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Effects of maternal obesity on antepartum symptoms and self-care agency: A case-control study

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Abstract

Maternal obesity is an important in terms of posing a risk to the mother and fetus during pregnancy. Study aim to determine the effects of maternal obesity on antepartum symptoms and self-care agency. This study was conducted between August–October, 2014 as a case-control study with pregnant women, 64 recruited into an obese group and 64 into a control group. The study was conducted in a state hospital in Aydın, Turkey. Data were collected with a questionaire, the Antepartum Symptoms Checklist and the Exercise of Self-Care Agency Scale, and analyzed with the Chi-square and Student's t tests. The group of obese women had a preconception/pregestational Body Mass Index of ≥30.0 kg/m^2 and the women of normal weight had a preconception/pregestational Body Mass Index of 18.5-24.9 kg/m^2. The women in the obese group were of the ages 27.38±4.54. Fifty percent of this group consisted of elementary school graduates, 48.4% suffered from the symptom of awakening unrested (p=0.042) and 78.1% had edema (fluid accumulation, swelling) (p=0.050). The total score of the obese group of women on the Antepartum Symptoms Checklist was 14.71±5.97 (p=0.504) and 110.15±15.19 (p=0.130) on the Exercise of Self-Care Agency Scale. Maternal obesity does not generally affect antepartum symptoms and the exercise of self-care agency, but does affect certain antepartum symptoms such as awakening unrested and edema. *(Afr J Reprod Health 2023; 27 [9]: 108-116).*

Keywords: Maternal obesity, pregnancy, antepartum symptoms, self-care, midwifery

Résumé

L'obésité maternelle constitue un risque important pour la mère et le fœtus pendant la grossesse. L'objectif de l'étude est de déterminer les effets de l'obésité maternelle sur les symptômes antepartum et les soins personnels. Cette étude a été menée entre août et octobre 2014 en tant qu'étude cas-témoins auprès de femmes enceintes, 64 recrutées dans un groupe obèse et 64 dans un groupe témoin. L'étude a été menée dans un hôpital public d'Aydın, en Turquie. Les données ont été collectées à l'aide d'un questionnaire, de la liste de contrôle des symptômes antepartum et de l'échelle d'exercice de soins personnels, et analysées à l'aide des tests du chi carré et du t de Student. Le groupe de femmes obèses avait un indice de masse corporelle préconceptionnelle/prégestationnelle ≥ 30,0 kg/m2 et les femmes de poids normal avaient un indice de masse corporelle préconceptionnelle/prégestationnelle de 18,5 à 24,9 kg/m2. Les femmes du groupe obèse étaient âgées de 27,38 ± 4,54 ans. Cinquante pour cent de ce groupe était constitué de diplômés de l'école primaire, 48,4 % souffraient du symptôme d'un réveil agité (p=0,042) et 78,1 % présentaient un œdème (accumulation de liquide, gonflement) (p=0,050). Le score total du groupe de femmes obèses sur la liste de contrôle des symptômes antepartum était de 14,71 ± 5,97 (p = 0,504) et de 110,15 ± 15,19 (p = 0,130) sur l'échelle d'exercice d'autosoins. L'obésité maternelle n'affecte généralement pas les symptômes antepartum ni l'exercice des soins personnels, mais affecte certains symptômes antepartum tels qu'un réveil agité et un œdème. *(Afr J Reprod Health 2023; 27 [9]: 108-116).*

Mots-clés: Obésité maternelle, grossesse, symptômes antepartum, soins personnels, pratique de sage-femme

Introduction

Obesity means taking in more calories than are spent[1]. It is currently an important health problem[2] and is becoming more and more widespread[3]. The World Health Organization (WHO) reported that among adults in Turkey of the ages 18 and older, 39% were overweight and 13% were obese. The obesity rate among women of ages 18 and over is 40.0%[1]. According to the 2008 data of the Turkish Population and Health Survey, out of all women aged 15-49 years, 23.9% were obese, 34.5% were overweight and 39.9% were of normal weight while 2013 statistics showed that 26.5% were obese, 28.6% were overweight and 41.3% were of normal weight[4]. The rate of obese women aged 20 years and older was 35.6%[1]. The data showed that the rate of obese women was steadily rising. In addition to this,

it is inevitable that pregnancies would occur among these women. There have been similar increases in maternal obesity and pregnancy[5]. Obesity is known to affect health in all stages of life and pregnancy is also included in that. It is thought that obesity affects antepartum symptoms when obese women become pregnant. Maternal obesity refers to having excess weight (higher than 29.9 kg/m^2) in the pre-pregnancy period due to various reasons.

When an obese woman becomes pregnant, obesity-related conditions such as hypertensive disorders (preeclampsia and hypertension), gestational diabetes and cardiovascular and cerebrovascular diseases may appear[6] because maternal obesity is a risk factor for these complications[7]. Pregnancy is a physiological process, where pregnancy-related symptoms affect the overall health of pregnants[7-9]. There is a lack of related studies in the literature about how these symptoms appearing during pregnancy are affected when they are accompanied by maternal obesity.

To provide self-care, individuals must have the power, the capabilities to do so. This power is referred to as *self-care agency*. Self-care agency, defined as the continuous involvement of individuals in their health, is affected by such factors as age, gender, growth status, socio-economic status and family[10-12].

On the basis of this need, the aim of this study was to determine the effects of maternal obesity on antepartum symptoms and self-care agency. Thus, we aimed to answer the following hypotheses:

H_{0-1}: Maternal obesity has no effect on symptoms during pregnancy.

H_{0-2}: Maternal obesity has no effect on self-care ability of pregnant women.

H_{0-3}: Pregnancy complaints in maternal obese pregnant women have no effect on self-care capacity of pregnant women.

Methods

Design and sample

The study was of case-control design. The study was conducted in the delivery room of a state hospital in Aydın, Turkey. Data were collected between August - October 2014. This study was conducted with 128 pregnants (64 in the obese group and 64 in the control group) between the ages of 20-39 who were selected by the method of convenience sampling. To determine an appropriate sample size for the study, power analysis was done using G*Power software. A minimum of 64 participants per group was needed to achieve 80% power of detection for a medium-sized effect. Assuming that the t and Chi-square tests would be used, the calculation was carried out with G*Power 3.1.9.2 at a power of 0.95 and α=0.05; it was found that the sample should consist of 128 participants[13].

The inclusion criteria were:
- consenting to participate;
- being a pregnant woman able to speak and understand Turkish;
- being in the latent phase of labor (the latent phase was accepted as a criterion due to there being more frequent contractions in the active phase);
- being between the ages 20-39 (age 39 was the cut-off point since obesity-related systemic illnesses are more prevalent after 40);
- having a Body Mass Index (BMI) of 18.5-24.9 kg/m^2 (control group) or a BMI of ≥30.0 kg/m^2 (obese group)[1].

The inclusion criteria were:
- being a pregnant women who did not know their preconception/pregestational weight beforehand and had conditions that prevented them from understanding and responding to items in the identifying information form.

Data collection tools

Research data were collected with the identifying information form, the Antepartum Symptoms Checklist (ASC), and the Exercise of Self-Care Agency Scale (ESCAS).

The identifying information form

This form was contained a total of 25 questions and was[14,15]. The form which was prepared by the researchers included general information about the socio-demographic characteristics and sample profile of the participants such as diagnosis, duration of disease, age, gender, marital status, educational status, working status, and duration of hospitalization. Content and structure validity of the identifying information form was achieved with Lawshe's technique. Its content validity was found to be significant based on the views of 12 experts and

it was concluded that the items were understandable and valid in terms of their content[16].

The antepartum symptoms checklist

This form is a four-point Likert scale ranging from 0 to 3, including 46 items. It was developed by Maloni in 1991 to determine physical and psychosocial symptoms in pregnancy[17]. The Cronbach alpha of the scale was 0.79. Linguistic equivalence, validity and reliability of the scale for the Turkish population were tested by Oskay in 2001. The Cronbach alpha of the Turkish version was 0.94 and is composed of 44 items[8]. In this study, the Cronbach alpha of the checklist, which includes 45 items, was found to be 0.88. Since blood sugar levels were not measured in the delivery room where this study was performed, responses to item 29 about increases in blood sugar levels were not included in the analysis.

The exercise of self-care agency scale

This form is a five-point Likert scale ranging from 0 to 4, including 43 items; it was developed by Kearney and Fleischer in 1979 to evaluate ability for self-care and self-care agency. Linguistic equivalence, validity and reliability of this scale were tested by Nahcivan in 1993 and item total score correlations of items 7, 11, 12, 19, 22, 23, 34 and 35 were found to be lower than 0.20 and therefore deleted[18]. The resulting scale is composed of 35 items. Eight items in the Turkish version (items 3, 6, 9, 13, 19, 22, 26 and 31) are scored in the reverse order. The highest score to be obtained is 140. The scale does not have a cut-off point and the higher the scores are, the better the self-care agency is. The Cronbach alpha of the ESCAS was found to be 0.81 by Dereli Yılmaz and Kızılkaya and 0.89 by Yeşilbalkan[12,19]. In the present study, it was 0.62. In order to improve the comprehensibility and applicability of the data collection forms, a pilot study was conducted with 10 pregnants who were in weeks 36-42 of their pregnancy. The identifying information form was revised accordingly.

Data collection application

To avoid bias, the same researcher collected all the data in this study. The patients were alone with the investigator when completing the identifying information form. The height and preconception/pregestational weight of the pregnant women fulfilling the inclusion criteria were obtained and the BMIs of the participants were calculated by other investigator. Because, the investigator was blinded to the allocation of the patient to either group.

The written informed consent of the participants was obtained. The women with preconception/pregestational BMI≥30.0 kg/m^2 were assigned into the obese group and those with preconception/pregestational BMI=18.5-24.9 kg/m^2 were assigned into the control group. Both groups were similar in terms of age; the women were between the ages of 20-39. Data were collected by means of face-to-face interviews using the identifying information form and the self-reporting method with ASC and ESCAS. It took 30-45 minutes to complete the data collection. The researcher explained each item in the instruments when the women had difficulty in understanding. In addition, they answered the women's questions about their health problems and provided them with the knowledge they needed. The women were offered counseling when necessary, leading to the end of the interviews.

Data analysis

The Statistical Package for the Social Sciences Version 15 (PASW Inc, Chicago, IL, USA) was used in the data analysis. Obesity was the dependent variable and antepartum symptoms and self-care agency were the independent variables. The obesity and control groups were compared in terms of Antepartum Symptoms, self-care agency and socio-demographic characteristics.

Results were expressed as number-percentage distribution, mean and ± standard deviation, and min-max values. The Kolmogorov-Smirnov test was used to determine whether the data were normally distributed. The obese and control groups were compared using the Chi-square test and the Student's t test in terms of Antepartum Symptoms, self-care agency dependent variables and socio-demographic characteristics. It was considered statistically significant that the obtained p value was less than 0.05.

Ethical considerations

Ethical approval was obtained from the Non-interventional Clinical Research Ethics Committee of Adnan Menderes University Medical School (Approval date: 25.07.2013, protocol no: 2013-239) and the General Secretariat of the Turkish State Hospitals in Aydın, and the women consenting to participate in the study were asked for their written informed consent.

Results

The study was performed on a total of 128 pregnant women, of whom 64 were in the obese group (mean

Table 1: Comparisons of obese and control group women according to their characteristics*

Characteristics	Obese (n=64)	Control (n=64)	x^2 and t / p
BMI (kg/m^2)	32.37±2.63	22.00±1.62	26.78 / 0.001
Mean age	27.38±4.54	24.97±4.28	3.084 / 0.003
Education levels			
Elementary school and lower	41(71.9%)[a]	16 (28.1%)[b]	
Middle school	14(35.9%)	25(64.1%)	20.192 / 0.001
High school and university	9(28.1%)[a]	23(71.9%)[b]	
Spouses' education levels			
Elementary school and lower	41 (68.3%)[a]	19 (31.7%)[b]	
Middle school	9 (37.5%)	15 (62.5%)	15.385 / 0.001
High school and university	14 (31.8%)[a]	30 (68.2%)[b]	
Family structure			
Nuclear family	44 (46.8%)	50 (53.2%)	1.442 / 0.230
Extended family	20 (58.8%)	14 (41.2%)	
Place of Residence			
Village	47 (52.2%)	43 (47.8%)	0.599 / 0.439
Town-City	17 (44.7%)	21 (55.3%)	
Duration of Marriage			
1-10 years	52 (45.6%)	62 (54.4%)	8.020 / 0.005
11-21 years	12 (85.7%)	2 (14.3%)	
Having a job providing income			
No	54 (50.5%)	53 (49.5%)	0.057 / 0.811
Yes	10 (47.6%)	11 (52.4%)	
Having income			
Income lower than expenses			0.183 / 0.669
Income equal to or higher than expenses	15 (53.6%) 49 (49.0%)	13 (46.6%) 51 (51.0%)	
Social security			
Does not have	12 (60.0%)	8 (40.0%)	0.948 / 0.330
Has	52 (48.1%)	56 (51.9%)	
Number of pregnancies			
1	17 (31.5%)[a]	37 (68.5%)[b]	
2-3	31 (55.4%)	25 (44.6%)	18.939 / 0.001
4-9	16 (88.9%)[a]	2 (11.1%)[b]	
History of chronic disease			
One	54 (47.4%)	60 (52.6%)	2.887 / 0.089
None	10 (71.4%)	4 (28.6%)	
Smoking in pre-pregnancy[†]			
No	51 (48.1%)	55 (51.9%)	0.878 / 0.349
Yes	13 (59.1%)	9 (40.9%)	

*: Chi-Square test.
[†]: All of the pregnant women in the obese and control groups who had previously smoked reported that they had stopped smoking during pregnancy.
[a, b]: Significant differences found in the Bonferroni test have been indicated with different letters.

age 27.38±4.54) and 64 in the control group (mean age 24.97±4.28) (t=3.084; P=0.003). It was found in the statistical analysis performed according to the BMI's of the two groups before pregnancy that there was a significant difference between the obese and non-obese groups (t=26.78; p= 0.001), (Table 1).

Statistical significance was accepted as p<0.05. However, in the advanced analysis, significance was recalculated on the basis of the formula p=0.05/number of comparisons and these values were specified in the text[20]. The statistical analysis revealed a significant difference between

Table 2: Comparison of presence of antepartum symptoms for each item on the scale in obese and control group women*

Antepartum symptoms	Obese (n=64)	Control (n=64)	$\chi^{2\dagger}$	p
Dyspepsia	29 (45.3%)	26 (40.6%)	0.287	0.592
Reflux	45 (70.3%)	51 (79.7%)	1.500	0.221
Nausea	51 (79.7%)	52 (81.3%)	0.050	0.824
Decrease in appetite	39 (60.9%)	35 (54.7%)	0.513	0.474
Pain in groin	46 (71.9%)	45 (70.3%)	0.038	0.845
Discomfort in other parts of the abdomen	0 (0.0%)	10 (15.6%)	10.847	**0.001**
Pain in the hips	23 (35.9%)	28 (43.8%)	0.815	0.367
Back pain	41 (64.1%)	36 (56.3%)	0.815	0.367
Pain in legs	35 (54.7%)	42 (65.6%)	1.597	0.206
Pain in outer ear	6 (9.4%)	8 (12.5%)	0.321	0.571
Dry skin	12 (18.8%)	13 (20.3%)	0.050	0.824
Dry lips	25 (39.1%)	25 (39.1%)	0.000	1.000
Skin tenderness	6 (9.4%)	15 (23.4%)	4.614	**0.032**
Heel tingling	19 (29.7%)	16 (25.0%)	0.354	0.552
Muscle pains anywhere in the body	24 (37.5%)	28 (43.8%)	0.518	0.472
Tenderness in knees	14 (21.9%)	21 (32.8%)	1.927	0.165
Pain / ache in the pelvis / pubic area	46 (71.9%)	44 (68.8%)	0.150	0.699
Muscle cramps	46 (71.9%)	45 (70.3%)	0.038	0.845
Earache	7 (10.9%)	7 (10.9%)	0.000	1.000
Headache	28 (43.8%)	34 (53.1%)	1.126	0.289
Problems with vision	0 (0.0%)	3 (4.7%)	3.072	0.080
Difficulty in falling asleep	34 (53.1%)	29 (45.3%)	0.781	0.377
Waking up to go to the toilet	42 (65.6%)	39 (60.9%)	0.303	0.582
Waking up at night (except for toilet needs)	26 (40.6%)	28 (43.8%)	0.128	0.720
Inability to sleep again after awaking	31 (48.4%)	30 (46.9%)	0.031	0.860
Awakening unrested	31 (48.4%)	22 (34.4%)	8.181	**0.042**
Involuntary drowsiness during the day	33 (51,6%)	29 (45.3%)	0.500	0.479
Shortness of breath with exercise or exertion	28 (43.8%)	25 (39.1%)	0.290	0.590
Gestational diabetes (pregnancy diabetes)	5 (7.8%)	2 (3.1%)	1.360	0.244
Dizziness	23 (35.9%)	20 (31.3%)	0.315	0.575
Faintness	6 (9.4%)	8 (12.5%)	0.321	0.571
Fatigue	40 (62.5%)	38 (59.4%)	0.131	0.717
Constipation	17 (26.6%)	24 (37.5%)	1.758	0.185
Nasal obstruction	13 (20.3%)	14 (21.9%)	0.047	0.828
Edema (fluid accumulation, swelling)	50 (78.1%)	43 (67.2%)	7.798	**0.050**
Hemorrhoids	15 (23.4%)	14 (21.9%)	0.045	0.833
Difficulty in collecting attention at once	16 (25.0%)	15 (23.4%)	0.043	0.837
Changes in temperament	48 (75.0%)	48 (75.0%)	0.000	1.000
Tension, irritability	47 (73.4%)	45 (70.3%)	0.155	0.694
Boredom	47 (73.4%)	49 (76.6%)	0.167	0.683
Nightmares	13 (20.3%)	17 (26.6%)	0.697	0.404

*: Column percentage, †: Che-square test.

Table 3: Comparison of ASC and ESCAS total scores in obese and control group women

	Obese (mean±sd)	Control (mean±sd)	t*	p	95% Confidence Interval Lower	Upper
ASC	14.71±5.97	15.45±6.43	-.670	.504	-2.92150	1.44382
ESCAS	110.15±15.19	114.25±15.23	-1.522	.130	-9.41558	1.22808

*: t test, ASC: the Antepartum Symptoms Checklist, ESCAS: Exercise of Self-Care Agency Scale

the groups according to the educational levels of the obese and non-obese women (x^2=20.192; p=0.001). In the advanced analysis, the difference was observed to have stemmed from the "elementary school or lower" and "high school and university" group distinctions (respectively, obese: 71.9%, control: 28.1% and obese: 28.1%, control: 71.9%), (Table 1).

In the statistical analysis of the obese and non-obese women according to their husbands' educational level, the difference was found to be significant (x^2=15.385; p=0.001). In the advanced analysis, it was seen that the difference stemmed from the "elementary school or lower" and "high school and university" group distinctions (respectively, obese: 68.3%, control: 31.7% and obese: 31.8%, control: 68.2%), (Table 1). The mean number of pregnancies of the obese group was 2.73±1.67 (min=1, max=9); this mean was 1.58±0.83 (min=1, max=5) in the control group. The statistical analysis performed according to the number of pregnancies experienced by the obese and non-obese women revealed a significant difference between the groups (x^2=18.939; p=0.001). It was seen in the advanced analysis that the difference stemmed from the "one pregnancy" and "4-9 pregnancies" groups (respectively, obese: 31.5%, control: 68.5% and obese: 88.9%, control: 11.1%). Significance for this advanced analysis was accepted as p=0.05/2=0.025, (Table 1).

According to the sub-group chi-square statistic for this comparison, it was found that the obese and non-obese groups exhibited statistical similarity in terms of the variables of family structure, place of residence, having a job providing income, having an income, having social security, a history of chronic disease and smoking during pre-pregnancy (Table 1).

A comparison of the presence of antepartum symptoms for each item on the scale in the obese and control groups is presented in Table 2. It was found in the study that the obese pregnant women (0.00%) did not experience more discomfort in other parts of the abdomen compared to the women in the control group (15.6%) (x^2=10.847; p=0.001) and they experienced less skin tenderness (9.4%) compared to the control group (23.4%) (x^2=4.614; p=0.001). On the other hand, the obese women (%48.4) experienced more incidents of awakening unrested compared to the control group (34.4%) (x^2=8.181;

p=0.042) and that they (78.1%) more commonly had edema compared to the control group (67.2%) (x^2=7.798; p=0.050) (Table 2).

Gode, which returns in 15-30 seconds, is defined as edema. There were no significant differences in the ASC and the ESCAS between the obese women and the women in the control group (p>0.05) (Table 3).

Discussion

The aim of this study was to reveal the effects of maternal obesity on antepartum symptoms and self-care agency. The mean preconception/pregestational BMIs of the obese group were indicative of their obesity. A study noted that the mean preconception/pregestational BMI of the obese group in their study was 31.6, which is consistent with the results of the present study[15]. The high level of preconception/pregestational BMI in this study was an expected result.

One of the expected results was that the total number of pregnancies and the number of living children was higher in the obese group. Some researchers[2,21-24] have reported that obesity increases the more pregnancies a woman experiences. Other studies pointed to an association between obesitity and the number of pregnancies[25,26]. Consistent with the literature, this study also revealed that an increase in the number of pregnancies and deliveries increased obesity.

The results of this research are similar to those of other studies in that as the number of pregnancies and births increases, maternal obesity increases, as supported by other research results. Every pregnancy has a potential risk and women experience pregnancy-related symptoms in their adaptation to their condition, which adds to any complaints that they might have.

Therefore, antepartum symptoms are reported to be more common in obese pregnant women compared to control group pregnant women of normal weight[27,28]. In the present study, some antepartum symptoms experienced by obese pregnant women were significantly different and stood at increasing rates compared to non-obese pregnant women. The symptoms of awakening unrested and edema (fluid accumulation, swelling) were at a significantly higher level in the obese group in this study. It was considered that obese

women may be experiencing the symptom of awakening unrested as a consequence of the difficulties they had in falling asleep and having to wake up to go to the toilet.

Sitting or standing for long periods of time, increases in capillary permability, varicose veins that prevent venous flow in the lower limbs, sodium and water retention due to increased venous pressure in the legs, exposure to heat are factors that cause edema in pregnancy. Edema that develops under these conditions is considered physiologically normal. Women with maternal obesity experience the same symptoms but usually more intensely. In this study, edema was at a higher level in the obese group than in the control group and it is believed that maternal obesity caused the increase in edema.

Discomfort in other parts of the abdomen and skin tenderness were symptoms that were at a significantly higher level in the control group in this study. Discomfort in other parts of the abdomen in the control group of pregnant women can be attributed to the fact that the abdomen had not enlarged in this group and their bodies had not had to adapt to such an enlargement.

Although there were no significant differences between the groups in terms of dyspepsia, the decrease in appetite, back pain, tingling in the heels, difficulty in falling asleep, waking up to go to the toilet, involuntary drowsiness during the day, shortness of breath with exercise or exertion, gestational diabetes (pregnancy diabetes) and dizziness, these parameters were higher in the obese group than in the control group.

Indigestion is a frequent complaint in pregnancy and this condition is caused by the relaxing effect of progesterone on the smooth muscles. Demiryay found indigestion in pregnancy to be at a rate of 37.2%, but it was higher in the obese group than in the control group in this study[9]. It is therefore thought that maternal obesity increases indigestion in pregnancy. Decrease in appetite is among the antepartum symptoms that women experience and it is indicated that this symptom may be observed more with bed rest[8,10-13,16,17]. A decrease in appetite, as well as nausea, hormonal changes are the most commonly seen complaints in the early period of pregnancy. In this study, the rate of decreased appetite is higher in obese pregnant women than in women of normal weight and it was observed that clinically obese pregnant women lose weight during pregnancy. It was considered that the obese group was more careful about their weight and it may be possible to conclude that maternal obesity stimulates a decrease of appetite in pregnancy.

Due to factors such as changes in the lumbosacral angle, sacral inclination and curvature of the spine because of the growing uterus, the softening of joint cartilege tissue because of increased progesterone levels, excessive stress or fatigue, excessive bending, lifting something heavy, walking, a drooping abdomen or weakness in the abdominal wall, and the improper use of body mechanics, most pregnant women experience back pain[14].

In this study, we found that obesity did not affect the antepartum symptom score but when each symptom was considered separately, we observed that obesity did impact the symptoms of awakening unrested and edema. It was seen in the present study that obesity did not affect the self-care agency of the pregnant women. In a study on the effects of self-care agency on healthy lifestyle behavior in pregnant women at risk, the mean score on the ESCAS was 85.17±27.29[11]. Altıparmak (2006) found in a study on the relationship between sociodemographics, self-care agency and the quality of life in pregnant women, that the mean score on the ESCAS was 80.3±10.2[29]. It was reported that the pregnant women in their study had a mean score of 92.01±18.9 on the ESCAS[12]. Both the control group and the obese group in the present study displayed lower scores on the ASC and ESCAS than those reported in the literature. This can be ascribed to the differences in the characteristics of the study setting, sociodemographics and age.

The control group, aged 20-29, had been married for 1-10 years, they and their spouses had an educational background of secondary school or more, most of them had one pregnancy, and they had higher scores on the ESCAS. This may indicate that maternal obesity has a negative impact on self-care agency. In future studies, it is recommended to look at the effects of pregnancy complaints and self-care agency in different populations based on the weight gained during pregnancy.

Conclusion

It was concluded that obesity does not in general affect antepartum symptoms and self-care agency

but that it does have an impact on the symptoms of awakening unrested and edema. It is among the duties and responsibilities of the midwife to inform pregnant women displaying maternal obesity about self-care, nutrition, weight tracking, the signs and symptoms and early detection of risky health behavior, and to refer them to obstetricians if necessary. Midwives should focus on prenatal care and provide this awareness. It might be suggested that this research be repeated in different populations.

Limitations

The limitation of this study was that the results obtained cannot be generalized to other contexts since the sample does not represent the whole population.

Author contributions

Concept –H.A., H.U.H.; Design – H.A., H.U.H.; Supervision – H.A., H.U.H.; Resources – H.A., H.U.H.; Materials – H.A., H.U.H.; Data Collection and/or Processing – H.A.; Analysis and/or Interpretation – H.A.; Literature Search – H.A., H.U.H.; Writing Manuscript – H.A., H.U.H.; Critical Review – H.U.H.; Other – H.A., H.U.H.

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Conflict of interest

The authors declare that there is no conflict of interest involved in this endeavor.

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References

1. World Health Organization (WHO). (2018). Obesity and overweight. Available at http://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight.

2. Apay SE, Kılıç M and Pasinlioğlu T. Obez gebelerde doğum eylemi ve doğum sonu dönem. TAF Preventive Medicine Bulletin 2010; 9:151-6.

3. Birdsall KM, Vyas S and Khazaezadeh N. Maternal obesity: a review of interventions. International Journal Clinical Practice 2009; 63: 494-507.

4. Türkyılmaz AS, Adalı T and Çağatay Seçkiner P. Turkey demographic and health survey, Hacettepe University İnstitute of Population Studies, Turkey (TR). (2014). Elma Technical Printing Typography Limited Company (Publication No: IPS-HU.14.02; ISBN 978-975-491-389-7).

5. Lindsay R. Epidemiology of diabetes and obesity in pregnancy. In: Ovesen PG, Jensen DM (Eds.). Maternal Obesity and Pregnancy. Berlin (DE): Springer Science+Business Media, 2012, 1-6.

6. Cheung CC and Ingraham HA. Hypothalamic fetal programming of energy homeostasi. In: Lustig RH (Ed.). Obesity Before Birth. London (UK): Springer Science Business Media, 2011, 301-19.

7. Freeland-Graves JH and Tabbakh T. Effective strategies for obesity prevention in underserved at-risk groups. Journal of Food and Nutritional Disorders 2012; 1(1): 1-2.

8. Oskay Yeşiltepe Ü. Determining the role of the nurse in resolving problems in high risk pregnancies at bed rest in the hospital. (Tez). 2001, İstanbul Üniversity, İstanbul.

9. Demiryay A. Gebe kadınların algıladıkları fiziksel ve emosyonel yakınmalar. (Master tezi). 2006, Kocatepe Üniversitesi, Afyon.

10. Orem D. Self-care theory in nursing. New York (NY): Springer Publishing, 2003.

11. Karaca Saydam B, Demirel Bozkurt Ö and Pelik Hadımlı P. Riskli gebelerde öz-bakım gücünün sağlıklı yaşam biçimi davranışlarına etkisinin incelenmesi. Perinatoloji Dergisi 2003; 15: 131-9.

12. Dereli Yılmaz and Kızılkaya Beji N. Gebelikte öz-bakım gücünün değerlendirilmesi. Genel Tıp Dergisi 2010; 20: 137-42.

13. Faul F. G*Power (Version 3.1.9.2) [Computer Software]. Kiel, Germany, 2014.

14. Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ and Spong CY. (Eds.). Williams obstetrik. İstanbul: Nobel Matbaacılık, 2010.

15. Chapman DJ, Morel K and Bermúdez-Millán A. Breastfeeding education and support trial for overweight and obese women: a randomized trial. Pediatrics 2013; 131: 162-70.

16. Baykal A. Davranış ölçümünde yapısal geçerlik göstergesi. Türk Psikoloji Dergisi 1994; 33: 45-50.

17. Maloni JA and Kasper CE. Physical and psychosocial effects of antepartum hospital bedrest: a review of literatüre. The Journal of Nursing Scholarship 1991; 23: 181-92.

18. Nahcivan N. Sağlıklı gençlerde "öz-bakım gücü" ve aile ortamının etkisi. Doktora Tezi. 1993, İstanbul Üniversitesi Sağlık Bilimleri Enstitüsü Hemşirelik Anabilim Dalı, İstanbul.

19. Yeşilbakan Ö. Examination of factors affecting self-sufficiency of self-care of type 2 diabetic patients. (Master tez), 2006. Ege Üniversitesi, İzmir.

20. Alpar R. (Ed.). Spor, sağlık ve eğitim bilimlerinden örneklerle uygulamalı istatistik ve geçerlik-güvenirlik-SPSS'te çözümleme adımları ile birlikte. Ankara: Detay Yayıncılık, 2016.

21. Koruk İ and Şahin KŞ. Konya Fazilet Uluışık Sağlık Ocağı Bölgesinde 15-49 yaş grubu ev kadınlarında obezite prevalansı ve risk faktörleri. Genel Tıp Dergisi 2005; 15(4) :147-55.

22. Nazlıcan E. Adana İli Solaklı ve Karataş Merkez Sağlık Ocağı Bölgesinde yaşayan 20-64 yaş arası kadınlarda obezite ve ilişkili risk faktörlerinin incelenmesi. (Tez), 2008. Çukurova Üniversitesi, Adana.

23. Tezcan B. Obez bireylerde benlik saygısı, beden algısı ve travmatik geçmiş yaşantılar. (Tez), 2009. Sağlık Bakanlığı Bakırköy Prof. Dr. Mazhar Osman Ruh Sağlığı ve Sinir Hastalıkları Eğitim ve Araştırma Hastanesi, İstanbul.

24. Utku MA. Nilüfer Halk Sağlığı Eğitim Araştırma ve Uygulama Bölgesinde 20 yaş ve üzeri kadınlarda aşırı kiloluluk ve şişmanlık prevalansı ile etkileyen etmenler. (Tez), 2011. Uludağ Üniversitesi, Bursa.

25. Deierlein AL. The Effects of maternal prepregnancy body mass index and gestational weight gain on off spring anthropometric outcomes. The Journal of Pediatrics 2010; 158: 221-6.

26. Nitert MD, Foxcroft KF, Lust K, Fagermo N, Lawlor DA, O'Callaghan M, Mcintyre HD and Callaway LK. Overweight and obesity knowledge prior to pregnancy: A survey study. BMC Pregnancy and Childbirth 2011; 11-96.

27. Apay SE and Pasinlioğlu T. Obezite ve gebelik. TAF Preventive Medicine Bulletin 2009; 8(4): 345-50.

28. Çelikkalp T. Tekirdağ ilinde görev yapan hamile ebe ve hemşirelerin mesleki risk etmenleri ile bu etmenlerin gebelik süreci ve yenidoğan bebeklerine etkilerinin değerlendirilmesi. (Tez), 2015. Trakya Üniversitesi, Edirne.

29. Altıparmak S. Gebelerde sosyo-demografik özellikler, öz-bakım gücü ve yaşam kalitesi ilişkisi. TAF Preventive Medicine Bulletin 2006; 5: 416-23.