examine the relationship between maternal obesity and motherhood perception, body perception, distress level and fear of birth in pregnant women. **Materials and Methods:** The data of the study, which was designed as a descriptive and relationship-seeking type, were collected between December 2021 and April 2022, using an introductory information form, the Self-perception Scale of Pregnant Women (SSPW), the Tilburg Pregnancy Distress Scale (TPDS), and the Wijma Birth Expectation/Experience Scale-A Version (W). -Collected with DBÖ/A Version). Data were analyzed using Spearman correlation test, Kruskal Wallis test and chi-square test. **Results:** The median gestational age of the pregnant women participating in the study was 34 (21-40) and the median BMI was 30.46 (9.38-39.86). 54.1% of the pregnant women were obese according to BMI. 89.6% of pregnant women reported that they paid attention to adequate and balanced nutrition during pregnancy, and 21.6% reported that they did regular exercise during pregnancy. A statistically significant difference was detected between the presence of obesity in pregnant women and the median score of the Tilburg Pregnancy Distress Scale (p=0.004). There was a significant, positive and low-level correlation between the pregnant women's median BMI score and BMI (rs=0.146, p=0.017) and body perception median score (rs=0.158, p=0.010). **Conclusion:** No statistically significant difference was found between the presence of obesity in pregnant women and Vas, perception of motherhood, body perception, presence of distress and fear of birth. Health care professionals should plan pregnancy, regulate weight gain during pregnancy, and provide nutrition and exercise training to women in the risk group.

Keywords: Maternal perception, Body perception, Distress, Fear of childbirth, Maternal obesity

Gebelerin Beden Kitle İndeksi ile Annelik Algısı, Beden Algısı, Stres ve Doğum Korkusu Arasındaki İlişki

ÖZ

Amaç: Bu çalışmada maternal obezitenin gebelerde annelik algısı, beden algısı, distres düzeyi ve doğum korkusu ile ilişkisinin incelenmesi amaçlanmıştır. **Gereç ve Yöntem:** Tanımlayıcı ve ilişki arayıcı türde tasarlanan çalışmanın verileri Aralık 2021-Nisan 2022 tarihleri arasında tanıtıcı bilgi formu, Gebelerin Kendilerini Algılama Ölçeği (GKAÖ), Tilburg Gebelikte Distres Ölçeği (TGDÖ) ve Wijma Doğum Beklentisi/ Deneyimi Ölçeği- A Versiyonu (W-DBÖ/ A Versiyonu) ile toplandı. Veriler Spearman korelasyon testi, Kruskal Wallis testi ve ki-kare testi ile analiz edildi. **Bulgular:** Çalışmaya katılan gebelerin gebelik haftası ortancası 34 idi (21-40) veve BKİ ortancası 30.46 (9.38-39.86) idi. Gebelerin %54.1'i BKİ'ne göre obezdi. Gebelerin %89.6'sı gebelikte yeterli ve dengeli beslenmeye dikkat ettiğini, gebelikte %21.6'sı düzenli egzersiz yaptığını bildirdi. Gebelerde obezite varlığı ile Tillburg Gebelikte Distres Ölçeği puan ortancası arasında istatistiksel olarak anlamı bir fark saptandı (p=0,004). Gebelerin BKİ puan ortancası ile GKAÖ (rˢ=0,146, p=0,017) ve beden algısı puan ortancası arasında (rˢ=0,158, p=0,010) anlamlı, pozitif yönlü ve düşük seviyede bir korelasyon vardı. **Sonuç:** Gebelerde obezite varlığı ile GKAÖ, beden algısı ve distres varlığı arasında istatistiksel olarak anlamlı bir fark saptanmamıştır. Sağlık bakım profesyonelleri, risk grubundaki kadınlara gebeliğin planlanması, gebelik döneminde kilo alımının düzenlenmesi, beslenme ve egzersiz eğitimleri planlanmalıdır.

Anahtar kelimeler: Annelik algısı, Beden algısı, Distres, Doğum korkusu, Maternal obezite.

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INTRODUCTION

Obesity is a multifaceted and intricate ailment characterized by an excess accumulation of fat, posing significant health risks. The World Health Organization (WHO) has acknowledged obesity as a critical public health concern (WHO, 2023). The WHO categorizes body mass index (BMI) into distinct groups: underweight (BMI<18.5), normal (BMI=18.5–24.9), overweight (BMI=26–29.9), and obese (BMI>30). On a global scale, obesity is most prevalent in the American Continent (61%). Moreover, over 50% of women in the European Continent and Mediterranean Region are classified as overweight, with nearly half of women in all three regions falling into the obese category. It is worth noting that, across all regions worldwide, women exhibit a higher likelihood of obesity compared to men (WHO, 2023). The 2018 Turkey Demographic and Health Survey (2018 TDHS) indicated that 59% of women in Turkey are either overweight or obese. Notably, the incidence of obesity is on the rise among women of reproductive age. This situation is also seen in women during pregnancy (TNSA, 2019). According to WHO reports, more than 20% of women are overweight and obese when they become pregnant (WHO, 2023). Physical activity limitation and nutritional problems during pregnancy affect maternal obesity (Demir Yıldırım & Hotun Şahin, 2022; Koçak et al., 2022). While the prevalence of obesity in pregnant women was 18.8% in a study conducted in our country (Doğan et al., 2018), it was 29.8 in another research (Alan Dikmen & Çankaya. Maternal obesity can cause pregnancy-induced hypertension, gestational diabetes, cesarean delivery, bleeding, fetal macrosomia, abortion, dystocia, preterm birth and stillbirth (Demir Yıldırım & Hotun Şahin, 2022; Langley-Evans, 2022; Mossie et al., 2022; WHO, 2023). Because of the high rate of complications in maternal obesity pregnancy, it is observed that the rates of follow-up in the intensive care unit increase because of temporary tachypnea, respiratory distress, and hypoglycemia in newborns (Özgül & Taşdemir, 2019). According to a case-control study on the effect of obesity on maternal and fetal outcomes in pregnant women, the birth weights of newborns in obese pregnant women are higher (Koçak et al., 2022). It was reported that shoulder dystocia is more common in obese and overweight women during pregnancy, increasing the risk of uterine rupture and perineal trauma (Yanıkkerem & Mutlu, 2012). As research shows, maternal obesity puts the pregnancy and birth process at risk, which can cause obese pregnant women to experience anxiety and uncertainty regarding their pregnancy process. (Rivera et al., 2015). The presence of anxiety and uncertainty during pregnancy can significantly impact maternal perception, posing challenges to the adaptation process of pregnancy.

Negative maternal perception in pregnant women causes psychological distress during the perinatal period, delays in seeking help, and difficulties establishing bonds with their babies (Caldwell et al., 2022). A study observed a lower level of prenatal attachment among pregnant women who are obese (Alan Dikmen & Çankaya, 2018). The number of studies on the maternal perception in maternal obesity pregnancy is very limited in the literature. Maternal obesity also has an adverse impact on the self-esteem and body image of expectant mothers. Çevik and Yanıkkerem (2020) reported that excessive weight gain during pregnancy adversely influences the self-esteem and body image of pregnant women and raises the risk of depression (Çevik & Yanıkkerem, 2020). Negative body perception that develops in mothers negatively affects women's self-esteem, quality of life and mother-infant relationship (Kumcağız et al., 2017). Küçükkaya et al. (2020) stated that when a positive body perception of pregnancy develops in pregnant women, it is easier for expectant mothers to accept pregnancy (Küçükkaya et al., 2020). Coşkun et al. (2020) revealed that as body perception increases in pregnant women, the level of prenatal attachment also increases (Coşkun et al., 2020). As can be seen, the positive body perception that develops during pregnancy can also positively affect the pregnancy and maternal perception. A study revealed a correlation between the self-perception levels of pregnant women and the degree of distress throughout pregnancy (Alan Dikmen & Şanlı, 2019). In comparison, negative maternal perception during pregnancy heightens the distress level among pregnant women. Studies show that maternal obesity also increases stress and anxiety levels during pregnancy (Çapık et al., 2015; Taşdemir et al., 2015). Stressors such as pain, tension, fear, helplessness, loss of control, separation from loved ones, incomprehensible processes, foreign environment, fear of surgical procedures, hopelessness, deterioration of body image, and anxiety about becoming a parent may develop in pregnant women who have to be hospitalized due to the negative health effects of maternal obesity. All these stressors can cause distress (Çapık et al., 2015; Taşdemir et al., 2015). Hilaliah et al. (2022) reported that it increases the level of anxiety in pregnant women who are obese (Arif & Annagraini, 2022). Health problems and anxiety in maternal obesity pregnancy can also lead to fear of childbirth in women.

In a systematic review, including 24 studies by Nilson et al. (2018), the rates of fear of childbirth were reported as between 6.3% and 14.8% (Nilsson et al., 2018). In the study by Dönmez et al. (2014), 58% of women stated they feared childbirth (Dönmez et al., 2014). Individuals may experience varying levels of delivery fear due to reasons such as the number of births, type of birth, negative birth experiences, socioeconomic status, psychological health, and lack of knowledge (Erbil, 2022; Kuo et al.,2022; Şahin et al., 2019). Studies applied in Turkey reported that

7.5% to 82.6% of women preferred cesarean delivery due to fear of vaginal delivery (Bülbül et al., 2016; Karabulutlu, 2012). The study by Gün and Ege (2018) revealed that primiparous women had more fear of childbirth (Özen Gün & Ege 2022). No existing literature has explored the correlation between maternal obesity and the apprehension of childbirth. As a result, one of the study's main objectives is to delve into the potential connection between maternal obesity and fear of childbirth. Furthermore, no prior research has been encountered investigating the interplay between maternal obesity and maternal perception, body perception, distress levels, and fear of childbirth. It was planned to examine the relationship between the body mass index of pregnant women and their perception of maternity, body perception, stress and fear of birth.

Research Questions:

1. Is there a relationship between the body mass index of the pregnant woman and the perception of the mother?
2. Is there a relationship between the pregnant woman's body mass index and body perception?
3. Is there a relationship between the body mass index of the pregnant woman and her level of distress?
4. Is there a relationship between the pregnant woman's body mass index and fear of birth?

MATERIALS AND METHODS

Study type
This study was conducted in descriptive and correlational types.

Study group
The study data were collected at the antenatal care outpatient clinic of a university hospital situated in Konya between December 2021 and April 2022. The study population comprised pregnant women seeking care at the hospital's antenatal follow-up clinic. A random sampling method was employed to select pregnant women, who were then informed about the study, and their consent was obtained if they willingly agreed to participate.

The total sample size for the study was determined to be 265 individuals, with calculations performed using Gpower package software version 3.1.9.4. The chosen parameters included a 0.20 effect size, a 0.05 type I error, and a minimum of 90% power (The GPower Team, Düsseldorf, Germany). During the specified dates, 302 eligible pregnant women attended the polyclinic, where 34 of them declined participation due to time constraints for completing the data collection forms. The study concluded after achieving a sample size of 268 pregnant women who successfully completed the data collection forms. Each pregnant woman took approximately 10-15 minutes to fill out the forms. The data collection process occurred in a designated private room within the respective polyclinic, ensuring utmost privacy. Efforts were made to ensure that the room where the data collection took place was adequately heated, well-lit, and arranged in a manner that prohibited access to anyone other than the researcher and necessary healthcare personnel.

Sample Selection Criteria
Those aged 19 and above, who could speak and understand Turkish, who conceived spontaneously, who were open to communication, who were mentally and physically healthy, who had a single pregnancy, who were not in the risk pregnancy category (with a diagnosed chronic disease, gestational diabetes mellitus, bleeding (ablatio placenta/placenta previa), premature rupture of membranes, threatened preterm birth and hypertensive conditions during pregnancy), The study also included pregnant women in their second and third trimesters.

Data Collection Tools
The data were obtained by Self-perception Scale of Pregnant Women (SSPW), Tilburg Pregnancy Distress Scale (TGSS), and The Wijma Delivery Expectancy/Experience Questionnaire A Version (W-DEQ/ A Version) with the introductory information form evaluating the personal information created in the light of the literature (Alan Dikmen & Çankaya, 2018; Çapık et al., 2015; Körükçü et al., 2012; İnegöl Gümüş et al., 2010).

Introductory Information
The introductory information form, developed in alignment with existing literature, comprises two sections. (Alan Dikmen & Çankaya, 2018; Çapık et al., 2015). The initial section of the form consists of 10 questions encompassing the socio-demographic attributes of pregnant women and their spouses. These questions cover factors such as age, spouse's age, educational background, place of residence, employment status, and the spouse's educational and employment details. In the second section, there are 15 questions that include obstetric and nutritional characteristics of the pregnant women (week of pregnancy, number of pregnancies, weight and height of the pregnant women).

Self-perception Scale of Pregnant Women (SSPW)
The 4-point Likert-type scale (4=Always, 3=Often, 2=Rarely, 1=Never), developed by Kumcagiz et al. (2017), consists of 12 items. The scale has a total of two sub-dimensions, namely maternal perception and body perception. The sub-dimension of maternal perception of pregnancy includes 7 items, and as the scores in this sub-dimension increase, the level of maternal perception of pregnancy also increases (minimum-maximum=7-28). Sub-dimension of body perception of pregnancy has 5 items, and as the score increases in this sub-dimension, body perception of pregnancy is evaluated negatively (minimum-maximum=5-20). In the original scale, Cronbach's alpha coefficient was calculated as 0.86 for the maternal perception of pregnancy and 0.75 for the body perception of pregnancy (Kumcağız et al., 2017 In this study, Cronbach's alpha reliability coefficient

was calculated as 0.70 in the dimension of maternal perception and 0.79 in the dimension of body perception.

Tilburg Pregnancy Distress Scale (TPDS)
The distress assessment scale was developed by Pop et al. (2011) to evaluate distress during pregnancy. The Turkish version's validity and reliability were established by Çapık and Pasinlioğlu (2015) (Çapık et al., 2015). This scale, suitable for pregnant women at or beyond 12 weeks of gestation, employs a 4-point Likert-type scale (0=Very often, 1=Quite often, 2=Sometimes, 3=Rarely/never) and comprises 16 items. The cumulative score ranges from 0 to 48, where a score of 28 or higher indicates potential distress risk. Notably, items 3, 5, 6, 7, 9, 10, 11, 12, 13, 14, and 16 on the scale are reverse-coded.

The scale features two sub-dimensions: "negative affect," encompassing 11 items, and "spouse participation," comprising 5 items. Specifically, items 1, 2, 4, 8, and 15 relate to spouse participation, while the remaining items pertain to negative affect. The Cronbach's alpha coefficient for the scale was determined to be 0.8319. This study determined distress among pregnant women using the established cut-off score, yielding a calculated Cronbach's alpha coefficient of 0.82.

The Wijma Delivery Expectancy/Experience Questionnaire A Version (W-DEQ/ A Version)
The Fear of Childbirth Scale, developed by Wijma et al. (1998), comprises a total of 33 items. Utilizing a 6-point Likert scale, respondents assign numbers from 0 to 5, where 0 signifies "absolutely" and 5 corresponds to "never." Possible scores on the scale range from 0 to 165. Notably, as the score increases, so does the intensity of fear experienced by women concerning childbirth. Questions 2, 3, 6, 7, 8, 11, 12, 15, 18, 19, 20, 24, 25, 27, and 31 are reverse-scored within the scale. The Turkish version of the scale underwent validity and reliability assessment by Körükcü et al., resulting in a calculated Cronbach's alpha coefficient of 0.89 (Körükçü et al., 2012). In the context of this study, Cronbach's alpha coefficient was determined to be 0.81.

Statistical Analyzes
The statistical data analysis employed the SPSS 20.0 software package (IBM, New York, USA). The normality of the data was assessed using the Kolmogorov-Smirnov test and given that the mean score of all scales was <0.05, nonparametric tests were conducted. The analysis encompassed various statistical methods, including Spearman correlation analysis, Mann Whitney U test, and logistic and linear regression analysis, supplemented by descriptive statistics (such as numbers, percentages, medians, and minimum and maximum values).

Throughout the study, two-tailed tests were employed, and significance was deemed to be present when p<0.05, adhering to the guidelines of Tabachnick and Fidell (2013). The study's dependent variables encompassed maternal and body perception levels and the extent of distress and fear of childbirth experienced by pregnant women. Notably, the study's independent variable was pregnant women's body mass index (BMI).

Ethical considerations
Ethical approval (Decision No: 2021/853) and institutional consent were acquired from the hospital in which the study was executed (Number: E-14567952-900-108786). The study was conducted in adherence to the ethical principles set forth in the 1964 Declaration of Helsinki. Written consent was secured from pregnant women who willingly participated in the study. This research did not receive dedicated funding from any public, commercial, or non-profit financial entity.

RESULTS
The median age of the pregnant women participating in the study was 27.78±4.94, and the median duration of marriage (in years) was 4 (range: 1-25). Of the pregnant women, 59% had attained a high school education or higher. Furthermore, 83.6% of the pregnant women perceived their income to be equivalent to their expenses (Table 1). The average gestational week of the pregnant women was 34 (range: 21-40), with a median pregnancy count of 2 (range: 0-6), and a median BMI of 30.46 (range: 9.38-39.86). Among the participants, 86.6% indicated that their most recent pregnancy was planned, while 83.6% reported regular attendance to prenatal check-ups. According to BMI classification, 54.1% of pregnant women were classified as obese. In terms of nutrition, 89.6% of the pregnant women reported adhering to sufficient and balanced dietary habits during pregnancy (Table 2). The median SSPW score of the pregnant women in the study was 36 (range: 25-45), the median TPDS score was 19 (range: 6-32), and the median W-DEQ/ A Version score was 66 (range: 15-96). The presence of distress was identified in 10.4% of the pregnant women (Table 3). No statistically significant correlation was observed between the median BMI score of the pregnant women and the median maternal perception (rs=0.081), TPDS (rs=0.021), and W-DEQ/ A Version (rs=-0.053) scores (p>0.05). However, a significant yet moderate positive correlation was identified between the median BMI score of the pregnant women and both the median SSPW (rs=0.146, p=0.017) and the body perception score (rs=0.158, p=0.010) (Table 4). The study did not reveal any statistically significant differences between the presence of obesity in pregnant women and SSPW, maternal perception, body perception, distress levels, and fear of childbirth (p>0.05). Nonetheless, a statistically significant distinction emerged between the presence of obesity in pregnant women and the median TPDS score (p=0.004). The Post Hoc tests (Tukey HSD and Bonferroni) elucidated that this significance was attributed to the "normal" group, with their median TPDS score

significantly higher than the other two groups (Table 5).

Table 1. Distribution of Socio-demographic Characteristics of Pregnant Women (n=268).

Variables	Mean±SD	Median (Minimum-Maximum)
Age	27.78±4.94	27 (19-39)
Spouse age	31.60±5.25	31 (22-47)
	Number (%)	95% Confidence interval
The place she lived the longest		
Province	208 (77.6)	72.4-82.5
Rural	60 (22.4)	17.5-27.6
Education Level		
Literate person/primary education	110 (41)	35.1-47.4
High School and above	158 (59)	52.6-64.9
Family		
Elementary family	210 (78.4)	73.5-83.2
Extended family	58 (21.6)	16.8-26.5
Employment status		
Employed	31 (11.6)	8.2-15.3
Unemployed	237 (88.4)	84.7-91.8
Spouse Education Level		
Literate person/primary education	103 (38.4)	32.8-44.8
High School and above	165 (61.6)	55.2-67.2
Spouse Employment Status		
Employed	236 (88.3)	85.1-91.5
Unemployed	42 (11.7)	8.5-14.9
Perceived income Status		
Income less than expenses	33 (12.3)	8.2-16.4
Income equal to expenses	224 (83.6)	78.7-88.1
Income more than expenses	11 (4.1)	1.9-6.7

Table 2. Distribution of Obstetric Characteristics and Nutrition and Exercise Characteristics of Pregnant Women.

Variables	Mean±SD	Median (Minimum-Maximum)
Pregnancy week	33.24±4.87	34 (21-40)
Pregnancy number	2.45±1.14	2 (0-6)
Birth number	1.35±1.01	1 (0-4)
Pregnancy weight (kg)	79.45±13.40	80 (50-106)
Pregnancy height (cm)	162.33±5.68	163 (150-174)
Pregnant BMI	30.18±5.14	30.46 (19.38-39.86)
Number of main meals per day	2.84±0.36	3 (2-3)
Number of snacks per day	2.17±1,01	2 (0-5
	Number (%)	95% Confidence interval
Volunteer pregnancy		
Yes	232 (86.6)	82.5-90.7
No	36 (13.4)	9.3-17.5
Getting regular prenatal care		
Yes	224 (83.6)	79.5-88.1
No	44 (16.4)	11.9-20.5
Presence of obesity according to BMI[a]		
Normal (18,5-24,9)	43 (16)	11.9-20.5
Pre-obese/Slightly overweight (25-29,9)	80 (29.9)	24.6-35.1
Obese (>30)	145 (54.1)	48.1-59.3
Regular exercise before pregnancy		
Yes	35 (13.1)	9.3-17.2
No	233 (86.9)	82.8-90.7

BMI: Body Mass Index, [a] NIH, National Institute of Health, ACOG: The classification of American Society of Obstetrics and Gynecology

Table 2. Distribution of Obstetric Characteristics and Nutrition and Exercise Characteristics of Pregnant Women (Continue).

Regular exercise during pregnancy		
Yes	58 (21.6)	16.8-26.5
No	210 (78.4)	73.5-83.2
Paying attention to a balanced and adequate diet before pregnancy		
Yes	207 (77.2)	72.4-82.8
No	61 (22.8)	17.2-27.6
Paying attention to a balanced and adequate diet during pregnancy		
Yes	240 (89.6)	85.6-92.9
No	28 (10.4)	7.1-14.2

BMI: Body Mass Index, [a] NIH, National Institute of Health, ACOG: The classification of American Society of Obstetrics and Gynecology

Table 3. Distribution of the Median Scores and Minimum-Maximum Values of the pregnant women's SSPW, maternal perception, body perception, TPDS and W-DEQ/ A Version, and the prevalence of distress (n=268).

Variables	Mean±SD	Median (Minimum-Maximum)
SSPW	35.53±3.49	36 (25-45)
Maternal perception[a]	26.01±2.48	27 (19-28)
Body perception[a]	9.52±3.05	10 (5-19)
TPDS	19.31±6.30	19 (6-32)
W-DEQ/ A Version	62.78±16.28	66 (15-96)
	Number (%)	95% Confidence interval
There is distress (TPDS cut-off score of 28 and above)	28 (10.4)	85.8-92.9
There is no distress (TPDS cut off score<28)	240 (89.6)	7.1-14.2

Table 4. The Relationship Between BMI of Pregnant Women and Maternal Perception, Body Perception, Distress and Fear of Birth (n=268).

		SSPW	Maternal Perception	Body perception	TPDS	W-DEQ/ A Version
BMI	r^s	0.146	0.081	0.158	0.021	-0.053
	p	0.017	0.188	0.010	0.737	0.390

BMI: Body Mass Index, SSPW: Self-perception Scale of Pregnant Women, [a] Sub-dimension of PWSS, TPDS: Tillburg Pregnancy Distress Scale,
W-DEQ/ A Version: Wijma Delivery Expectancy/Experience Questionnaire - A Version, r^s: Spearman correlation

Table 5. Difference Between Maternal Obesity and Maternal Perception, Body Perception, Distress and Fear of Birth in Pregnant Women (n=268).

	Presence of obesity according to BMI[a]			
	Normal (18.5-24.9)	Pre- obese/Slightly overweight (25-29.9)	Obez (>30)	Test (p)
SSPW				
Mean±SD	34.07±4.13	35.29±2.69	36.10±3.56	K=5.866 p=0.053
Median (Minimum-Maximum)	34 (25-39)	36 (29-41)	36 (29-45)	
Maternal perception				
Mean±SD	25.53±2.78	25.86±2.42	26.23±2.41	K=3.162 p=0.206
Median (Minimum-Maximum)	27 (20-28)	27 (19-28)	27 (19-28)	
Body perception				
Mean±SD	8.53±2.59	9.43±3.03	9.87±3.13	K=4.768 p=0.092
Median (Minimum-Maximum)	10 (5-12)	10 (5-19)	10 (5-19)	
TPDS				
Mean±SD	21.19±7.24	17.44±5.92	19.78±6.00	K=10.996 p=0.004
Median (Minimum-Maximum)	24 (8-31)	17 (6-28)	20 (7-32)	
Distress, Number (Percentage)				
There is distress	6 (21.4)	7 (25)	15 (53.6)	X^2=0.813 p=0.666
There is no distress	37 (15.4)	73 (30.4)	130 (54.2)	
W-DEQ/ A Version				
Mean±SD	63.07±16.76	61.95±21.32	63.15±12.64	K=0.869 p=0.647
Median (Minimum-Maximum)	68 (18-84)	66 (15-96)	66 (18-87)	

SSPW: Self-perception Scale of Pregnant Women, [a]Sub-dimensions of PWSS, TPDS: Tillburg Pregnancy Distress Scale, W-DEQ/ A Version: Wijma Delivery Expectancy/Experience Questionnaire - A Version, r^s : Spearman correlation, K: Kruskal Wallis test, X^2: chi-square test. [a]The group that creates significance (determined by Post Hoc Tests).

DISCUSSION

In parallel with the increase in obesity worldwide, the prevalence of maternal obesity is also increasing. In Hungary, Ireland, Portugal, Spain and the United Kingdom, more than 20% of women were reported to be obese before becoming pregnant (WHO, 2023). The increase in obesity prevalence in women of reproductive age shows that pregnant women are also in the risk group (Yanıkkerem & Mutlu 2012). In a study carried out in Turkey, the prevalence of obesity in preconception was 18.8% (Doğan et al., 2018). In this study, which explores maternal perception, body perception, distress levels, and fear of childbirth among pregnant women with maternal obesity, the prevalence of obesity was determined to be 54.1% (Table 2). A previous study conducted by İnegöl

Gümüş et al. (2010) reported that 53.1% of pregnant women were categorized as overweight, while 5.77% were identified as obese (İnegöl et al., 2010). It is thought that genetic predisposition, environmental factors and socio-economic status of pregnant women increase obesity rates. (Giouleka et al., 2023; Mahmoud et al., 2022; Syböck et al., 2023). This study's findings are consistent with those of other research in the literature.

Regular exercise is recommended for obese women from the antenatal period for their and the baby's health. In our study, while regular exercise was 13.1% before conception, it was 21.6% during pregnancy. These rates show that women's exercise status increases with pregnancy. In the study conducted by Demirel Bozkurt (2022), it is seen that 36.9% of

pregnant women exercise regularly (Demirel Bozkurt et al., 2022). In the study by Coşar Çetin et al. (2017) examining physical complaints, it is seen that 44.5% of pregnant women exercise, and 55.5% do not exercise regularly (Coşar Çetin et al., 2017). Based on these results, we can say that the exercise habits of pregnant women in Konya are insufficient. The low rate of exercise during pregnancy may result from sociocultural differences. Exercising during pregnancy is recommended because it regulates weight gain, affects the physical and mental health of pregnant women positively and facilitates compliance with pregnancy. However, before deciding to exercise, the risky pregnancy status should be questioned, and an exercise program should be created for the pregnant woman in line with the recommendations of the physician, midwife and dietitian.

When the diets of pregnant women are examined in a study, 74% of them eat three main meals, and 44.8% eat three snacks (Şeker et al., 2021). This study shows that 89.6% of pregnant women pay attention to balanced and adequate nutrition. According to the results of the study, adequate and balanced nutrition habits are high. It is thought that this situation stems from the high level of education. Healthcare professionals should organize nutrition education for women who are obese during pregnancy, and their nutritional habits should be questioned during pregnancy follow-ups. Alterations such as weight gain and skin changes that occur during pregnancy could influence the perception of the pregnancy experience (Arslan et al., 2019). The maternal perception was identified as moderate in research investigating the correlation between body perception concerning weight gain during pregnancy and the embracement of pregnancy (Küçükkaya et al., 2020). In a study examining the expectant mothers' self-perception scale, it is seen that maternal perception is high (Dönmez et. al., 2014). In a study examining the distress level and pregnancy perception of pregnant women with progressive muscle relaxation exercises, it was found that the maternal perception was high (Alan Dikmen & Şanlı 2019). In another study examining the relationship of pregnancy perception with fetal health locus of control, a high maternal perception makes them feel psychologically well[35]. Age, education level, income status, planned pregnancy, psychological and physiological changes, positive perception of one's own body, regular check-ups, baby's gender, and BMI during pregnancy are among the factors affecting maternal perception (Erdemoğlu et al., 2022, Ersanlı Kaya & Atasever 2022). In the literature, it is seen that maternal perception is high in pregnant women with high educational status (Ersanlı Kaya & Atasever, 2022). In this study, it is seen that maternal perception is high in pregnant women (Table 3), and there is no significant relationship between maternal perception and maternal obesity (Table 4). The high maternal

perception score in the study is similar to the literature (Gür&Pasin 2020). This may be due to the high educational status of the pregnant women included in the study, the high rates of receiving prenatal care, and the fact that they were in the last trimester of pregnancy. In our study, maternal obesity does not affect maternal perception during pregnancy. The factors that will negatively affect the maternal perception of women at risk for maternal obesity should be evaluated starting from the preconception period. Healthcare professionals should increase the number of prenatal care follow-ups of obese pregnant women and try to detect the risks that may arise during pregnancy in the early period. Also, information, physical care and psychological support should be provided to the pregnant woman. There is no study in the literature examining maternal perception in obese pregnant women. It may be recommended to conduct different studies that affect maternal perception in obese women.

During pregnancy, weight gain often leads to decreased self-perceived attractiveness among women (Şeker et al., 2021). Concerns about regaining pre-pregnancy weight after delivery can further contribute to a decline in body image (Arslan et al., 2019). This study examined pregnant women's median body perception score of 10, indicating a moderate level (Table 3). Although a low correlation exists between pregnant women's median BMI score and body perception (Table 4), another study showed that 53% of pregnant women reported a positive body perception (Öztürk et al., 2021). Similarly, a study investigating perceived stress and self-perception in women with three or more pregnancies found a significant difference between maternal and body perceptions (Alkin & Beydağ, 2020). In contrast to our findings, a study on body perception in pregnant women did not find a statistically significant difference between BMI and body perception during pregnancy (Gür & Pasinlioğlu, 2020; Grenier et al., 2021). It is also observed that pregnant women who experience body image anxiety are dissatisfied with their bodies. (Fard et al., 2022).

Multiple factors contribute to negative body perception, including changes in body shape due to weight gain, hormonal fluctuations, reduced physical activity, feelings of inadequacy, and emotional challenges. Obese women planning a pregnancy are advised to achieve weight loss before conception, while guidelines recommend careful weight gain during pregnancy. Antenatal care should include weight gain and nutritional status evaluations, along with targeted nutrition education and support for positive eating habits. Pregnancy encompasses both physiological and psychological dimensions, with stress levels potentially increasing during this period. A study exploring the link between pregnancy perception, psychological well-being, and fetal health locus of control found that high maternal perception positively influences psychological well-being,

whereas negative body perception adversely impacts it (Ersanlı Kaya & Atasever, 2022).

This study indicated a 10% distress rate among pregnant women, with no significant relationship between BMI and distress level (Table 4). Existing literature lacks studies examining distress levels, specifically in obese pregnant women. Distress during pregnancy is recognized to affect both maternal and fetal health adversely (Denker et al., 2019; Mcleod et al., 2022; Zhao et al., 2022). Consequently, antenatal care must encompass thorough evaluations of distress. In maternal obesity pregnancies, health-related concerns may heighten anxiety levels and contribute to fear of childbirth (Arif & Anggraini, 2022). A range of factors, such as cultural disparities, trauma, lack of social support, unemployment, and economic issues, as well as previous birth experiences, contribute to fear of childbirth among pregnant women (Dal Moro et al. 2023; Kılıç & Yılmaz, 2022; Uçar & Gölbaşı, 2015). Comparatively, primiparous pregnant women often experience more intense fear of childbirth than multiparous ones (Uçar & Gölbaşı, 2015). Another study on the psychosocial health of primiparous pregnant women indicated that higher levels of psychosocial well-being corresponded with decreased fear of childbirth (Kılıç & Yılmaz, 2022). Nonetheless, this study did not find a significant relationship between maternal obesity and fear of childbirth (Table 4). This observation may be attributed to antenatal education and higher levels of education, both of which are linked to reduced childbirth-related anxiety. As such, it is recommended that fear of childbirth be assessed in obese pregnant women during the third trimester and appropriate psychosocial support provided.

CONCLUSION

A statistically significant, positively oriented, and minor correlation emerged between the median BMI score of pregnant participants and the averaged scores of SSPW and body perception. Furthermore, a notable association surfaced between the presence of obesity and heightened levels of distress among pregnant individuals. According to these results, to reduce obesity rates in pregnant women, diet and exercise programs should be developed to ensure weight control in expectant mothers from the preconception period. If necessary, the expectant mother should be referred to a dietitian.

Obesity during pregnancy may cause stress. The presence of distress and other psychological disorders in obese pregnant women should be determined early, and if necessary, pregnant women should be referred to a psychiatrist.

Women who are pregnant or contemplating pregnancy should have their BMI calculated by midwives and nurses. They should explain the importance of adequate and balanced nutrition and prepare a suitable diet list for all pregnant women at

the point of adequate and balanced nutrition. If the pregnant woman still cannot control her weight, she should be referred to a dietitian. Maternal obesity exerts a detrimental impact on the body perception of expectant mothers. Consequently, it is imperative to assess the body perception of pregnant women grappling with obesity and to offer guidance towards weight reduction.

Limitations of Study

The findings of our study are limited only to the sample group in which the research was conducted and cannot be generalized to the entire society. No study has been found in the literature examining the perception of motherhood, body perception, distress level and fear of birth in maternally obese women. In this respect, it is thought that this study will contribute to the literature.

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Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

Plan, design: COT **Material, methods and data collection:** HAD, COT **Data analysis and comments:** HAD, COT **Writing and corrections:** HAD, COT

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