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The effect of maternal obesity on self-esteem and body image

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ABSTRACT

Abstract stress, dissatisfaction and the feeling of inadequacy experienced as a result of the change in appearance caused by weight gain affects self -esteem and body image of pregnant women negatively. The aim of this study was to determine the relationship between maternal obesity, self-esteem and body image. The study was performed through a questionnaire in a state hospital in Trabzon, Turkey with 300 unselected pregnant women who were recruited from the delivery unit. As data collection tools, Body Image Scale (BAS) and Coopersmith Self-Esteem Scale (GIS) were used between April and May 2016. According to BMI variables, 12.3%, 57.0% and 30.7% of the pregnant women were normal, overweight and obese respectively and gained an average of 12.11 ± 3.03 kg during pregnancy. Accordingly, the majority of pregnant women who participated in this study were found to be overweight and obese. While the body image of pregnant women surveyed in this study was at a high level (158.84 ± 21.34), their average self-esteem was found at a moderate level (64.01 ± 15.88). Based on BMI, 56.8% of the women with normal weight perceived themselves as normal, 48.0% of overweight women perceived themselves as normal and 53.3% of obese women perceived themselves as overweight. There was a positive significant relationship between participants' body image and their BMI ($r = 0.119$ $p < 0.05$). The pregnant women with normal BMI were more likely to feel satisfied. While 56.8% of the pregnant women at normal weight based on BMI were found to feel satisfied and 43.3% of those overweight felt satisfied, 54.3% of obese ones did not feel satisfied. A weak positive significant correlation was found between body image and self-esteem ($r = 0.172$; $p = 0.003 < 0.05$). As the self-esteem increases, body image increases, too. It was found that the majority of pregnant women were overweight and obese according to BMI and their average body image and self-esteem were high and medium level respectively.

1. Introduction

Obesity is one of the greatest public health challenges of the 21st century and it is also rapidly increasing among women of childbearing age (Baltacı, 2008; Can et al., 2014; Apay and Pasinlioğlu, 2009). The most accessible, simple and widely used diagnosis measure of obesity is body mass index (BMI). The formula for BMI is weight in kilograms divided by height in meters squared and while it is normal between 18.5 and 24.9 and overweight between 25 and 29.9, it is considered as obesity when the values are 30 and above (WHO, 2001). The body image and self-esteem of pregnant women is affected negatively by the changes experienced in external appearance due to weight gain during pregnancy (Okanlı et al., 2003; Yanıkkerem et al., 2006). Body image is defined as the intrinsic expression of an adult appearance. In a study by Boscaglia et al. (2003) it has been reported that there is a significant reduction in the satisfaction levels of pregnant women with their body image from pre-pregnancy period to early stages of pregnancy. Pregnant women perceive their bodies unattractive especially during the last trimester and this negatively affects their self-esteem (Smith et al., 2008). Additionally, there are studies showing that this situation is also effective on the relationship between spouses during the pregnancy period. Welsh (2010) also reported that 13.1% of the women were worried about the fact that the weight they gained in pregnancy would have a negative impact on their relationship with their spouses (Welsh, 2010).

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Similarly, Johnson et al. (2004) indicated that the pressure about being slim caused by the spouses and the media had a negative effect on the husband-wife relations (Johnson et al., 2004). Babacan-Gümüş et al.,(2011) reported that women who perceived their self-esteem and body image positively in the pregnancy were more likely to have a better relationship with their spouses compared with those who perceived it negatively (Babacan-Gümüş et al., 2011). This suggests that this situation is too important to be ignored in terms of the relationship between spouses after pregnancy in marriage.

Self-esteem is defined as the value that individuals attach themselves as a result of their life style perceptions and life experiences (Cüceloğlu, 2005). Whether self-conception is appreciated or not builds self-esteem (Hamurcu et al., 2015). That an individual is satisfied with his/her body is associated with self-esteem (Özmen et al., 2007).

In a study conducted with pregnant women in various cultures, individuals have expressed their concerns about weight gain during pregnancy and indicated that they have felt less attractive than before pregnancy. Likewise, individuals who are satisfied with their body during pregnancy have shown less negative mood symptoms than those who are not satisfied (Chang et al., 2006). In the literature, high self-esteem is reported to cause pregnant women to protect against stress, use better coping mechanisms and experience a more positive process during pregnancy (Kamysheva et al, 2005).

The development of self-esteem should be given due importance so as to enable pregnant women to have healthy psychology and increase their quality of life during pregnancy because negative body image also affects self-esteem in a negative way. Therefore, it is important to evaluate the body image of a pregnant woman during pregnancy to prevent the problems that may arise (Kumcağız, 2012). Taking the small number of studies on this subject carried out in Turkey into consideration, this study is thought to make a significant contribution to the literature on the effect of maternal obesity on body image and self-esteem.

2. Materials and methods

2.1. Type of research

This study is a descriptive research.

2.2. Location and time of the research

The research was carried out from April 15 to May 15, 2016 at Trabzon Kanuni Training and Research Hospital. Trabzon Kanuni Training and Research Hospital is located in the northeast of the country as a regional hospital and serves women in all socio-economic status in terms of the intensity of the patients.

2.3. Population and sample

The research population consisted of all women (7776) at 38–40 pregnancy week admitted to the Maternity Ward all year round at Trabzon Kanuni Training and Research Hospital. To calculate the minimum sample size to be taken to the research, the sample selection formula was used when the number of individuals in the universe is known. According to this formula, the sample of the research must be at least 275 individuals. ($7776 * 3.84 * (0.25 * 0.75)/0.0025 * 7775 + 0.96 = 275$ people). The study was completed with 300 people.

In the sample selection, women with delirium, amnestic disorders, epilepsy, seizures history, a physical illness that led to a loss of a specific function and those who had loss of consciousness as a result of a head trauma, mental retardation, other neurological disorders, drug addiction and obesity depending on an endocrine disorder were excluded from the study.

2.4. Data collection tool

All the pregnant women were informed about the study and their consent was obtained. The data were collected through face to face interviews by the researchers. In collecting the data, 'Personal Information Form', 'Body Image Scale (BIS) and Coopersmith Self-Esteem Scale (CSES) were used.

2.5. Data collection

Personal Information Form: This form consists of questions that contain information related to socio-demographic characteristics of the pregnant women.

2.5.1. Body Image Scale (BIS)

It aims to measure how satisfied a person is with various parts and functions of his/her body. The scale has 40 items which are scored from 1 to 6. High scores indicate high satisfaction levels (Hovardaoğlu and Özdemir, 1990).

2.5.2. Coopersmith self-esteem inventory

It is a measurement tool used to assess a person's attitudes about herself in various areas. The scale has 25 items and the total score value obtained from the scale can vary between 0 and 100. As the scores received from the scale increase, self-esteem of individuals increases too (Pişkin, 1997).

2.6. Data analysis

The data obtained in the study were analyzed using SPSS 22.0 software. In the evaluation of the data, numbers, percentage, mean, chi-square were used as descriptive statistical methods. ANOVA (one way) test was used in comparing quantitative continuous data between more than two independent groups. Following Anova test, Scheffe test was used as a complementary post hoc analysis to determine differences. Pearson correlation and regression analysis were used between continuous variables of the study. The findings were evaluated in the 95% confidence interval and $p < 0.05$ significance level.

2.7. Ethical aspects of research

Before starting the research, approval and the necessary permits were obtained from Trabzon Kanuni Training and Research Hospital Research Ethics Committee. The pregnant women were informed about the aim of the research and "Informed Consent", "Privacy and Protection of Privacy" and "Respect for Autonomy" principles were fulfilled by informing them about the purpose of the study, providing voluntary participation and ensuring to keep the data confidential respectively (Bayık, 2004).

3. Results

In this section, to solve the research problem there are findings obtained from the analysis of the data collected from the participants through the scales. Based on the findings, explanations and comments are presented.

The average "body image" and "self-esteem" of pregnant women were found as ($158.840 ± 21.344$) and ($16.003 ± 3.971$) respectively.

The average "age" of pregnant women was found as 29.23 ± 6.09 and there was not a statistically significant relationship among educational status, employment status, perceived income level, cigarette and alcohol use based on BMI ($x^2 = 17.161$; $p = 0.071 > 0.05$, $x^2 = 0.958$; $p = 0.619 > 0.05$, $x^2 = 6.382$; $p = 0.172$, $X^2 = 0.197$; $p = 0.906 > 0.05$, $x^2 = 0.679$; $p = 0.712 > 0.05$ respectively) (Table 1).

37 (12.3%), 171 (57.0%) and 92 (30.7%) of the pregnant women were normal, overweight and obese respectively according to BMI variables. Overweight and obese pregnant women gained more than due weight (90 52.3%, 84 91.3%) (Table 2).

These is a statistically significant relationship between BMI and the way a pregnant women perceives herself, whether she is satisfied with her current weight, whether she wants to lose

Table 1
Socio-demographic characteristics of pregnant women based on BMI (N = 300).

		Normal (18.5–24.9)		Overweight (25–29.9)		Obese (≥30)		P
		N	%	N	%	n	%	
Age	≤19 age	4	66.7	2	33.3	0	0.0	$X^2 = 17.770$
	20–29 age	19	11.1	99	57.9	53	31.0	$p = 0.001$
	≥30 age	13	10.6	71	57.7	39	31.7	
Educational Status	Illiterate	2	5.4	3	1.8	3	3.3	$X^2 = 17.161$
	Literate	0	0.0	7	4.1	10	10.9	$p = 0.071$
	Primary school	3	8.1	12	7.0	11	12.0	
	Secondary school	3	8.1	36	21.1	17	18.5	
	High school	19	51.4	73	42.7	28	30.4	
	University	10	27.0	40	23.4	23	25.0	
Classified Educational Status	High school and below	27	73.0	131	76.6	69	75.0	$X^2 = 0.250$
	University and above	10	27.0	40	23.4	23	25.0	$p = 0.882$
Employment Status	Employed	16	43.2	78	45.6	47	51.1	$X^2 = 0.958$
	Unemployed	21	56.8	93	54.4	45	48.9	$p = 0.619$
Perceived Income Level	Low	5	13.5	18	10.5	20	21.7	$X^2 = 6.382$
	Moderate	25	67.6	123	71.9	56	60.9	$p = 0.172$
	High	7	18.9	30	17.5	16	17.4	
Cigarette Smoking	No	21	56.8	101	59.1	56	60.9	$X^2 = 0.197$
	Yes	16	43.2	70	40.9	36	39.1	$p = 0.906$
Alcohol Use	No	35	94.6	155	90.6	83	90.2	$X^2 = 0.679$ $p = 0.712$
	Yes	2	5.4	16	9.4	9	9.8	

Table 2
Gestational weight gain categories based on maternal BMI class.

Pre-pregnancy BMI	BMI (kg/m²) DSÖ	Total Weight Gain [*] [+] Range (kg)	Gained due weight according to BMI		Gained more than due weight according to BMI		Gained less than due weight according BMI		Total	
			n	%	n	%	n	%		
Underweight	<18.5	12.7–18.1	–	–	–	–	–	–	–	–
Normal	18.8–24.9	11.5–15.9	10	27.8	3	8.3	23	63.9	37	12.3
Overweight	25.0–29.9	6.8–11.3	79	45.9	90	52.3	3	1.73	171	57.0
Obese	≥30.0	5.0–9.1	8	8.7	84	91.3	0	0	92	30.7

[*] In the first trimester of pregnancy, weight gain is assumed to be approximately 0.5–2 kg (Welsh, 2010).
[+] Given as pounds (lbs) in original, the values were converted to metric equivalents.

Table 3
Gestational weight gain categories based on maternal BMI class.

BMI classification							
Perceived status		Normal (18.5–24.9)		Overweight (25–29.9)		Obese (≥30)	P
		n	%	n	%	n	%	
The way a pregnant perceives herself	Thin	11	29.7	12	7.0	1	1.1	$X^2 = 70.303$
	Normal	21	56.8	82	48.0	20	21.7	$p = 0.000$
	Overweight	1	2.7	64	37.4	49	53.3	
	Obese	4	10.8	13	7.6	22	23.9	
Satisfaction with current weight	Satisfied	21	56.8	74	43.3	20	21.7	$X^2 = 18.087$
	Indecisive/Don't care	6	16.2	32	18.7	22	23.9	$p = 0.001$
	Unsatisfied	10	27.0	65	38.0	50	54.3	
Desire to lose weight	No	29	78.4	87	50.9	25	27.2	$X^2 = 30.174$
	Yes	8	21.6	84	49.1	67	72.8	$p = 0.000$

Table 4
Body image and the relationship between self-esteem.

	Body image		Self-esteem	
	R	P	r	P
Age	−0.184[**]	0.001	0.062	0.287
BMI	−0.103	0.075	0.155[**]	0.007
Pre-pregnancy weight	−0.177[**]	0.002	0.197[**]	0.001
Weight gain during pregnancy	−0.095	0.1	0.048	0.41
Educational status	0.006	0.915	0.045	0.44
Employment status	−0.015	0.797	−0.072	0.216
Perceived status	0.087	0.133	0.071	0.217
Cigarette use	0.074	0.199	0.023	0.688
Alcohol use	−0.006	0.912	0.044	0.45
The way a pregnant physically perceives herself	−0.151[**]	0.009	0.119[*]	0.04
Satisfaction with current weight	−0.255[**]	0	0.113	0.051
Desire to lose weight	−0.230[**]	0	0.102	0.078
Body image	–	–	0.172[**]	0.003

Table 5
Some affecting self-esteem and independent variables.

Dependent variable	Independent variable	ß	t	P	F	Model (p)	R^2
Self esteem	Fixed	4.356	1.614	0.108	6.945	0.000	0.056
	BMI	0.165	2.142	0.033			
	The way a pregnant physically perceives herself	0.417	1.343	0.180			
	Body image	0.037	3.508	0.001			

weight (X^2 = 70.303; p = 0.000 < 0.05, X^2 = 18.087; p = 0.001 < 0.05, X^2 = 30.174; p = 0.000 < 0.05 respectively) (Table 3).

A weak but a positive significant relationship was found between self-esteem and BMI and pre-pregnancy weight, the way a pregnant physically perceives herself and body image (r = 0.155; p = 0.007 < 0.05, r = 0.197; p = 0.001 < 0.05, r = 0.119; p = 0.040 < 0.05, r = 0.172; p = 0.003 < 0.05 respectively). A weak and negative significant relationship was found between body image and age, pre-pregnancy weight, the way a pregnant physically perceives herself, satisfaction with current weight (r = −0.184; p = 0.001 < 0.05, r = −0.177; p = 0.002 < 0.05, r = −0.151; p = 0.009 < 0.05, r = −0.255; p = 0.000 < 0.05, r = −0.23; p = 0.000 < 0.05 respectively) (Table 4).

Regression analysis carried out to determine the cause and effect relationship between BMI, the waya pregnant perceives herself, body image and self-esteem produced statistically significant results (F = 6.945; p = 0.000 < 0.05). The BMI and body image levels of pregnant women increase their self-esteem levels (ß = 0.165, b = 0.037 respectively) (Table 5).

4. Discussion

The most accessible, simple and widely used diagnosis measure of obesity is body mass index (BMI). BMI (kg/m^2) is calculated from maternal weight and height data. Women are categorized according to World Health Organization (WHO) classification: underweight (BMI < 18.50 kg/m^2); normal weight (BMI 18.50–24.99 kg/m^2; reference group); over weight (BMI 25.00–29.99 kg/m^2); obese (BMI 30.00–34.99 kg/m^2) (WHO, 2014).

Obesity is one of the biggest public health challenges of the 21st century with its psychosocial aspects throughout the world and it is also spreading rapidly among the women of childbearing age. The majority of the pregnant women in our study were found as overweight and obese according to BMI variable. Similarly, Polley et al. (2002), Brankston et al. (2004) and Asbee et al. (2009) found BMI of the pregnant women as overweight and obese according to maternal weight gain. These studies are compatible with the

similar studies in our country (Hamurcu et al., 2015; Kumcağız, 2012; Taşdemir et al., 2015). Considering the studies above, the results show that obesity is an issue that cannot be ignored.

Body image and self-esteem of pregnant women are affected positively or negatively depending on cultural diversity (Chang et al., 2006). Body image is defined as the intrinsic expression of an individual's outward appearance (Cüceloğlu, 2005) and the average of body image of pregnant women was found high based on BMI in our study. However, the self-esteem which means self-respect, perceptions of individuals of their lifestyles and the value that they attach their lives out of their experiences was found moderate (Cüceloğlu, 2005). Therefore, it can be said this difference results from cultural structures and there is no impact supporting each other in a positive way between body image and self-esteem of pregnant women. Due to the happiness and the feeling of satisfaction experienced during desired pregnancy, pregnant women evaluate the changes in their bodies in a positive way (Boscaglia et al., 2003; Scmied and Lupton, 2001). Similarly, while the relationship between BMI and body image is significant in a study by Hamurcu et al. (2015), maternal obesity reduces self-esteem in the studies of Apay and Pasinlioğlu (2009) and Pınar (2002), which is compatible with our research data. Downs et al. (2008) suggest that the activities that are applied to pregnant women to improve their body images and self-esteem indirectly during pre-pregnancy would enable them to perceive pregnancy more positively, have more quality of life and this would provide a positive impact on their psychological health.

A significant positive moderate relationship was found between self-esteem and body image, and a significant positive correlation was determined between self-esteem and BMI, pre-pregnancy weight and the way a pregnant perceives her body and this is similar to a study by Hamurcu et al. (2015). In another study on the body image and self-esteem of pregnant women it was found out that self-esteem affects body image and the pregnant women with high self-esteem had high body image too (Kumcağız, 2012).

Similar to the study results of Hovardaoğlu and Özdemir (1990), our data show that the body image levels of pregnant women are associated with their BMI levels and as the BMI increases, body

image and self-esteem decrease. Likewise Hamurcu et al. (2015) and Özmen et al. (2007) report that negative body image is associated with perceived body weight rather than actual weight. Accordingly, it can be suggested that there exists a positive relationship between BMI and the way a pregnant perceives her body and body image and self-esteem. However, there are studies showing that pregnant women perceive their exterior appearances differently (Boscaglia et al., 2003; Smith et al., 2008; Cüceloğlu, 2005; Hamurcu et al., 2015; Özmen et al., 2007; Chang et al., 2006). Sujoldzić and De Lucia's (2007) study shows a strong correlation between BMI and body dissatisfaction and high BMI affects body image negatively. Skouteris et al. (2005) report that pregnant individuals experience bodily dissatisfaction particularly in the middle of the second trimester and feel less attractive. The studies revealing the relationship between the power types and the organizational structure show that reinforcing power is preferred in organizations where people work based on solidarity and superiors and subordinates exchange sources while coercive power is preferred in settings which have competitive atmospheres (Yanıkkerem et al., 2006). As for legitimate power, it is a type of power resulting from the official position/status of a person (Hovardaoğlu and Özdemir, 1990; Pişkin, 1997). In this study, FHS expressed reinforcing power as their expected power and this suggests that power of motivation is used little by the leader. The fact that FHS felt the power they perceived as legitimate shows that physicians use their leadership positions. Perceiving coercive power close to legitimate power may be comprehended as an expression of the problems between subordinates and superiors. Physician who is afraid of losing patient population can use coercive power.

The reason why FHS perceived coercive power after legitimate power might stem from the stress experienced by the physician due to laws (Bayık, 2004; Brankston et al., 2004). The results of many studies show that leaders give orders, use authority, exceed authorized limits and show of force and this supports the finding of coercive average score to be close to the legitimate power (Smith et al., 2008; Pişkin, 1997; Asbee et al., 2009).

There are some studies showing that the use of coercive power decreases as the education levels of subordinates increases (Smith et al., 2008; Cüceloğlu, 2005; Pişkin, 1997). In this study, the mean scores of coercive and legitimate powers received by high school graduates were also found to be significantly low compared with bachelor degree graduates. This result shows that the group with low education status accepts bureaucratic leader behavior more easily than FHS with bachelor degree graduates.

Negative relationship determined between legitimate and reinforcing power and coercive power represents that FHS perceived coercive power negatively. The result which shows that as reinforcing and legitimate power decreases coercive power increases is consistent with the literature (Smith et al., 2008; Pişkin, 1997; Taşdemir et al., 2015).

Consequently, the findings of this study demonstrate the necessity of a change in leadership power in the organization functioning because FHS who provide services for health protection and promotion at primary health care centers expressed their perceived power as legitimate and coercive powers and their preferred power as reinforcing power.

5. Results and recommendation

In conclusion, our study results show that the majority of pregnant women are overweight and obese according to BMI, they have high body image levels and moderate self-esteem levels and there is a positive relationship between body images and BMI, and self-esteem and body image. In light of these findings, maternal obesity should be assessed psychosocially and a multidisciplinary approach should be used in the treatment of pregnant women and psychological and social problems experienced by women due to maternal obesity should be taken into account.

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