ARAŞTIRMA / RESEARCH

Hemşirelik Öğrencilerinde Sosyal Görünüş Kaygısı ve Yeme Farkındalığı

Social Appearance Anxiety and Mindful Eating in Nursing Students

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Geliş tarihi/Received: 19.08.2022
Kabul tarihi/Accepted: 06.02.2023

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This study was presented as an oral presentation at the 2nd International 7th National Pediatric Nursing Congress held on 27-30 November 2019, Çeşme, İzmir.

This work was supported by the Scientific Research Projects Department of Pamukkale University under Grant number 2019KRM004-190.

Öz

Objective: This study aimed to determine the relationship between social appearance anxiety and mindful eating in nursing students, as well as the factors affecting them.

Material and Method: This descriptive cross-sectional study was conducted with nursing students (n=479) at a university, located in the West Region of Turkiye, between September and December in 2019. The data were collected using the Sociodemographic Information Form, the Social Appearance Anxiety Scale (SAAS), and the Mindful Eating Questionnaire (MEQ).

Results: Female participants had significantly higher emotional eating, consciousness and mindfulness subscale scores than male participants. Total SAAS scores of students with overweight or obesity were statistically higher and mean scores of disinhibition and eating control subscales of MEQ were statistically lower than others ($p<0.05$). Those who think they were overweight/obese had the highest SAAS score and lowest MEQ score ($p<0.05$). Mindful eating was inversely related to the social appearance anxiety. Regression model showed that nursing students with high SAAS scores also had low MEQ scores.

Conclusion: The links between nursing students' eating behavior and social appearance anxiety should be comprehensively addressed. Interventions targeted to gain healthy eating habits and stress reduction may require collaboration with other disciplines and will help nursing students to promote health.

Keywords: Social appearance anxiety, mindful eating, nursing students.

Öz

Amaç: Bu çalışmanın amacı hemşirelik öğrencilerinde sosyal görünüş kaygısı ve farkındalıklı yeme arasındaki ilişkiyi ve etkileyen faktörleri belirlemektir.

Gereç ve Yöntem: Bu tanımlayıcı kesitsel araştırma, Eylül-Aralık 2019 tarihleri arasında Türkiye'nin batısında yer alan bir üniversitedeki hemşirelik öğrencileriyle yapılmıştır (n=479). Veriler Sosyodemografik Bilgi Formu, Sosyal Görünüş Kaygısı Ölçeği ve Yeme Farkındalığı Anketi kullanılarak toplanmıştır.

Bulgular: Kadın katılımcıların duygusal yeme, bilinçli beslenme ve farkındalık alt ölçek puanları erkek katılımcılara göre anlamlı olarak daha yüksek bulunmuştur. Fazla kilolu veya obezitesi olan öğrencilerin toplam sosyal görünüş kaygısı puanları istatistiksel olarak daha yüksek, yeme farkındalığı ölçeğinin disinhibisyon ve yeme kontrolü alt ölçeklerinin ortalama puanları diğerlerine göre istatistiksel olarak daha düşük bulunmuştur ($p<0.05$). Fazla kilolu veya obezitesi olduğunu düşünenlerin sosyal görünüş kaygısı puanı en yüksek ve yeme farkındalığı puanı en düşük olarak belirlenmiştir ($p<0.05$). Yeme farkındalığı ile sosyal görünüş kaygısı arasında negatif ilişki bulunmuştur. Regresyon modeli, sosyal görünüş kaygısı puanları yüksek olan hemşirelik öğrencilerinin yeme farkındalığı puanlarının da düşük olduğunu göstermiştir.

Sonuç: Araştırmanın sonuçları, hemşirelik öğrencilerinin yeme davranışı ve sosyal görünüş kaygısı arasındaki ilişkiyi kapsamlı bir şekilde anlamaları için bir referans olabilir. Disiplinlerarası işbirliği ile sağlıklı beslenme alışkanlıkları kazandırmayı ve stresi azaltmayı hedefleyen girişimler, hemşirelik öğrencilerinin sağlığını geliştirmelerine yardımcı olabilir.

Anahtar Kelimeler: Sosyal görünüş kaygısı, yeme farkındalığı, hemşirelik öğrencileri.

1. Introduction

Many factors affect the eating attitudes and behaviors of university students, including body image (1), psychological status and personality traits (2), weight perception (3), and sociocultural influences (2). Recently, studies investigating occupational stress in university students have also described increased stress (4, 5). With the pressure of a demanding academic routine and with students' introduction to a new social environment, the processes of selecting, gathering, and preparing food may pose challenges to students that could have adverse implications on their eating behaviors and food choices (6).

Appearance anxiety and eating problems increase in adolescence and early adulthood (7). Recent years have seen an increase in studies showing that the prevalence of disordered eating is high among students in health-related disciplines. Giannopoulou et al. (2020) demonstrated that mindfulness in eating is inversely related to binge-eating behavior and to mood disturbances observed in university students attending health-related disciplines; they also showed that the poorer the mental health of the students, the lower the level of mindfulness and the more disordered the eating behaviour (8). Levinson et. al. (2013) discovered that social anxiety and symptoms of eating disorders were linked to social appearance anxiety (9).

Hart et al. (2008) described Social Appearance Anxiety (SAA) as a comprehensive concept that deals with general physical appearance, including height, weight, muscle structure, and physical features such as complexion and face shape (nose, distance of eyes, smile, etc.) (10). SAA indicates a more detailed and holistic problem than anxiety about general physical appearance, and it is caused by a series of social situations that induce anxiety and by negative body image. The main negative consequences of SAA are depression, body dissatisfaction, and eating disorders (11).

Students with obesity especially have double the risk of disordered eating attitudes, compared to normal weight students (12). Female students who have poor mindful eating and negative body attitude are more prone to eating disorders (13). Kılıç and Karakuş (2016) found that university students who are dissatisfied with their weight are at risk of developing SAA (14). Gunnell, Mosewich, McEwen, Eklund, & Crocker (2017) emphasized that mindfulness may have a beneficial role in body-related issues and disordered eating (15). The concept of mindfulness first emerged within Buddhist meditation. Mindfulness is moment-to-moment awareness that is cultivated by purposefully and non-judgmentally paying attention in the present moment (16). Mindful eating is widely defined as raising one's awareness around how and when to eat (rather than what to eat), focusing on the food being consumed here and now without being influenced by environmental factors, remaining aware of the effects of emotions and thoughts on eating habits, and internalizing the concept of physical hunger-satiety (17). Kabat-Zinn (2005, p.28) said: "When you eat mindfully, you are in touch with your food because your mind is not distracted. It is not thinking about other things. It is attending to eating." If someone is overweight and has bad feelings about his body, when he starts thinking mindfully, losing weight becomes both easier and less important (16).

In recent years, an extensive amount of research has associated mindfulness with healthier eating behaviors, such as promoting healthy food choices (18), and developing positive body image (7). Some evidence has revealed the extent to which mindfulness-based interventions are effective in treating eating-related problems ranging from eating disorders to overweight and obesity conditions (19).

As health-care professionals of the future, it is essential for nursing students to attend to their health and well-being in order to become effective healthcare professionals. However, data on mindful eating and its relationship to SAA in nursing students is scarce. Such an exploration will lead to a more comprehensive assessment and understanding of the phenomenon of mindfulness in eating behaviors and SAA in the vulnerable population of university nursing students. Köse and Tayfur (2021) emphasized that mindful food consumption improves quality of life. Increasing people's quality of life will make them more productive and in the society (20). Consequently, we argue that the evaluation of nursing students in terms of SAA and mindful eating is important for identifying problems and taking necessary precautions. Additionally, this study will serve as a needs assessment for the future implementation of mindfulness-based eating interventions. This study aimed to analyze the relationship between mindful eating, social appearance anxiety, and the individual characteristics of nursing students, as well as the factors affecting them.

1.1. Research Questions

(1) Is there a correlation between nursing students' SAA and their mindful eating habits?

(2) Are social anxiety levels and mindful eating habits differ according to the individual characteristics of the students?

2. Materials and Methods

2.1. Study Design and Sample

This study was a descriptive cross-sectional design with a convenience sample to identify how students' social appearance anxiety levels were associated with their mindful eating habits. This study was conducted with nursing students at a university, located in the west region of Turkiye, between September and December in 2019. The data were collected using a self-report questionnaire and it took approximately 10-15 minutes to complete the scales. At the conclusion of each lesson, a researcher gave an information to the students about the study. The researcher introduced the study's goals and methods and explained that participation was completely voluntary, anonymous, and that there would be no consequences for choosing not to participate. All of the students received questionnaire packs and consent forms from the researcher. Participants who signed the consent form and completed the questionnaires in class were considered willing to participate. The required sample size was found to be 417, which was calculated based on the mean scores in the reference study at small-medium (0.30) effect size with a Type I error of 0.05 and a Type II error of 0.01 (according to 99% power) in the G*POWER 3.1 statistical analysis program (21). The study sample included 479 nursing students who consented to participate in the study. Students in their first, second, third and fourth years were recruited through the purposive sampling method. Students who volunteered to participate were also accepted into the study.

2.2. Data Collection Tools

The Sociodemographic Information Form: This form consists of questions concerning the age, gender, university year, thoughts about one's own weight and height, and weight status of the participants. Body Mass Index (BMI) was evaluated according to the World Health Organization's obesity classification (22).

The Social Appearance Anxiety Scale (SAAS): This scale was developed by Hart et al. (2008) to measure emotional, cognitive, and behavioral anxieties experienced by individuals with regard to their appearance (10). A validity and reliability study for a Turkish version of the scale was conducted by Doğan (2010). The SAAS is a 5-point Likert-type scale that includes 16 items, scored from 1=completely disagree to 5=completely agree. The scale measures SAA in one dimension, and scores range from 16 to 80, with higher scores indicating higher levels of appearance anxiety. The Cronbach's alpha of the scale was found to be 0.93 by Doğan (2010) (23); being 0.94 in this study.

The Mindful Eating Questionnaire (MEQ): This questionnaire was developed by Framson et al. (2009), and it investigates how and why eating behaviors occur (rather than what is being eaten); it also enables a thorough analysis of the correlation between eating behavior and emotional state (24). The questionnaire is a 4-point Likert-type scale that includes 28 questions across 5 sub-scales. Higher scores indicate increased mindful eating. A validity and reliability study for a Turkish version of the questionnaire was conducted by Köse et al. (2016) (17). The Turkish version is a 5-point Likert-type questionnaire (scored as 1=none, 2=rarely, 3=sometimes, 4=often, 5=always) with 30 items across 7 subscales (disinhibition, emotional eating, eating control, focusing, eating discipline, mindfulness and interference). The Cronbach's alpha of the original scale was 0.64 (24); Köse et al. (2016) found a Cronbach's alpha value of 0.73 (17); and in this study, the Cronbach's alpha was 0.63.

2.3. Data Analysis

The data were analyzed with IBM SPSS (version 22) software. The significance level was set as less than 0.05. The normal distribution was conducted using the Shapiro–Wilks test. When data were normally distributed, an independent sample t-test was used; when data were not normally distributed, the Mann–Whitney U Test (Z-table value) was used for intergroup comparison of data. The independent group differences were compared with one-way analysis of variance (ANOVA); the correlations between continuous variables were analyzed with Pearson's correlation analysis; and the differences between categorical variables were analyzed with chi-square analysis. In further analyses, Tukey HSD adjustments were used. The effect of SAAS on MEQ was evaluated using simple regression analysis.

3. Results

Sociodemographic characteristics of the participants were given in Table 1. 49.1% of the participants aged between 18 and 20 years old, 78.9% were female, 37.21% of them were the 1st-year and 24% were 3rd-year students. Regarding the other sociodemographic characteristics, 42.4% of the mothers and 65.1% of the fathers were primary graduates, 83% of the mothers and 29% of the fathers were unemployed and 67.9% of the participants reported having an income equal to their expenses. While 22.3% think they were overweight/obese, based on their body mass index (BMI), 74.1% of the students were normal and 14.4% were overweight/obese.

Table 1. Sociodemographic Characteristics of Participants

Sociodemographic Characteristics	N (479)	%
Age		
18-20 years	235	49.1
21-23 years	231	48.2
23+ years	13	2.7
Gender		
Female	378	78.9
Male	101	21.1
University year		
1st	178	37.2
2nd	84	17.5
3rd	115	24.0
4th	102	21.3
BMI		
Underweight	55	11.5
Normal	355	74.1
Overweight/obese	69	14.4
Thoughts about own weight		
I'm underweight	84	17.5
I'm normal	288	60.1
I'm overweight/obese	107	22.3
Employment status (Mothers)		
Employed	81	17.0
Unemployed	398	83.0
Employment status (Fathers)		
Employed	340	71.0
Unemployed	139	29.0
Educational status (Mothers)		
Primary school	312	65.1
Secondary school	63	58.2
High school	83	13.2
University	21	4.4
Educational status (Fathers)		
Primary school	203	42.4
Secondary school	82	17.1
High school	121	25.3
University	73	15.2
Income status		
Low	105	21.9
Middle	325	67.9
High	49	10.2

The mean score obtained from the SAAS was 34.57 ± 13.12, while that of the MEQ was 3.19 ± 0.33. Mean scores for the MEQ subscales were 3.26 ± 0.81 for disinhibition, 3.16 ± 0.45 for emotional eating, 3.28 ± 0.57 for eating control, 3.15 ± 0.40 for consciousness, 3.05 ± 0.70 for eating discipline, 3.09 ± 0.53 for mindfulness, and 3.58 ± 0.84 for interference (Table 2).

Table 2. Descriptives of total SAAS, MEQ and subscales

	Total	
	Mean ± SD	**Min–max**
SAAS total score	34.57±13.12	16–80
MEQ total score	3.19±0.33	2.03–4.00
Subscales		
Disinhibition	3.26±0.81	1–9
Emotional eating	3.16±0.45	1.6–4.6
Eating control	3.28±0.57	1.25–5
Consciousness	3.15±0.40	1.6–4.2
Eating discipline	3.05±0.70	1–5
Mindfulness	3.09±0.53	1.4–4.6
Interference	3.58±0.84	1–5

The comparisons of SAAS and MEQ scores based on students' individual characteristics are shown in Table 3. Female and male participants had SAAS total scores of 34.70 ± 13.03 and 34.06 ± 13.48, respectively; this difference was statistically insignificant (p>0.05). Female and male participants had MEQ total scores of 3.22 ± 0.33 and 3.08 ± 0.30, respectively; this difference was statistically significant (p<0.05). Female participants had a significantly higher total MEQ score than male participants (p<0.05), as well as significantly higher emotional eating (3.19 ± 0.45 vs. 3.06 ± 0.45), eating control (3.33 ± 0.55 vs. 3.08 ± 0.62), consciousness (3.17 ± 0.40 vs. 3.07 ± 0.40), and mindfulness (3.15 ± 0.52 vs. 2.88 ± 0.52) subscale scores than male participants (p<0.05).

No statistically significant difference was found between ages (F= 2.693, p= 0.069) and university year (F= 2.078, p= 0.102) in terms of SAA. The one-way ANOVA showed a significant difference between the eating discipline subscale score of the MEQ and age (F= 3.988, p= 0.019) and between the eating discipline subscale score and university year (F= 5.106, p= 0.002). To understand which measurement was responsible for the difference, post-hoc analysis was conducted. Students aged 21–23 years were reported to have statistically significantly higher mean scores on the eating discipline subscale of the MEQ compared to students aged 18–20 years (p<0.05). The 1st-year students' mean score on the eating discipline subscale of the MEQ was statistically significantly lower than that of 3rd- and 4th-year students (p < 0.05) (Table 3).

Significant relationships were found between BMI and the SAAS total score (F= 5.478, p = 0.004), the disinhibition subscale (F= 6.208, p = 0.002), and the eating control (F= 6.070, p = 0.002) subscale of the MEQ. The results of the post-hoc analysis determining the source of the difference showed a significant difference between the mean scores of the overweight/obese students and those of the underweight students: overweight/obese students' total mean SAAS scores were statistically significantly higher than those of underweight and normal-weight students (p< 0.05). Additionally, overweight/obese students' mean scores on the disinhibition and eating control subscales of the MEQ were statistically significantly lower than those of underweight and normal-weight students (p<0.05) (Table 3).

The one-way ANOVA revealed a significant relationship between thoughts about own weight and total SAAS (F= 16.897, p = 0.000), total MEQ (F= 4.606, p = 0.010), and the disinhibition (F= 4.931, p = 0.008), eating discipline (F= 4.667, p = 0.010) and mindfulness (F= 5.850, p = 0.003) subscales. To understand which thought was responsible for the differences, Tukey HSD adjustments were used. Those who thought they were overweight/obese had significantly higher mean SAAS scores than underweight and normal students (p<0.05). In addition, those who thought they had a normal weight had higher total mean MEQ scores than those who thought they were overweight. Mean disinhibition scores of students who thought they were overweight were statistically significantly lower than those who thought they were underweight and normal weight (p<0.05). Those who thought they had a normal weight had higher mean scores on the eating discipline subscale than those who thought they were underweight. The results of this analysis also established that mean MEQ scores were highest for those who thought they had normal weight (p<0.05) (Table 3)

Table 3. Comparison of SAAS and MEQ Scores Based on Students' Individual Characteristics (N=479)

Mean±SD		SAAS Total	MEQ Total	Disinhibition	Emotional eating	Eating control	Consciousness	Eating discipline	Mindfulness	Interference
		Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	
Individual Characteristics										
Gender	Female	34.70±13.03	3.22±0.33	3.27±0.84	3.19±0.45	3.33±0.55	3.17±.40	3.07±0.69	3.15±0.52	3.58±0.83
	Male	34.06±13.48	3.08±0.30	3.21±0.70	3.06±0.45	3.08±0.62	3.07±.40	2.97±0.73	2.88±0.52	3.58±0.86
	Z	-0.643	-4.341	-0.789	-2.719	-3.610	-2.791	-1.522	-4.582	-0.227
	*P**	0.520	**0.000***	0.430	**0.007***	**0.000***	**0.005***	0 .128	**0.000***	0.820
Age group in years	18–20 (1)	35.77 ± 13.10	3.16 ± 0.30	3.25 ± 0.86	3.13 ±0 .42	3.25 ±0 .56	3.13 ± 0.40	2.96 ± 0.67	3.08 ± 0.52	3.55 ± 0.79
	21–23 (2)	33.66 ± 13.19	3.22±0 .35	3.26 ± 0.76	3.20 ±0 .49	3.30 ±0 .58	3.18 ±0 .40	3.14 ±0 .71	3.11 ± 0.54	3.59 ±0 .89
	23+ (3)	29.07 ± 9.91	3.18 ± 0.36	3.20 ±0 .89	3.16 ±0 .42	3.50 ± 0.63	3.13 ± 0.52	3.01 ±0 .92	2.84 ± 0.57	3.88 ±0 .74
	F	2.693	2.074	0.042	1.165	1.227	0.958	3.988	1.668	0.982
	*P**	0.069	0.127	0.959	0.313	0.294	0.384	**0.019**	0.190	0.375
	*Difference***							***(1–2) p= 0.014***		

Table 3 (continue). Comparison of SAAS and MEQ Scores Based on Students' Individual Characteristics (N=479)

Mean±SD		SAAS Total	MEQ Total	Disinhibition	Emotional eating	Eating control	Consciousness	Eating discipline	Mindfulness	Interference
		Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	
Individual Characteristics										
University year	1st (1)	35.09 ± 13.14	3.16 ±0 .29	3.28 ± 0.86	3.14 ±0 .43	3.24 ± 0.59	3.14 ± 0.40	2.90 ±0 .65	3.06 ± 0.52	3.64 ±0 .77
	2nd (2)	34.59 ± 12.43	3.16 ±0 .29	3.20 ± 0.73	3.13 ±0 .43	3.28 ± 0.52	3.09 ± 0.37	3.05 ± 0.64	3.10 ± 0.48	3.48 ±0 .71
	3rd (3)	36.13 ± 13.48	3.23 ±0 .38	3.20 ±0 .83	3.22 ± 0.50	3.34 ± 0.53	3.22 ± 0.41	3.17 ±0 .75	3.12 ± 0.55	3.59 ± 1.00
	4th (4)	31.88 ± 13.01	3.22 ±0 .35	3.32 ±0 .79	3.18 ± 0.45	3.30 ± 0.62	3.15 ±0 .42	3.17 ±0 .74	3.10 ±0 .56	3.55 ± 0.86
	F	2.078	1.754	0.628	0.855	0.763	1.821	5.106	0.354	0.691
	*P**	0.102	0.155	0.597	0.465	0.515	0.142	**0.002**	0.786	0.558
	*Difference***							***(1–3) p= 0.005*** ***(1–4) p= 0.009***		
BMI	Underweight (1)	32.00 ± 12.22	3.21 ± 0.32	3.54 ± 1.03	3.18 ± 0.54	3.33 ± 0.57	3.19 ± 0.42	2.88 ± 0.71	3.08 ± 0.62	3.53 ± 0.84
	Normal (2)	34.09 ± 12.84	3.21 ± 0.33	3.26 ± 0.79	3.19 ± 0.45	3.32 ± 0.57	3.16 ± 0.39	3.06 ± 0.72	3.11 ± 0.51	3.58 ± 0.87
	Overweight/ obese (3)	39.09 ± 14.38	3.10 ± 0.31	3.03 ± 0.71	3.07 ± 0.42	3.06 ± 0.58	3.13 ± 0.47	3.11 ± 0.60	3.01 ± 0.55	3.64 ± 0.71
	F	5.478	2.946	6.208	1.917	6.070	0.395	1.942	1.025	0.302
	*P**	**0.004**	0.054	**0.002**	0.148	**0.002**	0.674	0.145	0.360	0.739
	*Difference***	***(1–3) p= 0.008*** ***(2–3) p= 0.010***		***(1–2) p= 0.047*** ***(1–3) p= 0.001***		***(1–3) p= 0.030*** ***(2–3) pp=0 .002***				
Thoughts about own weight	I'm underweight (1)	33.50 ± 12.15	3.15 ±0 .28	3.37 ± 0.93	3.17 ±0 .40	3.29 ± 0.61	3.14 ± 0.44	2.85 ± 0.75	2.96 ±0 .54	3.58 ± .078
	I'm normal (2)	32.55 ± 12.16	3.23 ±0 .31	3.30 ± 0.74	3.18 ± 0.46	3.31 ± 0.54	3.15 ±0 .37	3.11 ±0 .67	3.16 ± 0.48	3.58 ± 0.84
	I'm overweight/ obese (3)	40.83 ± 14.44	3.12 ± 0.38	3.04 ± 0.88	3.12 ± 0.46	3.19 ± 0.62	3.16 ± 0.44	3.02 ±0 .71	3.01 ± 0.61	3.58 ±0 .88
	F	16.897	4.606	4.931	0.660	1.844	0.111	4.667	5.850	0.001
	*p**	**0.000**	**0.010**	**0.008**	0.518	0.159	0.895	**0.010**	**0.003**	0.999
	*Difference***	***(3–1,2) p= 0.000***	***(2–3) p= 0.015***	***(1–3) p= 0.017*** ***(2–3) p= 0.014***				***(1–2) p=0 .007***	***(1–2) p= .0010*** ***(2–3) p=0 .042***	

SD= standart deviation; BMI= body mass index; Z= Mann–Whitney U test, *p<0.05. ** ANOVA followed by Tukey HSD post hoc testing.

The correlations were analysed between SAAS and mindful eating (total score, disinhibition, emotional eating, eating control, consciousness, eating discipline, mindfulness, and interference) (Table 4). We found that SAAS and total MEQ score, disinhibition score, emotional eating score, consciousness score, mindfulness score, and interference score were negatively correlated (p=0.000, p=0.000, p=0.010, p= 0.016, p= 0.008, and p= 0.000, respectively). This indicates that the higher the SAAS scores, the lower the total MEQ score and the disinhibition, emotional eating, consciousness, mindfulness, and interference scores.

Table 4. The Correlation Between SAAS, Total MEQ, and MEQ Subscales Scores

	1	2	3	4	5	6	7	8	9
1- SAAS	1	-0.243 (0.000)**	-.0264 (0.000)**	-0.118 (0.010)**	-0.078 (0.087)	-0.110 (0.016)*	-0.048 (0.293)	-0.121 (0.008)**	-0.169 (0.000)**
2- MEQ		1	0.720 (0.000)**	0.564 (0.000)**	0.459 (0.000)**	0.304 (0.000)**	0.489 (0.000)**	0.621 (0.000)**	0.600 (0.000)**
3- Disinhibition			1	0.323 (0.000)**	0.154 (0.000)**	0.064 (0.160)	0.116 (0.011)*	0.426 (0.000)**	0.496 (0.000)**
4- Emotional eating				1	0.178 (0.000)**	0.061 (0.183)	0.139 (0.002)**	0.205 (0.000)**	0.262 (0.000)**
5- Eating control					1	0.089 (0.052)	0.150 (0.001)**	0.148 (0.001)**	0.119 (0.009)**
6- Consciousness						1	0.056 (0.220)	0.045 (0.331)	0.044 (0.337)
7- Eating discipline							1	0.191 (0.000)**	0.170 (0.000)**
8- Mindfulness								1	0.274 (0.000)**
9- Interference									1

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Simple regression analysis was conducted to investigate the effect of SAAS on total MEQ (Table 5). In the results of the regression analysis, the significance level corresponding to the F value was examined; here, it was seen that the established model is statistically significant (F = 30.043; p<0.05).

When it was looked at the beta coefficient value, t-value, and significance level of the independent variable, it can be seen that SAAS is a significant predictor of MEQ (t = -5.481, p<0.05). Accordingly, SAAS explains %6 of the total variance in MEQ (Adjusted R2 = 0.057).

Table 5: Regression Between Participants' MEQ and SAAS Scores

Dependent	Independent	ß	Standart Error	Beta	t	*p*	F	Model (p)	Adjusted R2
MEQ	Constant	3.410	0.042	-	81.688	0.000	30.043	**0.000***	0.057
	SAAS	-0.006	0.001	-0.243	-5.481	**0.000***			

**p*<0.05

4. Discussion

This study aimed to determine the impact of social appearance anxiety on mindful eating and on various individual characteristics in nursing students. The study results demonstrated no statistically significant difference between genders in terms of SAA. A meta-analysis found that SAA did not differ in relation to gender (25). Additionally, in this study, a statistically significant difference was found between genders in terms of mindful eating: female participants had significantly higher emotional eating (manage emotions when there is a food presence), eating control (adjusting the eating rate), consciousness (focus on eating itself), and mindfulness (eating consciously or nutrition knowledge) subscale scores than male participants. Özkan and Bilici (2021) and Köse and Tayfur (2021) found no statistically significant differences in MEQ scores between male and female participants (20, 26). Köse and Çıplak (2019) found that female participants had more emotional eating and eating discipline than male participants, while male participants had more disinhibition (eating without thinking) and interference (27). Giannopoulou et al. (2020) found that female participants had statistically significantly higher MEQ total scores and in all MEQ subscales compared to male participants (with the exception of the MEQ emotional eating subscale) (8). These findings can be interpreted as females are more conscious about eating due to the thin body image imposed by the media and social media. In the whole world, university groups are exposed to rapid changes and diversities. However, cultural differences and some biological factors (eg, females can respond differently in case of anxiety) may play a role.

In this study it was found that as students' age increased, eating discipline subscale of MEQ increased, similar to other studies (20, 24, 28). Eating discipline includes planning, preparing, balancing, keeping, order, and time factors. Eating disciplines may have increased as students adjust their diet to adapt to the academic routine and social environment required by the university with age. Köse and Çıplak (2019) found that the correlation between age and MEQ scores was not significant (27). In this study, no statistically significant difference was found between age and between university year in terms of SAA. The results of similar study agree with the results of our study—that is, that SAA was not directly associated with age (21).

Overweight/obese students' total mean SAAS scores were statistically significantly higher than those of underweight and normal-weight students (p< 0.05). BMI was also associated with appearance-related social anxiety in a previous study (12). Kılıç and Karakuş (2016) conducted a study with university students and found that SAAS scores were higher in those who were dissatisfied with their weight (14). In this study, overweight /obese students' mean scores on the MEQ disinhibition and eating control subscales were statistically significantly lower than those of underweight and normal-weight students (p< 0.05). Framson et al. (2009) and Ahmad, Sidek, Hamirudin, Bakar, & Unal (2019) found that MEQ scores were inversely related to BMI in community samples (24, 29). Another study reported that overweight and obese weight groups had lower MEQ scores than the other BMI classes (27). Furthermore, Köse and Tayfur (2021) found that overweight and obese students had the lowest MEQ scores (20). Similarly, Pintado-Cucarella and Rodríguez-Salgado (2016) determined that participants who had less awareness of their eating habits had higher BMI values and were more anxious. Low BMI has been associated with stopping eating when one is full, and not eating when one is experiencing negative emotions (30). It appears that overweight/obese people lack self-control while eating, which may be the cause of their weight gain. Additionally, BMI and mindful eating were inversely related, likely as a result of the lack of nutritional awareness. Obese students had double risk of disordered eating attitudes compared to normal weight students (12). Essa et al. (2020) found that female students who had poor mindful eating and a negative body attitude were more prone to eating disorders (13). Gunnell et al. (2017) emphasized that mindfulness may have a beneficial role in body-related issues and disordered eating; relatedly, those participants who demonstrated higher levels of mindful eating had lower BMIs (15). Students who are overweight, anxious, and have lower levels of mindful eating have less control over their eating; these factors greatly raise the risk of developing an eating addiction.

This study also found that those who thought they were overweight/obese had statistically significantly higher mean SAAS scores than those of underweight and normal-weight students. In prior research, self-objectification was related to higher appearance anxiety and, ultimately, lower self-esteem (31). Moya-Garófano and Moya (2019) found that appearance-contingent self-worth was negatively associated with overall self-esteem through self-objectification and appearance anxiety (32).

Additionally, those who thought they had normal weight had highest eating discipline and mindfulness scores. Also, those who thought they were overweight/obese had lowest disinhibition and total mean MEQ scores. These findings show that overweight/obese students cannot

maintain planning, restraint, order and time control about eating. Köse and Çıplak (2020) supported obese students eat without thinking (disinhibition) (28). Spoor and Madanat (2016) found participants, who believed that their current bodies were much larger than ideal, were less likely to attend to their bodies' hunger and satiety cues (33). Making conscious food choices and eating mindfully are all aspects of mindful eating. It's possible that people who believe they have normal weight are more mindful about their eating habits due to the body image. Increased eating awareness has been reported to promote healthy food choices (18), and to help develop positive body image (7). Establishing and sustaining mindful eating habits may be instrumental in planning interventions for overweight and obese university students. Some evidence has revealed the extent to which mindful eating and mindfulness exercises are effective in dealing with eating attacks, emotional eating, and eating disorders (19).

In this study, a negative correlation was found between SAA and mindful eating ($p< 0.01$), indicating that the higher the MEQ scores, the lower the SAAS scores. The regression model showed that nursing students with high SAAS scores also had low MEQ scores. In this study, the SAA level occupies an important place among the factors that affect MEQ score (6%). Levinson and Rodebaugh (2016) revealed that eating disorders and social anxiety are often reported to coexist (11). Those with higher levels of SAA may be inclined to overeat (21). The hypothalamus is the main control center of metabolism. The stress response in our body is controlled by the hypothalamic-pituitary-adrenal axis (HPA axis). The HPA axis determines how to respond (fight, flee, or freeze) to the stressful event, whether it is real or perceived as real. After a stressful event, stress hormones (cortisol, adrenaline, and noradrenaline) are released from the hypothalamus. This stress response becomes a problem when under chronic, long-term physical or psychological stress. In this state, the body continues to produce cortisol, which continues to increase appetite. Repeated stimulation of the HPA axis promotes overeating (34, 35). In humans, cortisol release increases appetite and in most cases shifts dietary behavior to the choice of high-fat and sweet foods (36), resulting in reduced perception of stress in the short term through attenuation of stress biomarkers (37). As a result, stress causes cravings to eat, and eating helps the body regulate its stress response. However, this 'perfect match' causes weight problems and maladaptive behaviors such as repeated consumption of high-calorie foods, lack of control over eating, and overeating (34, 35). Necessary measures should be taken to reduce SAA so as to prevent overeating. Mindful eating reduces the relationship between disordered eating conditions and disordered eating behaviors. In addition, it has been found to be effective in reducing stress, weight loss, obesity and eating disorders related to body weight. Gaining awareness of one's eating habits, in particular, helps people learn to detect and manage their emotional states. This increases the effectiveness of body weight control treatment (38). By encouraging lifelong habits, mindful eating should be a significant component of nutrition education in order to change one's relationship with food (39).

4.1. Limitations

This study was that it was applied to a single sample group; therefore, the study sample did not cover all students, and it cannot be generalizable even to all university students in the country. The study's weakness was that it didn't specifically look at individuals with anxiety disorders, eating disorders, or professional environment, all of which are potentially problematic. A comparative analysis would provide data that could deepen understanding of the effects of social and professional environments on SAA and mindful eating. Another limitation was that the study's self-reported measures on mindful eating and SAA might not fully reflect the actual state of the participants. Despite these limitations, we maintain that this study contributes to a more comprehensive understanding of the connections between eating behaviors and social appearance anxiety.

5. Conclusion

The results point to a negative correlation between social appearance anxiety and mindful eating indicating that the higher the MEQ scores, the lower the SAAS scores. Female participants had significantly higher emotional eating, consciousness and mindfulness subscale scores than male participants. Overweight/obese students' mean scores of disinhibition and eating control subscales of MEQ were statistically lower than those of underweight and normal weight students. Those who think they were overweight/obese had statistically higher SAAS and lower total MEQ scores. Further, it was found that Overweight /obese students had higher social appearance anxiety. Students who have lower SAAS scores may manage emotions when there is a food presence, planning, self-control when eating, nutritional awareness and eating consciously.

6. Contribution to the Field

Our results may be a reference for nursing students to gain a comprehensive understanding of the connections between eating behavior and social appearance anxiety. The study findings suggested that future studies should focus on in-depth investigation of mindful eating, appearance anxiety and the development of eating disorders in university students. These results indicate that interventions for anxiety might be useful to prevent both obesity and eating disorder. Although there is a nutrition lesson in the nursing curriculum, the faculty could create an educational environment to increase awareness of mindful nutrition and reduce anxiety for nursing students. Mindful eating is the application of mindfulness to the practice of eating, and it appears to be helpful for nurse well-being. Ensuring nursing students' well-being may be beneficial for the patients they interact with on a daily basis and individuals to society. Interventions targeted to gain healthy eating habits and stress reduction may require collaboration with other disciplines and will help university nursing students to promote health.

Young adulthood is an important stage of life since it is during this time that lifetime habits are formed. Making an individual intervention and determining the status of mindful eating are crucial. Mindful eating training and interventions are recommended for university students within the framework of nutrition education and nutrition courses.

Ethical Aspect of the Research

Ethical approval was obtained from the Noninvasive Research Ethics Board of the University (date: April 04, 2019, Number: 8), along with permission from the Faculty

of Health Sciences. Before the data were collected, the purpose of the study was explained to the participants, and informed consent was obtained from all participants involved in the study.

Authorship Contribution

Concept: HB, BÇ; **Design:** HB, BÇ, ÜD; **Supervision:** HB, BÇ, ÜD; **Funding:** HB, BÇ, ÜD; **Materials:** HB, BÇ, ÜD; **Data Collection/ Processing:** HB, BÇ, ÜD; **Analysis/ Interpretation:** HB, BÇ, ÜD; **Literature Review:** HB, BÇ, ÜD; **Manuscript Writing:** HB, BÇ, ÜD; **Critical Review:** HB, BÇ, ÜD.

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