

Determining the relationship between Orthorexia Nervosa risk and body image in pregnancy

Pınar ÇİÇEKOĞLU ÖZTÜRK¹, Derya KAYA ŞENOL²

1. Assoc. Prof. Dr. Muğla Sıtkı Koçman University, Fethiye Faculty of Health Sciences, Department of Psychiatric Nursing, Muğla, Turkey

2. Assoc. Prof. Dr. Osmaniye Korkut Ata University, Faculty of Health Sciences, Department of Midwifery, Osmaniye, Turkey

*Corresponding Author: Pınar ÇİÇEKOĞLU ÖZTÜRK; E-mail: pcicek78@hotmail.com

Abstract

Background

Pregnancy is a process that involves social, psychological, and physical changes which may be a turning point for improvement or onset/relapse of eating disorders. Studies conducted have emphasized that, in addition to classical eating disorders (anorexia nervosa and bulimia nervosa), new types (e.g., orthorexia nervosa) and subclinical disorders are also seen in pregnant women. Based on this information, this is a descriptive study that was carried out to determine the relationship between the risk of orthorexia in pregnant women and body image.

Material-Method

The study included pregnant women receiving prenatal care at the obstetrics polyclinics of a state hospital in a province (n=175). After applying the first test on the pregnant women (in their first trimester), the posttests were carried out after the 30th week covering the third trimester of pregnancy. ORTO-11 scale, the Eating Attitude Test (EAT-40), and the Pregnancy Self-Perception Scale were used in data collection.

Results

The mean age of the pregnant women who participated in the study was 27.02 ± 5.02 . The mean first-test ORTO-11 score of the participants was 29.29 ± 3.77 , and their mean post-test ORTO-11 score was 26.58 ± 4.08 , while the difference was statistically significant, and the concerns of the pregnant women in their final trimester regarding eating healthy were higher than those when they first learned about their pregnancy. Among the pregnant women in their final trimester, the mean EAT-40 score was 19.64 ± 8.66 , the mean pregnancy motherhood perception dimension score was 25.30 ± 2.97 , and the mean pregnancy body perception dimension score was 15.39 ± 4.00 .

Conclusion

Based on the data of the study, it may be stated that the pregnant women in their final trimester had obsessions about healthy eating, and they had a negative perception of the changes in their bodies. Disorders in eating attitudes in pregnancy may significantly affect the outcomes of pregnancy and newborn health.

Keywords: Body Perception, Pregnancy, Orthorexia Nervosa, Eating Attitude

Introduction

Nutrition plays a pivotal role in supporting human growth, health protection, and sustainability of life. Healthy eating involves not only what an individual eats, but also attitudes and behaviors related to eating. These attitudes and behaviors change at certain stages of life and one of these stages is pregnancy¹. Pregnancy is a critical period in a woman's life when being healthy is crucial for both the mother and the fetus. During this period, pregnant women need to have an adequate and balanced diet to meet their own physiological needs, keep their energy, vitamin, and mineral stores in balance, ensure the healthy growth and development of the fetus, prepare for breastfeeding, and meet the energy and nutrients of the milk to be secreted². It is crucial to understand the relationship between the pregnant woman's nutrition during pregnancy and the health status of the fetus. Inadequate and unbalanced nutrition of the pregnant woman during this period can lead to complications such as premature birth, low birth weight, abortus, preeclampsia, physical and mental developmental delays, and stillbirth³. A balanced diet ensures that the mother and the developing

fetus receive essential nutrients such as vitamins, minerals, proteins, and fats. These nutrients are vital for the growth and development of the baby².

Pregnant tend to improve their diets with the motivation to change provided by the instinct to protect their baby. In addition to this motivation, changes in body shape and body dissatisfaction make women vulnerable to eating disorders⁴. Therefore, pregnancy is a process that involves social, psychological, and physical changes which may be a turning point for improvement or onset/relapse of eating disorders⁵. Pregnancy may be considered as a period where gaining weight is necessary and socially acceptable, and thus, the woman is stigmatized less in comparison to other periods of her life⁶. While the reproductive role of the women may have a higher value than physical appearance, and weight gain in pregnancy may be perceived as 'temporary', these are glorified as proof of childbearing and womanhood against body image disruptions^{7,8}.

Pregnancy is associated with significant physical changes in a woman's body, including weight gain, expansion of the abdomen, enlargement of the breasts, and alterations in

skin appearance (stretch marks, pigmentation changes). As these changes deviate from social beauty ideals, a woman's body perception may transform¹⁰. While the pregnant woman who perceives her body image as distorted exhibits restriction in eating, the fetus is exposed to risks such as serious developmental delay⁷. Distortions in body image during pregnancy have been associated with negative health outcomes such as maternal depression and low self-esteem¹⁰. Hormonal changes, including those induced by the hormones estrogen and progesterone, which increase during pregnancy, can contribute to emotional sensitivity and negative body image due to fear of losing control over one's body⁹. Additionally, past experiences with body image issues may resurface or intensify during pregnancy. These experiences can exacerbate feelings of dissatisfaction or anxiety about body changes. The support of partners, family, friends, and healthcare providers can influence a woman's body image during pregnancy⁴.

The media's promotion of thinness as healthy, fashionable, and perfect contributes to the prevalence of eating disorders, especially during pregnancy, when weight gain is inevitable and body image is affected.

Comprehensive studies conducted in the last three decades have emphasized that, in addition to classical eating disorders (Anorexia Nervosa and Bulimia Nervosa), new types (e.g., Orthorexia Nervosa) and subclinical disorders are also seen in pregnant women¹². The term Orthorexia Nervosa (ON) consists of the Greek words "orthos" (correct, appropriate) and "orexia" (hunger or nutrition). These words define a cognitive effort in the level of "madness" to choose the healthy and right foods¹³⁻¹⁵. Orthorexia, which is a pathological obsession regarding the desire to consume healthy foods, was defined for the first time in 1997 by Bratman to diversify Anorexia Nervosa (AN)¹³. In ON, the desire to consume pure and healthy foods is prominent. That is, orthorexia nervosa refers to a "qualitative" condition, rather than a "quantitative condition" as in anorexia and bulimia nervosa. The transformation of this desire into an excessive cognitive and behavioral effort is likened to obsessive-compulsive disorder (OCD)¹³.

In Orthorexia Nervosa, individuals show some obsessive tendencies. These individuals display symptoms such as untimely, recurring, and interruptive uninvited thoughts about food and health, experiencing intense anxiety about getting dirty and uncleanliness, and ritualistic behaviors while organizing foods and eating^{16,17}. The most important aspect where orthorexia is distinguished from obsessive-compulsive disorder is that, in orthorexia, the content of obsessions is compatible with the ego¹⁸. Accordingly, this study was conducted to determine the relationship between orthorexia nervosa and body image in pregnancy.

Material-Method

This descriptive, cross-sectional, and correlational study was carried out with pregnant women who visited a state hospital in Turkey for pregnancy tests whose pregnancies were confirmed from October 2018 to January 2020.

Participants characteristics

The study was explained to the pregnant women who visited the polyclinic whose pregnancies were confirmed, the first test was applied to those who agreed to participate in the study, their contact numbers were obtained, and the post-test was applied in the last trimester of the pregnant women

whose monitoring was going on at the same state hospital. The data collection form was applied to the pregnant women who voluntarily participated in the study. The sample of the study consisted of 175 pregnant women.

Data Collection Tools

Data collection occurred at baseline, first trimester, and 30th week covering the third trimester of pregnancy postbaseline. A questionnaire form prepared by the researchers (including 15 questions on the sociodemographic and obstetric characteristics of the pregnant women), ORTO-11, the Eating Attitude Test, and the Pregnancy Self-Perception Scale were applied to the participants.

ORTO-11 Scale: The ORTO-11 scale was used to calculate the ON risk of the participants. The ORTO-11 scale, which was created in 2006 by Arusoglu by adapted into Turkish, asks individuals to state how often they feel as described in the times by marking one of the options of "always", "usually", "sometimes" and "never". Each item is scored as 1, 2, 3, or 4¹⁹. The cutoff point of the study was determined as 27 in the 25th percentile, and values under this value were accepted as Orthorexia. Low scores show a tendency towards orthorexia, and Cronbach's alpha value for this study was found as .72.

Eating Attitude Test-40 (EAT-40): It was used to measure symptoms of eating disorders participants. EAT-40, which was tested for validity and reliability in Turkey by Savaşır and Erol (1989). The scale is a Likert-type scale that is scored in six steps from the statement of "always" to the statement of "never". The scores and eating disorder pathology are directly proportional. 30 points or higher indicate a risk for eating disorders²⁰. EAT-40 was used in this study to measure the prevalence of eating disorder symptoms in pregnant women, and Cronbach's alpha value of the scale for this study was calculated as .65.

Pregnancy Self-Perception Scale (PSPS): Pregnancy Self-Perception Scale (PSPS): The scale was developed by Kumcağız et al. (2017) to assess how pregnant women perceive what they experience during the pregnancy period. The scale consists of 12 items and 2 dimensions (Pregnancy Motherhood Perception and Pregnancy Body Perception). Higher scores in the Pregnancy Motherhood Perception dimension indicate high motherhood perceptions, while lower scores indicate low perceptions. The highest possible score in the Pregnancy Motherhood Perception dimension is 28, while the lowest score is 7. Higher scores in the Pregnancy Body Perception dimension indicate negative body perceptions regarding pregnancy, while lower scores indicate positive perceptions. The highest possible score in the Pregnancy Body Perception dimension is 20, while the lowest score is 5²¹. For this study, Cronbach's alpha coefficient was .82 for the Pregnancy Motherhood Perception dimension and .81 for the Pregnancy Body Perception dimension.

Data analysis

The data obtained in the study were analyzed by using the SPSS 21.0 software, and the descriptive characteristics of the participants are presented as percentages and mean. The normal distribution of the scores of the participants in the scales was tested by the Kolmogorov-Smirnov test. As the scores obtained from the scales satisfied the parametric conditions and showed normal distribution ($p > .05$), t-test and ANOVA were used.

Table 1: Sociodemographic characteristics of the participants

Characteristics	n	%
Education level		
Primary education	78	44.6
High school	45	25.7
University	52	29.7
Occupation		
Housewife	139	79.4
Worker	11	6.3
Civil servant	25	14.3
Number of pregnancies		
First pregnancy	69	39.4
Second pregnancy	37	21.2
Third pregnancy	38	21.7
Four or more pregnancies	31	17.7
Pregnancy was planned		
Yes	143	81.7
No	32	18.3
Iron preparation usage in pregnancy		
Yes	136	77.7
No	39	22.3
Vitamin preparation usage in pregnancy		
Yes	102	58.3
No	73	41.7
Nausea and vomiting during pregnancy		
Constantly	22	12.6
First three months	93	53.1
Rarely	60	34.3
Body mass index (at the time of pregnancy)		
Under 18.5 kg/m ² (underweight)	12	6.9
18.5-24.9 kg/m ² (normally weighted)	96	54.9
25-29.9 kg/m ² (overweight)	46	26.3
30-34.9 kg/m ² (class I obese)	15	8.6
35-39.9 kg/m ² (class II obese)	6	3.4
Over 40 kg/m ² (morbidly obese)	-	-
Body mass index (last trimester)		
Under 18.5 kg/m ² (underweight)	-	-
18.5-24.9 kg/m ² (normally weighted)	31	17.7
25-29.9 kg/m ² (overweight)	88	50.3
30-34.9 kg/m ² (class I obese)	43	24.6
35-39.9 kg/m ² (class II obese)	13	7.4
Over 40 kg/m ² (morbidly obese)	-	-
TOTAL	175	100

Table 2: Comparison of the first test-posttest ORTO-11 scores of the participants

Groups	N	X±SD	t	p
First test	175	29.29±3.77	9.560	.000
Posttest	175	26.58±4.08		

Table 3: The EAT-40 and Pregnancy Self-Perception subscale scores of the participants

Scales	N	X±SD	Min-Max.
EAT-40	175	19.64±8.66	0-120
Pregnancy motherhood perception	175	25.30±2.97	7-28
Pregnancy body perception	175	15.39±4.00	5-20

The relationship among the scales was determined by Pearson’s correlation analysis. For all analyses, the significance level of $p < 0.05$ was accepted.

Ethical review and approval

Approval for data collection was received from the Scientific Studies Ethics Board of a university (protocol no: 2018-11) and the state hospital where the study was carried out. All participants were informed about the study and obtained

verbal consent. The necessary permissions were obtained from the authors of the scales used in the study. In this study, the Helsinki Declaration on Human Rights is complied with.

The mean age of the participants was 27.02 ± 5.02 . The participants had been married for 5.46 ± 4.74 years, the pregnancies of 81.7% were planned, it was the first pregnancy of 39.4%, 34.3% had a normal delivery before, 26.3% had c-section delivery, and 25.1% had a history of

Table 4: Comparison of the ORTO-11, EAT-40, and Pregnancy Self-Perception Scale scores of the participants based on some variables

Characteristics	N	ORTO-11 X±SD	EAT-40 X±SD	Motherhood perception X±SD	Body perception X±SD
18-22 years old	69	26.07±3.93	17.78±6.94	25.86±2.89	15.76±3.81
23-27 years old	37	27.32±4.60	20.02±8.74	25.02±3.14	16.29±3.67
28-32 years old	38	26.73±3.87	21.97±10.28	25.36±2.84	14.36±4.45
33 years old or older	31	26.67±4.04	20.48±9.39	34.32±2.94	14.74±4.03
		F=.786 p=.503	F=2.139 p=.097	F=2.106 p=.101	F=1.966 p=.121
Primary education	78	27.73±3.81	21.88±9.19	25.19±2.93	15.11±4.45
High school	45	26.33±3.60	18.97±8.49	25.42±3.08	15.64±3.78
University	52	25.09±4.41	16.86±7.10	25.38±2.99	15.59±3.48
		F=2.224 p=.087	F=1.527 p=.209	F=5.129* p=.002***	F=2.010 p=.114
Housewife	139	27.10±3.75	20.33±8.98	25.16±2.97	15.25±3.97
Worker	11	25.45±6.23	21.45±7.65	26.00±2.48	15.72±4.56
Civil servant	25	24.24±4.00	15.04±5.45	25.80±3.17	16.00±4.00
		F=5.969* p=.003***	F=4.367* p=.014***	F=.796 p=.453	F=.401 p=.671
BMI, 18.5–24.9 kg/m ² (normal)	31	26.12±4.70	19.87±9.21	24.96±3.42	17.77±2.37
BMI, 25.00–29.9 kg/m ² (obese)	88	26.77±4.04	19.60±9.38	25.61±2.90	15.62±3.90
BMI, 30.00–34.9 kg/m ² (class I obese)	43	26.62±3.94	20.16±7.75	24.86±2.79	14.16±4.18
BMI, 35.00–39.9 kg/m ² (class II obese)	13	26.30±3.56	17.69±4.75	25.53±2.98	12.23±3.91
		F=.209 p=.890	F=.275 p=.843	F=.792 p=.500	F=8.868* p=.000***
Planned pregnancy	143	26.23±4.09	19.60±8.63	24.48±2.96	15.42±4.09
Unplanned pregnancy	32	28.15±3.70	19.84±8.95	24.50±2.95	15.25±3.61
		t=-2.435** p=.016***	t=-.143 p=.887	t=1.709 p=.089	t=.224 p=.822

*ANOVA; **Student’s t-test; ***p<0.05

Table 5: Relationship among ORTO-11, EAT-40 and PSPS dimensions

		ORTO-11	EAT-40	M o t h e r h o o d Perception	Body Perception
ORTO-11	r p	1	.079 .301	.003 .964	.083 .277
EAT-40	r p		1	.052 .495	-.178* .018
M o t h e r h o o d Perception	r p			1	.093 .221
Body Perception	r p				1

* p<.001

miscarriage/abortion. 77.7% of the pregnant women stated that they used iron supplementation, and 58.3% stated they used vitamin supplementation during their pregnancies, and 53.1% stated that they had nausea and vomiting in the first three months of their pregnancy. While the body mass index of 54.9% of the pregnant women when they first learned about their pregnancy was 18.5-24.9 kg/m² (normal weight), the body mass index of 50.3% in the last trimester of their pregnancy was 25-29.9 kg/m² (overweight).

The mean first-test ORTO-11 score of the participants was 29.29±3.77, and their mean post-test ORTO-11 score was 26.58±4.08, while the difference was statistically significant (p=.000), and the concerns of the pregnant women in their final trimester regarding eating healthy were higher than

those when they first learned about their pregnancy.

Among the pregnant women in their final trimester, the mean EAT-40 score was 19.64±8.66, the mean pregnancy motherhood perception dimension score was 25.30±2.97, and the mean pregnancy body perception dimension score was 15.39±4.00. In EAT-40, the scores and eating disorder pathology are directly proportional, and 30 points or higher indicate risk for eating disorders. Higher scores in the pregnancy motherhood perception dimension indicate higher perceptions of motherhood, while the maximum possible score in this dimension is 28, and the minimum score is 7. Higher scores in the pregnancy body perception dimension indicate more negative body perceptions, while the maximum possible score in this dimension is 20, and the

minimum score is 5.

There was no significant difference in the ORTO-11, EAT-40 and Pregnancy Self-Perception scores of the pregnant women based on their age groups ($p > .05$). Considering the educational levels of the participants, the mean motherhood perception score was significantly higher among the pregnant women who had high school education ($F = 5.129$, $p = .002$), those who worked as civil servants were more orthorexic than those who were housewives or workers ($F = 5.969$, $p = .003$), the eating disorder risk of the pregnant women who were employed as workers was higher than the others, pregnancy body perception was more negative among those with a BMI (Body Mass Index) of 18.5–24.9 kg/m² (normal) ($F = 8.868$, $p = .000$), those who were having planned pregnancy were more orthorexic ($t = -2.435$, $p = .016$), and the results were statistically significant.

Table 5 shows the relationship among the ORTO-11, EAT-40, and Pregnancy Self-Perception Scale dimension scores of the pregnant women. There was a statistically significant negative correlation between the Eating Attitude Test and the body perception subscale of the Pregnancy Self-Perception Scale. The scores obtained from EAT-40 were directly proportional to eating disorder pathology, while they were inversely proportional to the scores obtained from the pregnancy body perception dimension. This showed that, as the pathology of eating disorders increased, pregnancy-related body perceptions were disrupted ($p < .018$).

Discussion

Pregnancy is a period where women are open to lifestyle changes, and they try to adapt to health-related recommendations such as quitting smoking, eating healthy, and not drinking alcohol²². It was determined that the BMI of 61.8% of the pregnant women who participated in the study was normal or low in their first trimester, while 32% of the same women had a BMI of >30 kg/m² in their third trimester. According to the WHO (World Health Organization) criteria, the prevalence of obesity among pregnant women (BMI >30 kg/m²) is between 1.8% and 25.3%²³. In a study conducted in the United Kingdom in 2006, the prevalence of obesity among pregnant women was determined as 18.5%. A study on American pregnant women found the rate of obesity to be between 18.5% and 38.3%²⁴. A study in Turkey found that 27.2% of pregnant women were overweight or obese²⁵. Another factor that supports gaining weight during pregnancy is the value given to pregnancy and motherhood in Islamic culture. In this period, the woman is a sacred being, and she should eat and drink whatever she wants. While this view provides women with the freedom to gain weight, the importance paid to body image in the world and Turkey continues in pregnancy, too. There are news stories on television and social media about how little celebrities have gained weight during pregnancy and how much they pay importance to eating healthy, and this occasionally affects prospective mothers negatively.

In this study which primarily aimed to determine whether or not pregnant women's obsessions with healthy nutrition change during their pregnancy, the mean first-test ORTO-11 score of the participants was 29.29 ± 3.77 , while their mean posttest ORTO-11 score was 26.58 ± 4.08 . Low scores from this scale indicate a tendency towards orthorexia, while high scores indicate reduced risk. According to this result, it may be stated that, as the process of pregnancy progressed, the healthy eating obsessions of the pregnant women increased.

In the research of Ouyaba and Öztürk (2021) 26.6% of pregnant women had an ON tendency⁵, and in the research of İpkirmaz and Saka (2020), the risk of ON was in 21.4% of pregnant women and eating attitude disorder in 28.6%. ORTO-15 and EAT-40 mean scores were respectively; 36.27 ± 3.76 and 29.0 ± 20.34 respectively. 11.4% of pregnant women have both orthorexia nervosa risk and eating attitude disorder²⁶. In other studies in Turkey where ON tendencies were examined, the prevalence of orthorexia was reported as 41.9% in dieticians²⁷, 45.5% among doctors²⁸ and 43.6% in medical students²⁹. Aksoydan and Çamcı (2009) found the mean score of orthorexia as 37.9 ± 4.46 ³⁰. Duran (2016) determined students at vocational schools of health to have an orthorexic tendency (26.9 ± 5.1)³¹. No such study on healthy nutrition obsession in pregnant women could be encountered in the literature. Laraia et al. (2015) observed that, during pregnancy, 7.8% of the pregnant women thought foods are safe, while 5.2% thought foods are not safe³². The orthorexic tendencies of the pregnant women whose pregnancies were planned were higher than those whose pregnancies were unplanned, and the difference was statistically significant ($p = .016$). It was thought that, in a planned and desired process of pregnancy, the mother displays a more careful nutrition and eating attitude to protect the infant.

The mean EAT-40 score of the pregnant women in their last trimester was 19.64 ± 8.66 . The Eating Attitude Test was designed to measure the eating-related behaviors and attitudes of patients with eating disorders and possible disorders in the eating behaviors of normal individuals, and increased scores are associated with an increase in the risk of eating disorders. Scores of lower than 21 on the scale indicate low risk, 21-30 points indicate moderate risk and those of higher than 30 indicate high risk. As the last trimester mean score of the participants of this study was under 21 points, they carried a low risk in terms of their eating attitudes. Eating behavior disorders are associated with maternal and newborn outcomes such as abortus, a significant increase in morbidity and mortality, preeclampsia, and low birth weight^{4,11,33}. In a study that was conducted to determine the disrupted eating attitudes of the mothers of newborns requiring care at the newborn care unit in comparison to those who gave birth to healthy infants and investigate the prevalence of these, 127 mothers of healthy (>2500 g) newborns and 199 mothers of newborns hospitalized at the newborn intensive care unit were assessed with the Eating Attitude Test-26 and a questionnaire related to other perinatal health problems. As a result, it was found that, in comparison to the mothers of healthy newborns, those of newborns at the newborn intensive care units gained significantly less weight during pregnancy, those who were afraid of gaining weight during pregnancy were younger, they had higher EAT-26 scores, and their c-section delivery rate was higher³⁴.

In their final trimester, the mean pregnancy motherhood perception dimension score of the participants of this study was 25.30 ± 2.97 , while their mean pregnancy body perception score was 15.39 ± 4.00 . These results showed that the motherhood perception levels of the participants were high, but their body perceptions were negative. İnanır (2015) found the mean "pregnancy motherhood perception score" in their study as 25.07 ± 1.39 and the mean "pregnancy body perception score" as 7.80 ± 2.08 . It was also determined that pregnancy body perceptions were more negative among those with a BMI of 18.5–24.9 kg/m² (normal weight) ($F = 8.868$, $p = .000$)³⁵. In another study, Hamurcu et al. (2015)

found a significant relationship between BMI and low body perception, while 54.0% of those who were classified as obese based on BMI (n=94) had low body perceptions, and this rate was 83.3% (n=10) in those that were classified as morbidly obese³⁶. Rapid physical changes that occur during pregnancy affect the pregnant woman's body perception negatively. Excessive change in body weight and shape is at the center of eating disorders in pregnancy. It is believed that today, advertisements, the popularity of thin pregnant women on social media, accessibility of the pregnancy and delivery photos of pregnant celebrities, and the negative comments of individuals around pregnant women regarding the weight they have gained/will gain may lead to orthorexia in pregnant women. Studies have reported that the negative body perception of pregnant women may lead to a set of psychological disorders such as anxiety, depression, and eating disorders^{37,38}.

A statistically significant negative correlation was found between the Eating Attitude Test and the body perception dimension of the Pregnancy Self-Perception Scale. Scores obtained from EAT-40 and eating disorder pathology are directly proportional, but scores obtained from the pregnancy body perception dimension and pathology are inversely proportional. This shows that, as the pathology of eating disorders increase, pregnancy-related body perceptions are also disrupted ($p=.018$).

Limitations of the Study

This study has some limitations. First, this study is limited to its sample. Therefore, the results are limited in terms of generalizability. Second, the data are based on the statements of the participants, and it has not been clinically confirmed. Third, The scale used to evaluate orthorexia nervosa is not specific to pregnancy. There is no pregnancy-specific scale in the literature.

Conclusion

As disrupted eating behaviors and attitudes in pregnancy may influence pregnancy outcomes and newborn health, to focus on these issues to make early diagnosis and intervention easier, it is believed that it is necessary to conduct studies that investigate the factors that affect nutrition in pregnancy. Therefore, screening, symptom management, and regular follow-up strategies should be developed with a multidisciplinary team to screen for eating disorders in pregnancy. It is very important for the healthcare professionals who follow up on the pregnant to be aware of the signs such as not gaining weight during pregnancy, hyperemesis gravidarum that continues at the 20th week, previous history of eating disorders or special diets, and thoughts, feelings and attitudes about eating. Furthermore, it is necessary to develop measuring instruments specific to the unique nature of pregnancy to detect signs of eating disorders.

The physical, psychological, and hormonal changes that occur in the mother-to-be in the process of pregnancy, which may be expressed as a developmental crisis period in women's lives, may influence the view of the pregnant woman on her pregnancy and own body. In this context, assessment of the perceptions of pregnant women towards their pregnancy and their own bodies is important in terms of preventive and protective health and counseling services. Considering the issue from this point of view, clinicians can support pregnant women regarding body image and eating

habits in several ways:

The provision of accurate information regarding healthy weight gain during pregnancy and the delivery of education on nutritional needs and balanced diet requirements and, advisable to collaborate with a dietitian or nutritionist to develop pregnancy-specific meal plans.

The explanation of the physiological changes that occur due to pregnancy that affect body image and the assurance that these changes are normal.

It is of paramount importance to encourage the pregnant woman to accept that the body changes as a natural and unavoidable consequence of pregnancy. It is also important to discuss how pregnancy affects body image and emphasize that these changes are temporary.

Regularly monitor weight gain to ensure it's within healthy guidelines.

Screen for eating disorders or disordered eating behaviors. It is recommended that pregnant women with eating disorders consult a mental health professional.

Counseling should be provided in a personalized manner, taking into account the woman's specific concerns.

Addressing any fears or anxieties the woman may have regarding weight gain and body changes is important.

Furthermore, the involvement of partners or family members in promoting positive body image should also be encouraged.

By adopting a holistic approach that combines education, support, and personalized care, clinicians can effectively support pregnant women in managing their body image and eating habits throughout their pregnancy journey.

Acknowledgments

We would like to extend our sincere thanks to all the pregnant women who participated in our study.

Conflict of interest statement

The authors report no actual or potential conflicts of interest.

Funding

The researchers did not receive any specific grant from funding agencies in the public commercial or not-for-profit sector.

References

1. Marshall NE, Abrams B, Barbour LA, Catalano P, Christian P, Friedman JE, ... Thornburg KL. The importance of nutrition in pregnancy and lactation: lifelong consequences. *AJOG*. 2022;226(5), 607-632. doi:10.1016/j.ajog.2021.12.035
2. WHO Regional Office for Europe. Good Maternal Nutrition the Best Start in Life. Available online: <https://iris.who.int/bitstream/handle/10665/329459/9789289051545-eng.pdf?sequence=1&isAllowed=y> (accessed on 31 January 2022).
3. Lassi ZS, Padhani ZA, Rabbani A, Rind F, Salam RA, Das JK, Bhutta ZA. Impact of dietary interventions during pregnancy on maternal, neonatal, and child outcomes in low-and middle-income countries. *Nutrients*. 2020;12(2), 531.; doi:10.3390/nu12020531
4. Janas-Kozik M, Żmijowska A, Zasada I. et al. Systematic review of literature on eating disorders during pregnancy risk and consequences for mother and child. *Front. Psychiatry*. 2021; 12:777529. <https://doi.org/10.3389/FPSYT.2021.777529>
5. Ouyaba Taştekin A, Öztürk Çiçekoğlu P. The effect of the information-motivation-behavioral skills (IMB) model variables on orthorexia nervosa behaviors of pregnant women. *Eat Weight Disord*. <https://dx.doi.org/10.4314/mmj.v36i3.9>

2022;27(1):361-372. doi: 10.1007/s40519-021-01237-x

6. Vartanian LR, Porter AM. Weight stigma and eating behavior: A review of the literature. *Appetite*. 2016;10(2):3–14. doi: 10.1016/j.appet.2016.01.034

7. Watson B, Fuller-Tyszkiewicz M, Broadbent J. et al. The meaning of body image experiences during the perinatal period: A systematic review of the qualitative literature. *Body Image*. 2015;14:102–113. doi: 10.1016/j.bodyim.2015.04.005

8. Loth KA, Bauer KW, Wall M, et al. Body satisfaction during pregnancy. *Body Image*. 2011;8:297–300. doi: 10.1016/j.bodyim.2011.03.002.

9. Sebastiani G, Andreu-Fernández V, Barbero AH, Aldecoa-Bilbao V, Miracle X, Barrabes E M, ... García-Algar O. Eating disorders during gestation: implications for mother's health, fetal outcomes, and epigenetic changes. *Frontiers in Pediatrics*, 2020;8, 587. doi:10.3389/fped.2020.00587.

10. Küçükkaya M, Günaydın S, Yılmaz T, Dinç Kaya H. Body image perceptions of pregnant women in the third trimester in Turkey: A qualitative study. *Journal of Evaluation in Clinical Practice*. 2024; doi: 10.1111/jep.13991

11. Burton T, Hands B, Bulsara C. Metaphors used by women with eating disorders to describe their experience of being pregnant. *Evidence-Based Midwifery*. 2015;13(4):126–131.

12. Dukay-Szabó, S, Varga M, Túry F. Eating disorders and pregnancy: A review of literature. *Ideggyogy Sz*. 2016;30;69(9-10):299-305. doi: 10.18071/isz.69.0299.

13. Dunn TM, Bratman S. On orthorexia nervosa: A review of the literature and proposed diagnostic criteria. *Eating Behaviors*. 2016; 21: 11-17. <https://doi.org/10.1016/j.eatbeh.2015.12.006>

14. Barnes A, Caltabiano ML. The interrelationship between orthorexia nervosa, perfectionism, body image and attachment style. *Eat Weight Disord*. 2017; 22(1):177–184. <https://doi.org/10.1007/s40519-016-0280-x>

15. Brytek-Matera A. Orthorexia nervosa; an eating disorder, obsessive-compulsive disorder or disturbed eating habit? *Arch Psychiatry Psychother*. 2012;14(1):44–60. http://www.archivespp.pl/uploads/images/2012_14_1/BrytekMatera55_APP1_2012.pdf

16. Greville-Harris M, Smithson J, Karl A. What are people's experiences of orthorexia nervosa? A qualitative study of online blogs. *Eat Weight Disord*. 2019;13. doi: 10.1007/s40519-019-00809-2.

17. Nevin SM, Vartanian LR. The stigma of clean dieting and orthorexia nervosa. *Eat Disord*. 2017; 5(1):37. <https://doi.org/10.1186/s40337-017-0168-9>

18. Koven NS, Abrey AW. The clinical basis of orthorexia nervosa: emerging perspectives. *Neuropsychiatr Dis Treat*. 2015;18:385-394. doi: 10.2147/NDT.S61665

19. Arusoğlu G, Kabakci E, Köksal G, Merdol TK. Orthorexia nervosa and adaptation of ORTO-11 into Turkish. *Turkish Journal of Psychiatry*. 2008; 19(3): 283-292. <http://www.turkpsikiyatri.com/C19S3/283-291.pdf>.

20. Savaşır I, Erol N. Yeme tutumu testi: Anoreksiya nervoza belirtileri indeksi. *Turk J Psychol*. 1989;7:19-25. <http://toad.edam.com.tr/sites/default/files/pdf/yeme-tutum-testi-anoreksiya-nervoza-belirtileri-indeksi-toad.pdf>

21. Kumcağız H, Ersanlı E, Murat N. The Development of a self-perception of pregnant scale and its psychometric features. *Journal of Psychiatric Nursing*. 2017; 8(1):23–31.

doi: 10.14744/phd.2017.12599

22. Joy EA, Mottola MF, Chambliss H. Integrating exercise is medicine® into the care of pregnant women. *Curr Sports Med Rep*. 2013;12(4):245-247. doi: 10.1249/JSR.0b013e31829a6f7e.

23. Guelinckx I, Devlieger R, Beckers K. et al. Maternal obesity: Pregnancy complications, gestational weight gain and nutrition. *Obes Rev*. 2008;9(2):140-50. doi: 10.1111/j.1467-789X.2007.00464.x.

24. Krishnamoorthy U, Schram CMH, Hill SR. Review article: Maternal obesity in pregnancy: is it time for meaningful research to inform preventive and management strategies? *BJOG*. 2006; 113:1134–1140. DOI: 10.1111/j.1471-0528.2006.01045.x

25. İrge E, Timur S, Zincir H. et al. Gebelikte beslenmenin değerlendirilmesi. *STED*. 2005;14(7):157-160

26. İpkirmaz İB, Saka M. Gebelerin sağlıklı beslenme takıntısı (ortoreksiya nervoza) ve yeme tutumlarının değerlendirilmesi. *Başkent Üniv Sağlık Bilimleri Fakültesi Dergisi*, 2020; 5:17–30

27. Asil E, Sürücüoğlu MS. Orthorexia nervosa in Turkish dietitians. *Ecology of Food and Nutrition*. 2015; 54(4):303-13. doi: 10.1080/03670244.2014.987920.

28. Bağcı Bosi AT, Çamur D, Güler Ç. Prevalence of orthorexia nervosa in resident medical doctors in the faculty of medicine (Ankara, Turkey). *Appetite*. 2007; 49: 661-666. doi:10.1016/j.appet.2007.04.007

29. Fidan T, Ertekin V, Işıkkay S. et al. Prevalence of orthorexia among medical students in Erzurum, Turkey. *Compr Psychiatry*. 2010; 51: 49-54. <https://www.ncbi.nlm.nih.gov/pubmed/19932826>

30. Aksoydan E, Camci N. Prevalence of orthorexia nervosa among Turkish performance artists. *Eat Weight Disord*. 2009; 14(1): 33-37.

31. Duran S. The risk of orthorexia nervosa (healthy eating obsession) symptoms for health high school students and affecting factors. *Pamukkale Med. J*. 2016; 9(3):220-226.

doi:10.5505/ptd.2016.03880.

32. Laraia B, Vikoór-İmler LC, Siega Riz AM. Food insecurity during pregnancy leads to stress, disordered eating, and greater postpartum weight among overweight women. *Obesity*. 2015;23(6): 1303-1311. 10.1002/oby.21075.

33. Easter A, Bye A, Taborelli E. et al. Recognising the symptoms: how common are eating disorders in pregnancy? *Eur Eat Disord Rev*. 2013;21(4):340–344. doi: 10.1002/erv.2229.

34. Czech-Szczapa B, Szczapa T, Merritt TA, et al. Disordered eating attitudes during pregnancy in mothers of newborns requiring neonatal intensive care unit admission: A case control study. *J Matern Fetal Neonatal Med*. 2015; 28(14): 1711– 1715. doi: 10.3109/14767058.2014.966675.

35. İnanır S, Çakmak B, Nacar MC, et al. Body image perception and self-esteem during pregnancy. *International Journal of Women's Health and Reproduction Sciences*. 2015; 3(4):196–200. doi: 10.15296/ijwhr.2015.41

36. Hamurcu P, Öner C, Telatar B, Yeşildağ Ş. Obezitenin benlik saygısı ve beden algısı üzerine etkisi. *Türk Aile Hek Derg*. 2015; 19 (3): 122 – 128. doi: 10.15511/tahd.15.02122

37. Meireles JF, Neves CM, de Carvalho, PH. et al. Body dissatisfaction among pregnant women: an integrative review of the literature. *Cien Saude Colet*. 2015; 20(7):2091–103. doi: 10.1590/1413-81232015207.05502014.

38. Bergbom I, Modh C, Lundgren I, Lindwall L. First-time pregnant women's experiences of their body in early pregnancy. *Scandinavian Journal of Caring Sciences*. 2016;1–8. <https://doi.org/10.1111/scs.12372>