

## Sakarya University students' fat phobia levels and attitudes towards obese individuals and their correlation with healthy lifestyle behaviours: Knowledge, attitude and practice (KAP) study

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### Abstract

**Objectives:** To evaluate fat phobia levels and attitudes towards obese person among university students to determine their correlation with healthy lifestyle behaviour.

**Methods:** The knowledge, attitude and practice study was conducted at Sakarya University, Turkey, between May and December 2015, and comprised students of either gender. Data was collected by using the socio-demographic form, fat phobia scale, attitudes toward obese persons scale, and health-promoting lifestyle profile II scale. SPSS 16 was used for data analysis.

**Results:** Of the 2100 students, 1056(50.3%) were male and 2067(98.4%) were in the 17-26 years age group. The mean fat phobia scale score was  $3.72 \pm 0.63$  and mean attitudes toward obese persons scale score was  $59.95 \pm 0.63$ . Relationship between fat phobia scale, attitudes toward obese persons scale, and health-promoting lifestyle profile II scale scores was significant ( $p < 0.05$ ).

**Conclusion:** Fat phobia moderately existed among the students.

**Keywords:** Attitudes, Fat phobia, Obesity, Student, University. (JPMA 68: 1358; 2018)

### Introduction

Obesity is a growing problem around the globe and is an established risk factor of many diseases of which some may prove fatal. Obesity is defined by World Health Organisation (WHO) as abnormal or excessive fat accumulation that may impair health. A person with a body mass index (BMI) of 30 or more is generally considered obese.<sup>1</sup> Abdominal obesity classification was performed by considering waist circumference values of  $\geq 80$ cm for women and  $\geq 94$ cm for men, specified by International Diabetes Federation (IDF) in waist circumference measurements.<sup>2</sup> Obesity has been reported to contribute to the development of disorders like cancer, diabetes, respiratory problems, cerebrovascular and cardiovascular diseases as well as psychosocial problems such as obsessive-compulsive disorder (OCD), social phobia, anxiety, depression, loneliness, exclusion, stigmatisation, and social isolation.<sup>3,4</sup>

Obese individuals face fat-phobic behaviours and negative attitudes in many areas of their lives such as family, work, health and education in childhood, adulthood and old age periods, and may be exposed to prejudice and discrimination.<sup>5-7</sup>

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The fact that fat phobic behaviours, stereotyped thoughts towards overweight people, signifying a pathological fear of being overweight, feeling antipathy towards being overweight, and disliking weight as well as negative attitudes towards obese individuals are evaluated by nurses among university students with a high potential to be involved in all areas of life. It is important as the first step in prevention of these problems which obese individuals can encounter. Many studies have examined fat phobia scale (FPS) levels and attitudes toward obese person (ATOP) among students in the world but no research has determined their correlation with healthy lifestyle behaviours. Comprehensive studies involving all education units are very limited and any study conducted on this subject, particularly in Turkey, has not been found. The current study was planned to evaluate FPS levels and ATOP among university students to determine their correlation with healthy lifestyle behaviours.

### Subjects and Methods

The knowledge, attitude and practice (KAP) study was conducted at Sakarya University, Turkey, between May and December 2015, and comprised students of either gender.

Data was collected after obtaining approval from the institutional ethics committee. Informed consent was obtained from all the subjects before handing them the questionnaires and measuring waist and hip

circumference.

Socio-demographic form was used as data-collection tool. FPS,<sup>8</sup> ATOP<sup>9</sup> and Health-Promoting Lifestyle Profile II (HPLP II)<sup>10</sup> were also used. The socio-demographic form consisted of questions about the descriptive characteristics and anthropometric measurements of the students, including waist circumference, hip circumference and BMI.

Abdominal obesity classification was done by considering waist circumference values of 80cm or above for women and 94cm or above for men, as specified by IDF.<sup>2</sup> BMI values were categorised based on criteria determined by WHO, and a person with a BMI of 30 or more was considered obese.<sup>1</sup>

The last power analysis in the statistical power analysis programme was calculated above 90% in comparisons made for all variables of post-hoc power.

SPSS 16 was used for data analysis. Normality of data was checked to determine the tests to be used in evaluating the collected data. Since normality test determined that the scores of FPS (z: 2.412, p <0.001) and ATOP (z: 1.524, p <0.05) did not meet normal distribution pattern, nonparametric tests, Mann Whitney U and Kruskal Wallis H test were used to analyse the data. Pearson's correlation coefficient analysis was used to assess relationships between the scales.

**Table-2:** Fatphobia level and attitudes towards obese persons according to descriptive characteristics of students.

Characteristics	FPS Mean (SD)	Z, x <sup>2</sup> ve p-value	ATOP Mean (SD)	Z, x <sup>2</sup> ve p-value
<b>Gender</b>				
Female			3,80 (0,63)	Z=-5,874
Male			3,65 (0,63)	p=0,000***
<b>Education Level</b>				
Undergraduate			3,76 (0,61)	Z=-3,669
Associate degree students			3,65 (0,66)	p=0,000***
<b>Department</b>				
Social Sciences			3,70 (0,65)	x <sup>2</sup> =6,034
Science			3,79 (0,59)	p=0,110
Health Sciences			3,75 (0,60)	
Educational Sciences			3,72 (0,63)	
<b>Class</b>				
First			3,74 (0,65)	x <sup>2</sup> =16,519
Second			3,65 (0,62)	p=0,001**
Third			3,78 (0,63)	
Fourth			3,80 (0,62)	
<b>Is there overweight/obese individual in your family or relatives?</b>				
Yes			3,71 (0,61)	Z=-0,400
No			3,72 (0,64)	p=0,689

FPS: Fat phobia scale

ATOP: Attitudes toward obese persons scale.

Z: Man Whitney U, x<sup>2</sup>:Kruskall Wallis H test, \*p<0,05, \*\*p<0,01, \*\*\*p<0,001.

## Results

Of the 2,100 students, 1056(50.3%) were male, 2067(98.4%) were in the 17-26 years age group, 1378(65.6%) had undergraduate education, 1034(49.2%) studied in the department of social sciences, and 733(34,9%) were students in their first year. It was determined that 604(28.8%) were overweight/obese at any stage of their life and 723(34.4%) had overweight/obese individuals in their family/relatives.

The mean height, body weight, BMI, waist circumference, hip circumference, and waist/hip ratio of the students were 1.71±0.09cm, 65.37±13.53 kg, 22.26±3.53kg/m<sup>2</sup>, 77.94±11.48 cm, 97.22±8.84 cm and 0.80±0.09, respectively and 257(12.2%) were overweight, 1441(68.6%) had normal weight, 340(16.2%) were

**Table-1:** Mean scores on FPS, ATOP and HPLP II (N=2100).

Scale	Mean (SD)	Range Interval (Min. - Max.)
FPS	3,72 0,63	1,64-5,00
ATOP	59,95 0,63	57,60-62,25
HPLP II	2,45 0,36	1,42-3,87

FPS: Fat phobia scale

ATOP: Attitudes toward obese persons scale

HPLP II: Health-promoting lifestyle profile II scale

x<sup>2</sup>: Kruskall Wallis H test, Z:Mann Whitney U \*p<0,05, \*\*p<0,01, \*\*\*p<0,001.

**Table-3:** Pearson correlation between FPS, ATOP, HPLP II and subscale.

Scale and subscale	FPS	Scale	rs	p
	Rs	ATOP		
FPS	-	-	-0,281	0,000***
Total HPLP II	0,007	0,745	-0,098	0,000***
HPLP II HRS subscale	-0,027	0,216	-0,084	0,000***
HPLP II PAS subscale	-0,003	0,888	-0,079	0,000***
HPLP II NS subscale	-0,030	0,166	-0,062	0,004*
HPLP II SG subscale	0,045	0,038*	-0,080	0,000***
HPLP II ?R subscale	0,082	0,000***	-0,062	0,005
HPLP II SM subscale	-0,042	0,053	-0,054	0,013*

FPS: Fat phobia scale

ATOP: Attitudes toward obese persons scale

HPLP II: Health-promoting lifestyle profile II scale

rs: Pearson's correlation, \*p&lt;0,05, \*\*p&lt;0,01, \*\*\*p&lt;0,001.

overweight, 62(2.95%) were obese and 338(16.1%) had abdominal obesity.

FPS mean score was 3.72 0.63, ATOP mean score was 59.95 0.63, and HPLP II mean score was 2.45 0.36 (Table-1).

FPS score of the female students was higher compared to the male students ( $p < 0.001$ ), but ATOP scores did not show a statistically significant difference in terms of gender ( $p > 0.05$ ) (Table-2). While the FPS levels of undergraduate students was higher than those of associate degree students ( $p < 0.001$ ), there was no significant difference in terms of attitudes towards obese individuals ( $p > 0.05$ ). No significant difference was determined between FPS and ATOP mean scores of the students in terms of their departments ( $p > 0.05$ ).

FPS levels of 2nd year students were lower compared to 1st year students ( $p = 0.007$ ), 3rd year students ( $p = 0.002$ ), and 4th year students ( $p = 0.001$ ).

There was no statistically significant difference between FPS levels of the students and their attitudes towards obese individuals in terms of having overweight/obese people in their family or relatives ( $p > 0.05$ ).

There was no statistically significant difference between FPS and ATOP mean scores in terms of BMI ( $p > 0.05$ ). However, FPS mean scores of underweight students and ATOP mean scores of obese students were higher ( $p < 0.05$ ).

In the correlation analysis applied without grouping according to BMI, a statistically significant negative weak correlation was found between mean BMI and FPS levels ( $p = 0.029$ ). No significant correlation was found between mean BMI and ATOP scores ( $p = 0.67$ ).

There was a negative weak correlation between mean FPS and ATOP scale scores (Table-3). No significant correlation was found between FPS and the overall HPLP II and its subscales health responsibility (HR), physical activity (PA), nutrition (N), stress management (SM) ( $p > 0.05$ ). A positive weak correlation between the FPS and the spiritual growth (SG) subscale ( $p < 0.05$ ) and a statistically positive high correlation between FPS and the interpersonal relations (IR) subscale ( $p < 0.001$ ) were determined.

There was a very high negative correlation between ATOP scale and the general score of HPLP II ( $p < 0.001$ ), a high negative correlation between ATOP scale and HR, PA and SG subscales ( $p < 0.001$ ), and a negative moderate correlation between the ATOP scale and N ( $p < 0.01$ ), IR ( $p < 0.01$ ) and SM ( $p < 0.05$ ) subscales.

## Discussion

Studies have reported that fat phobia not only causes stereotypes and negative attitude towards obesity, but also induces pathological fear of gaining weight and disliking people with more weight as well.<sup>11-13</sup> In the present study, it was determined that FPS mean score of the students was  $3.72 \pm 0.63$  and the students had moderate level of phobia. Numerous studies also revealed that FPS mean score of the students varied between 3.64 and 3.70 and the students had moderate level off at phobia similar to the present study.<sup>11-15</sup>

In this study, the ATOP mean score of the students was also observed to be 59.95 0.63 compared to another study in which ATOP mean score was found to be 57.4 12.9 with 302 students in Turkey<sup>9</sup> and 54.52 15.14 in another study on 93 obese patients abroad,<sup>16</sup> which are similar to the present study. In many studies conducted abroad, ATOP

mean scores were found to be higher than the mean score obtained in the present study.<sup>13,17</sup> This difference with the present study may be associated with cultural differences and changes in the education programme.

It was determined that while the FPS scores of female students were statistically significantly higher than the male students ( $p < 0.001$ ), ATOP mean scores did not change at a statistically significant level in terms of the gender ( $p > 0.05$ ). Likewise, in another study using FPS in Turkey, it was determined that the FPS level of women was statistically significantly higher compared to men.<sup>18</sup> In two different studies, it was found that the FPS levels of women were higher than men but there was no statistically significant difference.<sup>11,19</sup> In some studies, it was observed that gender did not affect the FPS level.<sup>20,21</sup> The fact that slim, weak, and tall women highlighted by the media are considered beautiful is thought to make women feel ugly and unattractive when they gain weight, leading them to be dissatisfied regardless of their weight and to have a higher level of fat phobia. In our study, the gender variable did not affect ATOP mean score, which is compatible with literature.<sup>22</sup> In contrast to the present study, it was reported in studies using different scales that gender affected attitudes towards obese individuals.<sup>23-25</sup> While some of the previous studies support the findings of this study on FPS and ATOP scores related to the gender variable, some do not support. This may be associated with the fact that studies were conducted in different groups or only with the students studying in health-related departments, or using different scales. We think that the actual effect of gender variable on fat phobia and ATOP can be determined by randomised controlled studies with larger samples.

While FPS levels of the undergraduate students were found to be significantly higher compared to the associate degree students in terms of type of education ( $p < 0.001$ ), no significant difference was determined between ATOP in terms of type of education ( $p > 0.05$ ). No study comparing bachelor and associate degree programmes was found in literature. The reason of this difference in our study could be the fact that the students receiving undergraduate education have more courses and longer university life compared to the associate degree students and while most of undergraduate students are mostly on the same campus, the associate degree students mostly stay outside of the campus and inhabit the districts.

In the present study it was found that there was a significant difference between FPS mean scores of the students in terms of the year they were studying in ( $p < 0.01$ ) and the group causing the difference was the

2nd year students. One study did not reveal any significant difference between FPS levels in terms of the year of study.<sup>19</sup> The difference in the result of the present study may be due to the fact that almost half of the second year students were last year associate degree students. Similar to the present study, it was also determined in two earlier studies that the years they were studying in did not affect the attitudes towards obesity.<sup>19,25</sup>

It was observed that there was no significant difference between the students' BMI, FPS and ATOP mean scores ( $p > 0.05$ ), but FPS scores of slim students were higher than those of normal weight, overweight and obese students. In the correlation analysis applied without grouping according to BMI, there was a negative weak significant correlation between BMI and FPS mean scores, and, as BMI decreased, the students became more fat-phobic. Similar to the present study, in another study it was found that there was a very weak negative significant correlation between FPS and BMI.<sup>17</sup> According to one of the studies, slim students had higher FPS levels than obese students but there was no significant difference.<sup>18</sup> It was also determined that BMI did not affect FPS level in one of the studies with 671 medical students.<sup>12</sup> In one study, it was determined that individuals with low BMI had high levels of fat phobia, and the results of the present study are compatible.<sup>15</sup> Similar to the results of the present study concerning the effect of BMI on ATOP, it was also found in one study that BMI did not affect attitudes towards obese individuals.<sup>25</sup>

In this study, it was determined that there was a weak negative correlation between FPS and ATOP scales. While no significant correlation was found between FPS and the overall HPLP II and its subscales HR, PA, N, SM ( $p > 0.05$ ), a positive weak correlation between the FPS and the SG subscale ( $p < 0.05$ ) and a statistically positive high correlation between the FPS and the IR subscale ( $p < 0.001$ ) were determined. Similar to the result of this study, another research revealed a significant negative weak correlation between FPS and ATOP.<sup>17</sup> Although no study has been found investigating the relationship between the healthy lifestyle behaviours and fat phobia, individuals showing a healthy lifestyle behaviour are concerned about obesity, a factor that may affect their health and this situation may have caused them to have high FPS levels.

There were a negative very high correlation between the ATOP scale and the general score of HPLP II ( $p < 0.001$ ), a high negative correlation between ATOP scale and HR, PA and SG subscales ( $p < 0.001$ ), and a negative moderate correlation between the ATOP scale and N ( $p < 0.01$ ), IR ( $p$

<0.01) and SM ( $p < 0.05$ ) subscales. People who pay attention to their habits and behaviours in every field in order to live a healthy life think that obesity is usually caused by their wrong practices in numerous areas such as nutritional habits, physical activity and stress management. For this reason, obese individuals are blamed for their overweight due to their own irresponsibility and weakness of will. In the light of this study, we suggest that this may be the reason why students with high HPLP II mean scores had a more negative attitude towards obese individuals.

In order to decrease FPS levels in university students and to make their ATOP more positive, it is recommended to arrange curriculum focussing on obesity, the causes of obesity (obesity is affected by not only individual's own responsibility but also genetic and environmental factors), social problems experienced by obese individuals in the community and social consequences of these problems on obese individuals, to highlight these subject on the social media platforms frequently used by students, and to organise seminars. Conducting studies investigating correlation between FPS, ATOP and healthy lifestyle behaviours would contribute to the literature.

## Conclusion

University students had a moderate fat phobia and negative attitudes towards obese individuals and many variables affected this situation.

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