ORIGINAL RESEARCH ARTICLE

The effect of weight-related self-stigma on sexual functioning in obese women with type 2 diabetes

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Abstract

This study aims to determine the relationship between weight-related self-stigma and sexual function in obese women with type 2 diabetes. This is a descriptive correlational study. The study reached 236 women through social media between December 2023 and April 2024. In data collection, a descriptive information form, the Weight Self-Stigma Questionnaire (WSSQ), and the Female Sexual Function Inventory (FSFI). The mean total score of the women on the Weight Self-Stigma Questionnaire was 32.78±10.00 and the mean total score on the Female Sexual Function Inventory was 22.38±4.08. Sexual dysfunction was identified in 70.8% of the women. We found that women with type 2 diabetes exhibited high levels of weight-related self-stigma and sexual dysfunction. Additionally, the findings indicated a negative correlation between self-devaluation and fear of enacted stigma and lubrication and sexual pain. However, self-stigma about weight and sexual dysfunction were not significantly related. It is recommended to determine the prevalence of weight bias and sexual dysfunctions among obese women with diabetes, and to provide adequate support by health professionals, in order to prevent negative effects on their mental health and sexual functions. *(Afr J Reprod Health 2025; 29 [1]: 134-143).*

Keywords: Obesity; weight bias; Type 2 diabetes; sexual function; sexual health

Résumé

Cette étude vise à déterminer la relation entre l'auto-stigmatisation liée au poids et la fonction sexuelle chez les femmes obèses atteintes de diabète de type 2. Il s'agit d'une étude corrélationnelle descriptive. L'étude a atteint 236 femmes via les réseaux sociaux entre décembre 2023 et avril 2024. Lors de la collecte de données, un formulaire d'informations descriptives, le Weight Self-Stigma Questionnaire (WSSQ) et l'inventaire de la fonction sexuelle féminine (FSFI) ont été utilisés. Le score total moyen des femmes au Weight Self-Stigma Questionnaire était de 32,78±10,00 et le score total moyen au Female Sexual Function Inventory était de 22,38±4,08. Un dysfonctionnement sexuel a été identifié chez 70,8 % des femmes. Nous avons constaté que les femmes atteintes de diabète de type 2 présentaient des niveaux élevés d'auto-stigmatisation liée au poids et de dysfonctionnement sexuel. De plus, les résultats ont indiqué une corrélation négative entre la dévalorisation de soi et la peur de la stigmatisation et de la lubrification mises en scène et de la douleur sexuelle. Cependant, l'auto-stigmatisation liée au poids et le dysfonctionnement sexuel n'étaient pas significativement liés. Il est recommandé de déterminer la prévalence des préjugés pondéraux et des dysfonctionnements sexuels chez les femmes obèses diabétiques et de leur fournir un soutien adéquat par des professionnels de la santé afin de prévenir les effets négatifs sur leur santé mentale et leurs fonctions sexuelles. *(Afr J Reprod Health 2025; 29 [1]: 134-143).*

Mots-clés: Obésité; préjugés pondéraux; diabète de type 2; fonction sexuelle; santé sexuelle

Introduction

The prevalence of type 2 diabetes mellitus (DM) as a consequence of obesity is increasing globally due to alterations in lifestyle and a reduction in physical activity. Obesity, which is based on psychological factors, is closely associated with type 2 diabetes.[1] It plays a role in the etiology of over 80% of type 2 diabetics.[1,2] In the Turkey Diabetes, Hypertension, Obesity and Endocrinologic Diseases Prevalence study, the prevalence of obesity was 44.2% in women, 27.3% in men, and 13.7% of the country's population had diabetes.[3] Uçar and Tamer (2022) conducted a study on 3,868 patients admitted to the diabetes outpatient clinic and reported the following: the majority of patients were women; type 2 DM was the very common type; and height weight index was higher in DM and prediabetic patients among all types of diabetes, with a mean value of 31 kg/m².[4] Hu et al. (2004) discovered a

relationship between height weight index and impaired glucose tolerance with DM, thereby increasing the likelihood of developing this condition.[5]

Two distinct forms of stigma exist: perceived stigma, also known as felt stigma, and self-stigma, or internalized stigma. Perceived stigma refers to the experience of marginalization and the subsequent concealment of one's behaviors due to the influence of negative attitudes and emotions. Self-stigma is referred to as personal stigma. While the individual engages in self-marginalization, they may also prioritize the thoughts, feelings, and attitudes of others. This can result in the individual marginalizing their own beliefs.[6,7]

Obesity is perceived negatively as a physical appearance and is not embraced by individuals. In obesity, individuals may experience stigma especially related to their physical appearance. Ratcliffe and Ellison (2015) found that with the increase in obesity, internalized stigma related to weight also increases, and that irregular eating habits and unsuccessful weight control are effective in the negative judgments of obese individuals towards themselves.[8]

As height weight index increases in women, there is a concomitant decrease in arousal, lubrication, and orgasm, while sexual desire remains unaltered.[9,10] This results in a deterioration of sexual life quality, with obese women exhibiting a lower quality of sexual life than obese men.[11] In addition to the physiological factors that contribute to sexual dysfunction in obese women, psychological factors such as concerns about physical appearance and body image, as well as physical limitations caused by obesity, also play a role. In addition to, the majority of women with obese are DM.[12] DM, which represents a significant threat to individual health, also has a detrimental impact on women's sexual and psychological well-being. Hormonal imbalances and the acute and chronic complications of diabetes may contribute to sexual dysfunction. Sexual counseling is often overlooked in the management of diabetic patients.[9] In addition, the negative impact of weight and obesity self-stigma on sexuality has been demonstrated in numerous studies. However, no studies were identified in the literature that examined the relationship between weight-related self-stigma and sexual function in obese women with DM. Based on this essence, this study aimed to examine the correlation between weight-related self-stigma and sexual function in this population.
In alignment with the aforementioned objective, the research questions were as follows:

1. What are the mean scores of obese women with DM on weight-related self-stigma?
2. What are the mean scores of sexual functions for obese women with DM?
3. Do the mean weight-related self-stigma scores of obese women with DM differ according to their socio-demographic characteristics?
4. Do women's socio-demographic characteristics affect the mean scores of sexual functions?
5. Is there a correlation between weight-related self-stigma and mean scores of sexual functions?.

Methods

Design and participants

The research was descriptive relationship search model. We collected the data online between December 2023 and April 2024. We used social media such as WhatsApp, Twitter, Instagram, Facebook, Pinterest and Snapchat to reach the participants. Data collection was via Google forms. The informed consent form sent to the participants online, and they were given access to the survey forms after their consent was obtained. The prevalence of DM is reported to be 10% on average in Turkey.[4] According to this information, the "sample with known population" was calculated and the sample size it was determined as 138 women with a 95% confidence interval and a margin of error of 0.05. In the study, 236 women were reached.

The study cohort comprised women with a body mass index (BMI) of at least 30 kg/m2 and a diagnosis of type 2 DM who were premenopausal. Those who have an active sexual life, not pregnant,

free of a diagnosed mental disorder, and able to use a smartphone were eligible. The study excluded women under 18 and over 65 years of age, and those who have not had an active sexual life in the last month.

Data collection

Collected the data using the Descriptive Information Form, which determines demographic characteristics, the 'Weight Self-Stigma Questionnaire (WSSQ)' and the 'Female Sexual Function Inventory (FSFI)'.

Tools

Descriptive Information Form: The form includes a series of descriptive items about the demographic features of the respondents, including age, educational status, income, occupation, number of births, and whether they have chronic diseases.

Weight Self-Stigma Questionnaire (WSSQ): The WSSQ is a Likert-type self-report scale comprising 12 items. The items are based on a 5-point scale (1 "Strongly Disagree" and 5 "Strongly Agree"). The scale ranges from 12 to 60. Increasing scores on the scale indicate that weight-related self-stigma is increasing. The original form of WSSQ was developed by Lillis et al. (2010), and the Turkish validity and reliability study was conducted by Sevinçer et al. (2017).[13,14] The total scores for the entire scale and its constituent subscales are calculated. The first six items pertain to self-devaluation, while the subsequent six items address fright of enacted stigma. No reverse items were part of the scale. In the original study of the scale, Cronbach's α value was 0.812 for the 'Self-Devaluation Subscale', 0.869 for the 'Fear of Enacted Stigma Subscale', and 0.878 for the entire scale.[13] The Cronbach's α was found to be 0.74 for the 'Self-Devaluation Subscale', 0.81 for the 'Fear of Enacted Stigma Subscale', and 0.83 for the whole scale.[14] The Cronbach's α value of our study is 0.914 for the WSSQ.

Female Sexual Function Inventory (FSFI): The 19-item FSFI, a Likert-type scale, assesses female sexual functions across six sub-dimensions: arousal, desire, lubrication, orgasm, satisfaction, and pain. The scale reflects the sexual functions of women over the past month by calculating six subgroup scores and a total FSFI score. The subgroup and total FSFI score calculations were developed by the researchers who created the scale and are based on a scoring index. The maximum total raw score that can be attained on this scale is 95, while the minimum score is 4. After multiplying the coefficients, the scale is 36 to 2. The effect coefficients utilized for scoring the entire scale were determined to be 0.6 for sexual desire, 0.3 for sexual arousal and lubrication, 0.4 for orgasm, satisfaction, and pain/discomfort. A score below 26.55 on the FSFI is indicative of sexual dysfunction. The Turkish validity and reliability of the scale were investigated by Aygin and Aslan.[15] The Cronbach's alpha value of the present study for the FSFI was 0.821.

Data analysis

The data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 25.0. Descriptive statistics were presented as percentages for categorical variables and as means and standard deviations for numerical variables. The suitability of normal distribution was checked with the Kolmogorov-Smirnov test. For comparison in independent paired groups, t test was used, and for comparison in three groups, One Way (ANOVA) test was used. One-way analysis of variance (ANOVA) was used to define if FSFI total scores differed significantly between age groups. The Bonferroni comparison method was utilized to investigate the diversity recognized by the ANOVA. The significance level for the findings was assessed within a 95% confidence interval, with a significance threshold of $p<0.05$. In addition, Pearson correlation analysis was determined to determine the relationship between the scales.

Ethical considerations

The Local Research Ethics Committee approved the study prior to its commencement (Approval no: 2024/01-06). All procedures were conducted in accordance with the tenets set forth in the Helsinki Declaration.

Results

The female participants' mean age was 44.65 ±7.23 years; 31.7% had obtained a bachelor's degree, the majority were parents, and 59.7% reported equal income and expenses. Of the women, 31.8% had another chronic condition in addition to DM (Table 1). The study revealed that 54.7% of the female participants had engaged in sexual intercourse for a period exceeding two weeks. Additionally, approximately 50% of the participants were then-currently experiencing sexual difficulties (Table 2).

The participants' Weight Self-Stigma Questionnaire mean score was 32.78 ± 10.00, while their mean score on the Female Sexual Function Inventory was 22.38 ± 4.08 (Table 3).

It was determined that 70.8% of the participants exhibited a mean FSFI total score below 26.55. According to smoking and alcohol use status, there was a significant difference. The mean WSSQ total score of smokers was higher than that of nonsmokers. A statistically significant difference was identified between the utilization of family planning and the WSSQ. The mean WSSQ total score of those who didn't use any family planning was found to be higher than that of those who did. A significant difference was noticed between the mean WSSQ total scores who had experienced sexual problems prior to being diagnosed with DM and those who had not. Individuals who had previously experienced sexual dysfunction prior to the diagnosis of diabetes exhibited higher WSSQ total averages compared to those who had not. Marital status, family type, presence of children, income status and WSSQ weren't found to be statistically significantly different ($p > 0.05$) (Table 4). The study revealed a statistically significant correlation between smoking and alcohol consumption and the FSFI total score. Non-smoking and non-drinking women had higher mean FSFI total scores estimated to those who smoked or consumed alcohol. Furthermore, the FSFI total scores were noticed to be higher among participants who did not present with additional chronic diseases apart from diabetes, in comparison to those who did present with other chronic diseases. Women who did not experience current sexual problems had higher total scores on the FSFI than women who did. This difference was statistically significant. No significant distinction was found between marital status, the presence of children, and family type characteristics and FSFI scores (Table 5).

A negative relationship was identified between self-devaluation and the sexual pain subscale, though the correlation was found to be weak. There was a weak negative correlation between fear of enacted stigma and lubrication. Similarly, the WSSQ and the lubrication sub-dimension were found to have a weak negative correlation. Additionally, there was an average negative correlation between the WSSQ and the sexual pain sub-dimension ($p < 0.05$). However, no correlation was determined between the WSSQ and the FSFI total scores ($p > 0.05$) (Table 6).

Discussion

This study aimed to examine the correlation between self-stigma and sexual functioning women with type 2 DM and obesity. The phenomenon of weight-related self-stigma can be conceptualized as a process whereby an individual internalizes the prejudices held by society with regard to weight. These prejudices, in turn, give rise to a range of conditions, including the self-perception of obese individuals as defective, emotional eating, restrictive eating behavior disorder, a greater propensity to be unsuccessful in weight loss, low motivation, and low self-esteem.[16] Among the participants, the frequency of weight-related self-stigma was observed to be high. Weight-related self-stigma was also high in similar studies using the same measurement tool.[17-20] The results of our study indicated that the plurality of participants endorsed the asset of weight-related self-stigma.

The results of the evaluation of expectant mothers demonstrated a significant negative relationship between the total and subscale averages of weight stigma and sexual attitudes.[21] Similar results were observed in our study. The presence of both type 2 diabetes and obesity problems may have contributed to an increased level of self-stigma, which may have led to dysfunctional attitudes towards sexuality.

A number of studies have demonstrated a relationship between elevated BMI and an increased prevalence of sexual dysfunction in women.[22-24]

Table 1: Descriptive characteristics of the participants

Characteristics	n=236	Percentage (%)
Marital status		
Married	208	88.1
With a partner	28	11.9
Education level		
Elemantry	68	28.8
Middle	36	15.3
High	57	24.2
University	75	31.7
Income		
Income is less than expenses	63	26.7
Income and expenses equal	141	59.7
Income more than expenses	32	13.6
Status of having children		
Yes	211	89.4
No	25	10.6
Smoking status		
Yes	79	33.5
No	157	66.5
Alcohol consumption status		
Yes	46	19.5
No	190	80.5
Chronic disease state		
Yes	75	31.8
No	161	68.2
Age	Minimum: 34	Maximum: 61
44.65±7.23		

Table 2: Spouse/partner status and sexual life characteristics of the participants

Characteristics		n=236	Percentage (%)
Family type			
Nuclear		207	87,7
Extended		29	12.3
Having a problem in sexual life before having DM			
Yes		51	21.6
No		185	78.4
Currently having any problems in sexual life			
Yes		106	44.9
No		130	55.1
Frequency of sexual intercourse			
Once or twice a week		51	21.6
More than a week		56	23.7
More than two weeks		129	54.7
Use of any family planning			
Yes		103	43.6
No		133	56.4
Duration of marriage/relationship	Minimum: 2	Maximum: 41	18.66±9.85

Table 3: Participants' total scores of the WSSQ and FSFI and subscales

Scale	Mean±SD	Min-Max
Weight Self-Stigma Questionnaire (WSSQ)	32.78±10.00	12.00-57.00
Subdimension 1: Self-devaluation	16.58±5.39	6.00-31.00
Subdimension 2: Fear of Enacted Stigma	16.20±4.61	6.00-30.00
Female Sexual Function Inventory (FSFI)	22.38±6.08	12.30-33.40
Subscale 1: Sexual Desire	4.62±1.05	2.40-7.20
Subdimension 2: Arousal	3.40±1.31	1.20±6.00
Subdimension 3: Lubrication	3.68±1.10	1.20±6.00
Subdimension 4: Orgasm	3.76±0.79	0.00±6.00
Subdimension 5: Satisfaction	3.23±1.33	0.00±6.00
Subdimension 6: Pain	3.69±1.51	0.00±6.00

SD: Standard Deviation

Table 4: Comparison of the WSSQ total mean scores according to the descriptive features of the participants

	Groups	Mean	SD	Test result value	p
Age	31-40	31.26	10.22	3.65	***.027**
	41-50	33.92	9.67		
	51-60	34.93	9.59		
Marital Status	Married	32.72	9.95	0.13	.139
	With a partner	32.46	10.14		
Status of having children	Yes	32.42	10.16	-1.93	.062
	No	35.84	8.12		
Family type	Nuclear	32.70	9.79	0.23	.369
	Extended	32.62	11.19		
Smoking status	Yes	35.22	9.43	-2.69	***.008**
	No	31.56	10.09		
Alcohol consumption status	Yes	35.28	8.77	1.95	***.036**
	No	32.07	10.14		
Use of contraceptive method	Yes	31.24	9.64	-2.01	***.045**
	No	33.86	10.10		
Having any chronic disease other than diabetes	Yes	31.52	10.71	-1.85	.185
	No	33.37	9.64		
Having any problems with sexual life before having DM	Yes	33.59	9.62	-2.59	***.010**
	No	29.52	10.73		
Currently having any problems with sexual life	Yes	32.72	9.16	0.36	.145
	No	32.67	10.58		
First marriage/relationship status	Yes	33.02	10.08	1.28	.168
	No	30.59	8.97		
Income status	Income less than expenses	33.55	10.57	0.39	.373
	Income and expenses equal	32.23	9.82		
	Income more than expenses	33.06	9.49		

Test result value in pairwise group comparison = t value, test result value in three group comparison = ANOVA value

Table 5: Comparison of the FSFI total mean scores according to participants' descriptive characteristics

	Groups	Mean	SD	Test result value	P
Age	31-40	23.73	4.51	7.168	***.010**
	41-50	22.56	3.84		
	51-60	21.22	3.69		
Marital Status	Married	22.50	4.10	1.19	.254
	With a partner	21.56	3.90		
Status of having children	Yes	22.49	4.05	1.16	.246
	No	21.49	3.93		
Family type	Nuclear	22.42	4.14	0.39	.670
	Extended	22.10	3.72		
Smoking status	Yes	21.02	3.99	-3.63	***.001**
	No	23.04	3.98		
Alcohol consumption status	Yes	20.28	4.29	-3.96	***.001**
	No	22.89	3.87		
Use of contraceptive method	Yes	22.34	3.51	-0.16	.469
	No	22.43	4.49		
Having any chronic disease other than diabetes	Yes	22.04	3.94	1.91	***.037**
	No	23.14	4.11		
Having any problems with sexual life before being diagnosed with DM	Yes	22.24	4.55	-0.30	.360
	No	22.44	3.96		
Currently having any problems with sexual life	Yes	21.09	3.95	5.73	***.001**
	No	23.99	3.72		
First marriage/relationship status	Yes	22.41	4.20	1.20	.366
	No	22.52	3.28		
Income status	Income less than expenses	22.85	4.23	2.03	.137
	Income and expenses equal	21.11	4.01		
	Income more than expenses	22.47	3.99		

Test result value=t value in pairwise group comparison, test result value=F value in triple group comparison

Table 6: Correlations between participants' weight self-stigma questionnaire and female sexual function inventory scores

		Arousal	Sexual Desire	Lubrication	Orgasm	Satisfaction	Sexual Pain	Female Sexual Function Inventory Total
Self-Devaluation	**r**	.076	.070	**-.314**	.017	.002	**-.344**	.006
	p	.250	.287	**0.034**	.800	.973	**.028**	.928
Fear of Enacted Stigma	**r**	.001	-.003	**-.305**	-.027	-.077	-.116	-082
	p	.991	.964	**0.001**	.680	.240	0.76	.213
Weight Self-Stigma Questionnaire	**r**	.038	.043	**-.339**	.006	-.042	**-.447**	-.043
	p	0.567	0.515	**0.001**	.928	.520	**.025**	0.515

r= Coefficient of correlation

Research has also shown that weight loss significantly increases female sexual function, which contain improved sexual arousal, lubrication, satisfaction, and overall sexual function.[25-28] A large-scale meta-analysis study conducted in Turkey revealed that the prevalence of sexual dysfunction in women with diabetes was 58.9%, which was big than that observed in the general population.[29] In a distinct meta-analysis study that incorporated investigations from disparate countries, the incidence of combined sexual dysfunction in women with diabetes was documented at 68.6%.[30] As observed in the aforementioned studies, the majority of women in our study exhibited sexual dysfunction. It is plausible that the real that the women were both obese and diabetic may have contributed to this result.

Upon examination of the correlation matrices pertaining to self-stigma in relationship to weight and attitudes towards sexuality, a statistically significant opposite correlation was noticed between the subscale mean scores. However, no relationship was noticed between the total scale scores. In the extant literature, findings analogous to those of our study have been reported.[31-34] These include reports that vascular and neurological complications associated with diabetes in women may result in arousal, lubrication, and pain disorders due to the negative impact of such complications on vaginal physiology.[31-36] It can be hypothesized that obese women with DM may have experienced fear of enacted stigma by devaluing themselves, which may have affected their sexual functioning. In this context, it can be stated that women's diabetes and obesity problems may have led to impaired sexual functioning by increasing weight-related self-stigma. The negative impact of excess body weight due to metabolic, endocrine, or vascular disorders on sexual function is a well-known fact.[37] However, studies examining the relationship between obesity and sexual dysfunction in women have yielded inconsistent results due to methodological and definitional differences in the assessment of sexual dysfunction, or the inability to directly compare studies as a result of the application of heterogeneous measures of sexual function reported by participants.[24,28,38-41].

Conclusion and recommendations

It was thus established that self-stigma with regard to weight and sexual dysfunction was prevalent among women with type 2 DM. A negative correlation was recognized between 'self-devaluation' and 'fear of enacted stigma' and 'lubrication' and 'sexual pain'. Conversely, no relationship was observed between weight-related self-stigma and sexual functions. Furthermore, the self-stigma associated with weight was found to be influenced by several factors, including age, smoking and alcohol consumption, the presence of sexual difficulties prior to the diagnosis of diabetes, and the use of contraceptives. Sexual functioning was similarly influenced by age, smoking and alcohol use, the presence of another chronic disease, and the presence of sexual difficulties at the time of the study.

In light of the evidences of the study, it is advised that sexuality be assessed on an individual basis in each cultural context. Cultural parameters should be taken into account in determining sexual problems. Furthermore, studies comparing sexual functions before and after the diagnosis of obesity and diabetes are recommended. Health professionals should provide diabetic women with the opportunity to discuss their sexual functions. The underlying cause of sexual dysfunction should be investigated and women who require further assistance may be send to a sexual therapist. In addition, the level of weight-related self-stigma among obese women should be assessed, and those with problematic levels of self-stigma should be referred to a psychiatrist. Concurrently, women should be invited to participate in sexual functioning evaluations with their husbands or partners. Couples experiencing sexual dysfunction may benefit from family therapy.

Authors' contributions

All authors contributed equally to the study conception and design.

Material preparation, data collection, and analysis were performed by Ahmet Şanlı and Demet Çelik. The first draft of the manuscript was written by Ahmet Şanlı, and all authors commented on

previous versions of the manuscript. All authors read and approved the final manuscript

Competing interests

The authors report no actual or potential conflicts of interest.

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Ethics approval and consent to participate

Ethical approval for this study was obtained from the Karamanoğlu Mehmetbey University Social and Humanities Scientific Research and Publication Ethics Committee (Approval no: 2024/01-06). The research conforms to the provisions of the Declaration of Helsinki. Informed consent was obtained from all individual participants included in the study

References

1. Aygün N. Obesity definition, complications, endocrine control and nutritional therapy. Okmeydanı Medicine Journal, 2014; 30: 45-49. 12.
2. Obesity Diagnosis and Treatment Guide. Turkish Society of Endocrinology and Metabolism. 8th Edition. Istanbul Medical Press, 2019; ISBN: 978-605-4011-31-5.
3. Satman I, Omer B, Tutuncu Y, Kalaca S, Gedik S, Dinccag N, Karsidag K, Genc S, Telci A, Canbaz A, Turker F, Yilmaz T, Cakir B and Toomilehto J. TURDEP-II Study Group. Twelve-year trends in the prevalence and risk factors of diabetes and prediabetes in Turkish adults. Eur J Epidemiol., 2013; 28: 169-180.
4. Uçar A and Tamer A. Retrospective analysis of demographic, anthropometric, clinical and laboratory data at the time of first application of all cases applying to the diabetes outpatient clinic. IAAOJ Health Sciences, 2022; 8 (1): 1-16.
5. Hu G, Lınstrom J, Valle TT, Erıksson JG, Jousılahtı P, Sılventoınen K, Qiao Q and Toumilehto J. Physical activity, body mass 58 index, and risk of Type 2 diabetes in patients with normal or imparied glucose regulation. Arch Intern Med., 2004; 164(8): 892-896.
6. Hain B, Langer L, Hünnemeyer K, Rudofsky G, Zech U and Wild B. Translation and validation of the German version of the Weight Self-Stigma Questionnaire (WSSQ). Obes Surg, 2015; 25: 750–753. https://doi.org/ 10.1007/s11695-015-1598-6.
7. Lin KP and Lee ML. Validating a Chinese version of the Weight self-stigma questionnaire for use with obese adults. Int J Nurs Pract., 2017; 23 (4): 1-7. https://doi.org/10.1111/ijn.12537.
8. Ratcliffe D and Ellison N. Obesity and internalized weight stigma: A formulation model for an emerging psychological problem. Behavioural and cognitive psychotherapy, 2015; 43(2): 239-252.
9. Sulamiş N and Yıldırım Varışoğlu Y. Determining the relationship between body perception and sexual satisfaction scores of women with type 2 diabetes. IGUSABDER, 2023; 1 (20): 549-567.
10. Kolotkin RL, Binks M, Crosby RD, Qstby T, Gress RE and Adams TD. Obesity and sexual quality of life. Obesity (Silver Spring), 2006; 14: 472-9
11. Esposito K, Ciotola M, Giugliano F, Bisogni C, Schisano B, Autorino R, Cobellis L, Sio MD, Colacurci N and Giugliano D. Association of body weight with sexual function in women. Int J Impot Res, 2007; 19: 353-7. 27.
12. Güç H and Mutlu HH. Comparison of the frequency of sexual dysfunction in obese and non-obese women. Zeynep Kamil Medical Bulletin, 2020; 51(4): 186-191.
13. Lillis J, Luoma J, Levin M and Hayes S. Measuring weight self-stigma: the weight self-stigma questionnaire, Obesity, 2010; 18 (5): 971-976.
14. Sevinçer GM, Kaya A, Bozkurt S, Akin E and Köse S. Reliability, validity, and factorial structure of the Turkish version of the weight self-stigma questionnaire (Turkish WSSQ), Psychiatry and Clinical Psychopharmacology, 2017; 27 (4): 386-392.
15. Aygin D and Aslan F. Adaptation of the Female Sexual Function Scale to Turkish. Turkiye Klin J Med Sci., 2005; 25 (3): 393–9.
16. Yılmaz E and Aksoy M. Determination of relationship of nursing students' ınternalized weight bias, depression and eating behavior. Journal of Hacettepe University Faculty of Nursing, 2018; 5(3): 220-229.
17. Farhangi MA, Emam-Alizadeh M, Hamedi F and Jahangiry L. Weight self-stigma and its association with quality of life and psychological distress among overweight and obese women. Eat Weight Disord., 2017; 22: 451–456.
18. Lillis J, Thomas J, Olson K and Wing R. Weight self-stigma and weight loss during behavioural weight loss ınterventıon, Obesity Science & Practice, 2019; 5 (1): 21-27.
19. Khodari BH, Shami MO, Shajry RM, Shami JA, Names AA, Alamer AA, Moafa AM, Hakami RO, Almuhaysin GA and Alqassim AY. The relationship between weight self-stigma and quality of life among youth in the jazan region, Saudi Arabia. Cureus, 2021; 13(9), e18158. DOI 10.7759/cureus.18158
20. Dilsiz NB and Arslan S. Investigation of the relationship between weight self-stigma, emotional eating, and diet satisfaction in obese individuals. Eur Res J, 2023; 9(2): 407-415. DOI: 10.18621/eurj.1250216

21. Altınayak SÖ and Abukan B. Examining the effect of weight self-stigma on attitudes toward sexuality during pregnancy using structural equation modeling. African Journal of Reproductive Health, 2023; 27(9): 87. DOI: 10.29063/ajrh2023/v27i9.9
22. Towe M, La J, El-Khatib F, Roberts N, Yafi FA and Rubin R. Diet and female sexual health. Sex Med Rev., 2020; 8(2): 256–264. doi:10.1016/j. sxmr.2019.08.004
23. Ferrández Infante A, Novella Arribas B, Khan KS, Zamora J, Lopez Jurado AR, Pasero MF and Fernandez CS. Obesity and female sexual dysfunctions: A systematic review of prevalence with meta-analysis. Semergen, 2023; 49(7): 102022. doi:10.1016/j. semerg.2023.102022 40.
24. Bialorudzki M, Mazur J, Haczyński J, Kozakiewicz A and Izdebski Z. Body weight and the assessment of sexual life a cross-sectional study. Ann Agric Environ Med., 2024; 31(2): 212–218. doi: 10.26444/aaem/173221
25. Kolotkin R L, Zunker C and Østbye T. Sexual functioning and obesity: A review. Obesity, 2012; 20: 2325–2333. doi: 10.1038/oby.2012.104
26. Aversa A, Bruzziches R, Francomano D, Greco EA, Violi F, Lenzi A and Donini LM. Weight loss by multidisciplinary intervention improves endothelial and sexual function in obese fertile women. J. Sex. Med. 2013; 10: 1024–1033. doi: 10.1111/jsm.1 2069
27. Syed AH, Chandnani A, Khan A, Bhutto NS, Tahir H, Iqbal A, Aruwani SK, Naz S and Bachani P. Association of weight loss with improved sexual function in females. Cureus, 2021; 13:e16849. doi: 10.7759/cureus.16849
28. Abdelsamea GA, Amr M, Tolba AMN, Elboraie HO, Soliman A, Al-Amir Hassan B, Ali F and Osman DA. Impact of weight loss on sexual and psychological functions and quality of life in females with sexual dysfunction: A forgotten avenue. Front. Psychol. 2023; 14:1090256. doi: 10.3389/fpsyg.2023.1090256
29. Karakaş Uğurlu G and Uğurlu M. The prevalence of sexual dysfunctions in women with diabetes and ıts relationship with diabetic and demographic factors: a meta-analysis and meta-regression study. Ankara Medical Journal, 2020; 20(4): 798–813.
30. Rahmanian E, Salari N, Mohammadi M and Jalali R. Evaluation of sexual dysfunction and female sexual dysfunction indicators in women with type 2 diabetes: a systematic review and meta-analysis. Diabetology & Metabolic syndrome, 2019; 11(1):73.
31. Giraldi A and Kristensen E. Sexual dysfunction in women with diabetes mellitus. The Journal of Sex Research, 2010; 47(2-3): 199-211. doi:10.1080/0022449100363283.
32. Pontiroli AE, Cortelazzi D and Morabito A. Female sexual dysfunction and diabetes: a systematic review and meta-analysis. The Journal of Sexual Medicine, 2013; 10(4): 1044-51. doi:https://doi.org/10.1111/jsm.12065.
33. Afshari P, Yazdizadeh S, Abedi P and Rashidi H. The relation of diabetes type 2 with sexual function among reproductive age women in İran, a case-control study. Advances in Medicine, 2017; 5: 1–5. https://doi.org/10.1155/2017/4838923 196-204
34. Veyhe AS, Andreassen J, Halling J, Grandjean P, Skaalum Petersen M and Weihe P. Prevalence of prediabetes and type 2 diabetes in two non-random populations aged 44–77 years in the Faroe Islands. Journal of Clinical & Translational Endocrinology, 2019; 16: 100187. https://doi.org/10.1016/j.jcte.2019.100187.
35. Yenice M G, Danacıoğlu YO, Mert M, Karakaya P, Seker KG, Akkaş F, Şimşek A, Şahin S and Taşçı, A. I. Evaluation of factors affecting sexual dysfunction in female patients with diabetes mellitus. Archives of Endocrinology and Metabolism, 2020; 64(3): 319-325. https://doi.org/10.20945/2359-3997000000238
36. Köse Tuncer S, Atalıkoğlu Başkan S, Karakurt P and Güneş D. The relationship between marital adjustment and sexual life quality in diabetic women. Kırşehir Ahi Evran University Journal of Health Sciences, 2023; 7(3)
37. Jannini EA. The interface of systems medicine and sexual medicine for facing non-communicable diseases in a genderdependent manner. Sex Med Rev., 2017; 5(3): 349–364. doi:10.1016/j. sxmr.2017.04.002
38. Bajos N, Wellings K, Laborde C and Moreau C. Sexuality and obesity, gender perspective: results from French national random probability survey of sexual behaviour. BMJ, 2010; 340, 1-9.
39. Wallwiener S, Strohmaier J, Wallwiener LM, Schönfisch B, Zipfel S, Brucker SY, Rietschel M amd Wallwiener C. Sexual function is correlated with body image and partnership quality in female university students. Journal of Sexual Medicine, 2016; 13(Suppl.10): 1530-1538.
40. Küçük N, Mecdi Kaydırak M, Aydın Bilge Ç and Hotun Şahin N. The effect of obesity on self-esteem and sexuality in women. Anatolian Journal of Psychiatry, 2018; 19(2): 126-134.
41. Faubion SS, Fairbanks F, Kuhle CL, Sood R, Kling JM, Vencill JA, Mara KC and Kapoor E. Association Between Body Mass Index and Female Sexual Dysfunction: A Cross-sectional Study from the Data Registry on Experiences of Aging, Menopause, and Sexuality. J Sex Med., 2020; 17(10): 1971–1980. doi:10.1016/j.jsxm.2020.07.004