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The effect of watching food videos on social media on increased appetite and food consumption

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ABSTRACT

Introduction: Poor diet and eating habits cause obesity in young people. Watching great images and different food videos on social media (SM) can negatively affect body image and increase diet/restriction. SM may contribute to binge eating behavior by increasing the desire to consume food.

Method: A questionnaire was applied to Osmaniye Korkut Ata University students between December 2021 and January 2022. Survey results investigating students' demographic (age, gender) data, anthropometric measurements and social media usage were recorded.

Results: During the study, 1196 people were contacted face to face. SM users are grouped according to their food video viewing status. 875 (78.2%) of SM users watched food videos (group 1), 243 (21.7%) did not (group 2). There was a statistically significant difference between the groups in terms of gender, body weight, BMI and duration of social media use (p<0.001).

Discussion: It is stated that SM has norms that encourage acceptance of unhealthy eating behavior. It addressed the relationship between perceived eating norms communicated through SM and the eating habits and body weights of young adults. In this study, we showed that eating behavior and BMI can be affected by SM.

Conclusion: Watching food videos in SM and SM causes an increase in urge to eat and BMI.

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INTRODUCTION

The university period is when eating habits are shaped due to environmental factors and especially carries a high risk in terms of gaining wrong eating habits[1]. Malnutrition in youth is a significant risk factor for obesity, chronic diseases such as diabetes, some types of cancer, and coronary heart disease. Therefore, it is necessary to regulate the diet for a healthy and balanced diet. Furthermore, it is necessary to determine the factors that cause malnutrition and control or eliminate them[2].

In recent years, individuals can share by creating interactive content, open to sharing and without limitations, with web 2.0 technology. Thanks to this technology, people can share as much as they watch online content. All online sharing constitutes social media. In order to increase the interaction of individuals on social media (SM), the sharing of food videos for advertising purposes is increasing[3]. Watching SM perfect images and different food videos can negatively affect body image and increase diet/restriction. SM may cause excessive eating behavior by increasing the desire and frequency of food consumption[4].

There is a lot of food and nutrition content on SM with conflicting messages. The young adult population (18-24 years old) is most affected by this condition[5]. It is stated that although young adults know the actual nutritional value of organic food, they are interested in specially produced new foods that are considered healthy[4]. In addition, because they have quick access to many recipes and information through social media, their eating and cooking habits increase[6]. However, this increase is not always positive. Unhealthy cooking techniques encouraging the use of unhealthy products

can lead to an unhealthy diet by causing the use of foods with excess calories[7].

While there are studies in the literature showing that social media affects individuals, especially regarding reducing food intake and losing weight, the number of studies that social media causes weight gain is limited[8]. Therefore, in this study, we aimed to investigate watching food videos on social media on appetite, food consumption, and body mass index (BMI).

MATERIAL – METHODS

Between December 2021 and January 2022, our questionnaire was applied face-to-face to a total of 1160 university students, 606 women and 554 men, with an average age of 21.8, studying at Osmaniye Korkut Ata University. Participation in the study is voluntary. Therefore, undergraduate and associate degree students studying at Osmaniye Korkut Ata University and wishing to participate in the study were included in our study. Those who did not want to participate in the study and were not students were excluded.

Anthropometric measurements were made and recorded by the person applying the questionnaire using a weight-height scale. then body mass index was calculated using the formula kg/m^2.

The demographic (age, gender) data of the students included in the study, anthropometric measurements, and survey results investigating the use of SM were recorded. Bodyweight (kg), height (cm) and body mass index (BMI) (kg/m2) were recorded in anthropometric measurements. BMI was calculated as body weight/height squared. In the survey questions, there are questions about SM use, frequency of SM use, the status and frequency of watching food videos, and the changes affected after watching the food video.

Study Design

While the hypothesis of the study was planned; It has been established that watching food videos on social media has no effect on appetite and food intake.

SM usage status and frequency of use of participants will be determined. First, participants who use SM will be questioned about watching food videos in SM. Then, the food video will be grouped and compared as viewers and non-watchers. Next, the viewers of the food video will be grouped and compared as men and women. After these groupings, the participants will be compared according to the demographic, anthropometric, and survey data investigating the use of SM after the groupings.

Statistical analysis

Parametric tests were used without the normality test due to the compatibility of the Central Limit Theorem[9]. The mean and standard deviation are defined with their minimum and maximum values while performing the statistics of continuous data on the scales. While defining categorical variables, it was defined with frequency and percentage. The Chi-square test was used for categorical variables. Student's t-test was used to compare the means of two independent groups. The Pearson test calculated the correlation coefficients and statistical significance of two continuous variables. The statistical significance level of the data was taken as p<0.05. MedCalc program and www.e-picos.com were used to evaluate the data.

Ethics Committee Approval

The study was presented to Osmaniye Korkut Ata University Health Sciences Research Ethics Committee, and ethics committee approval was obtained for the study (ethics committee no: 2021-11-102).

RESULTS

One thousand one hundred ninety-six (n=1196) people were contacted face-to-face on the Osmaniye Korkut Ata University campus during the study. A total of 36 people were excluded because nine people were not university students, and 27 did not accept participating in the study. Questions were asked, and a questionnaire was applied to 1160 participants who met the study inclusion criteria and wanted to participate in the study.

The mean age of the participants was 21.8±1.8 years. Of the participants, 606 (52.2%) were female, and 554 (47.7%) were male. While 1118 of the participants used SM, 42 of them were not using SM. The rate of SM use of the participants was 98.5% in women and 94.1% in men. Watching food videos in SM was 72.1% for women and 85.4% for men. The rate of SM use was statistically significantly higher in women, and the rate of watching food videos in SM was statistically significantly higher in men (p<0.001) (table 1).

Participants using SM were divided into two groups according to their food video watching status. Of the SM users, 875 (78.2%) watched food videos (group 1), 243 (21.7%) did not (group 2). Demographic, anthropometric, and SM usage habits of the groups are given in table 2. There was no difference between the groups regarding age and height (p>0.05). There were differences between the groups in terms of gender distribution, weight, BMI, and SM use (p<0.001) (table 2).

Participants who used SM and watched food videos were evaluated within themselves. Food video viewers were divided into two groups according to gender. Of those watching the food video, 430 (49.1%) were female, and 455 (50.9%) were male. The mean age of women was 21.9±1.9 years and 21.6±1.7 for men (table 3).

Table 1. Social media usage and food video watching rates of the participants

	All patient (n=1160)	Woman (n=606)	Male (n=554)	p value
	x±SD	x±SD	x±SD	
Age	21.8±1.8	21.4±1.7	22.1±1.5	0.62*
	n (%)	n (%)	n (%)	
Do you use social media?				
Yes	1118 (96.5)	597 (98.5)	521 (94.1)	**<0.001****
No	42 (3.5)	9 (1.5)	33 (5.9)	
Do you watch food videos on social media?				
Yes	875 (78.3)	430 (72.1)	445 (85.4)	**<0.001****
No	243 (21.7)	167 (27.9)	76 (14.6)	

*Student t test, **Chi square test (p<0.05).

Table 2. Data on demographic, anthropometric and social media usage time of the participants

	All patient (n=1118)	Group 1 (Watching food video) (n=875)	Group 2 (Not watching a cooking video) (n=243)	p value
	x±SD	x±SD	x±SD	
Age (year)	21.9±1.8	21.7±1.9	22.3±1.5	0.23*
Weight (kg)	70.96±9.75	73.44±8.71	62.05±7.88	**<0.001***
Length (cm)	165.89±6.83	164.92±6.62	166.16±6.85	0.17*
BMI (kg/m^2)	25.77±3.14	26.62±2.92	22.74±1.75	**<0.001***
How many minutes do you use social media per day?	160.82±64.03	181.53±54.21	86.26±34.36	**<0.001***
How many minutes a day do you watch food videos?	38.27±19.16	38.27±19.16	-	-
	n (%)	n (%)	n (%)	
Gender				
Woman	597 (53.4)	430 (49.1)	167 (68.7)	**<0.001****
Male	521 (46.6)	445 (50.9)	76 (31.3)	

*Student t test, **Chi square test (p<0.05) BMI: Body Mass Index.

The duration of SM use was 210.19±42.13 minutes in women and 153.84±50.05 minutes in men. The duration of watching food videos in SM was 29.92±12.58 minutes in women and 45.35±30.91 minutes in men. While women used SM longer than men, men watched food videos longer (p<0.001).

It was stated that the most common reason for watching food videos in SM was that the videos they watched were advertisements or recommended videos (62.1%). Other reasons were recorded as friend posts (22.3%) and requests to watch (17.6%). Immediately after watching the food video, 66.7%

Table 3. Factors affecting social media users watching food videos

	Group 1 (n=875)	Female (n=430)	Male (n=445)	p value
	x±SD	x±SD	x±SD	
Age	21.7±1.8	21.9±1.9	21.6±1.7	0.68*
How many minutes a day do you use social media?	181.53±54.21	210.19±42.13	153.84±50.05	**<0.001***
How many minutes a day do you watch food videos?	38.27±19.16	29.92±12.58	46.35±30.91	**<0.001***
	n (%)	**n (%)**	**n (%)**	
Why are you watching a food video?				
I want to watch	155 (17.6)	82 (19.1)	73 (16.4)	0.21**
Randomly pops up	544 (62.1)	262 (60.9)	262 (58.9)	
my friends are sending	196 (22.3)	86 (20)	110 (24.7)	
Does your appetite increase after the food video?				
Yes	617 (70.5)	309 (71.9)	308 (69.2)	0.39**
No	258 (29.5)	121 (28.1)	137 (30.8)	
Do you eat when your appetite increases after the food video?				
Yes	588 (95.3)	287 (92.9)	301 (97.7)	**0.004***
No	29 (4.7)	22 (7.1)	7 (2.3)	
Can you eat right after the video?				
Yes	619 (70.7)	287 (66.7)	332 (74.6)	**0.01***
No	256 (29.3)	143 (33.3)	113 (25.4)	
Do you feel regret for eating after the food video?				
Yes	338 (54.6)	209 (72.8)	129 (38.9)	**0.01***
No	281 (45.4)	78 (27.2)	203 (61.1)	
What kind of food do you eat after watching the video?				
Fast food	372 (60.1)	169 (58.9)	203 (61.1)	0.08**
Local foods	118 (19.1)	55 (19.2)	63 (18.9)	
I do not choose food	129 (20.8)	63 (21.9)	66 (19.9)	
Do you have relatives who watch and share food videos?				
Yes	313 (35.8)	139 (32.3)	174 (39.1)	**0.04***
No	562 (64.2)	291 (67.7)	271 (60.9)	
Can you share a cooking video?				
Yes	293 (33.5)	127 (29.5)	166 (37.3)	**<0.01***
No	582 (66.5)	303 (70.5)	279 (62.7)	
Do you think that cooking videos suddenly make you eat?				
Yes	434 (49.6)	253 (58.8)	181 (40.7)	**<0.001***
No	441 (50.4)	177 (41.2)	264 (59.3)	

*Student t test, **Chi square test (p<0.05).

of women and 74.6% of men were eating. Men are more affected by food videos than women (p=0.01).

When we asked, "Does your appetite increase after watching a food video?" 70.5% of the participants answered yes, and 29.5% answered no. 92.9% of women and 97.7% of men, whose appetite increased after watching a food video, ate after the video. Men were statistically more affected than women due to increased appetite after the food video, and they ate (p=0.004).

When the participants who ate after the food video were examined, 72.8% of the women thought that they took food calories even though they did not need it because they ate. This rate was 38.9% in men. Women had more regrets than men for eating statistically significantly (p=0.01).

When the food types that the participants ate after the food video were examined, the participants preferred fast food most frequently (60.1%). 20.8% of the participants stated that they ate whatever they could without distinguishing between food after watching the food video.

The presence of a person watching a food video near the participants and their sharing were asked. It was determined that 32.3% of women and 39.1% of men have a relative who watches food videos in their social circle. It was determined that 29.5% of women and 37.3% of men shared food videos in SM. Compared to women, men shared food videos in SM and had more friends who shared food videos in their social circle (p<0.01, p=0.04, respectively) (Table 3).

"Do you think watching food videos in SM suddenly makes people feel like eating and eating?" he was asked. 58.8% of women and 40.7% of men answered "yes" to this question. Women stated that they were more affected in this regard (p<0.001).

Participants' BMI and SM use efficiency were evaluated. A correlation was found between BMI and the duration of SM use (correlation coefficient=0.485) and time to watch food video in SM (correlation coefficient=0.691) (p<0.001) (table 4).

DISCUSSION

It is stated that SM use or exposure to image-related content is associated with higher body dissatisfaction, diet/local food or overeating, or healthy food choices[10]. Through SM, a relatively new format, social norms regarding food choice

and intake can now be communicated[8]. Of the 107 food-related posts analyzed in SM, 75% were unhealthy. This indicates that exposure to energy-dense foods is high in SM. SM can expose its users to these posts and influence their eating behavior[11].

According to the SM algorithm, the videos watched in SM are more likely to come across videos with similar content. As food videos are watched, they cause many different types of food videos to be watched quickly. Our study stated that the most common reason for watching food videos in SM was that the videos they watched were advertisements or recommended videos (62.1%). Other reasons were recorded as friend posts (22.3%) and requests to watch (17.6%). Immediately after watching the food video, 66.7% of women and 74.6% of men were eating. Men are more affected by food videos than women (p=0.01). In a study, participants (81%) stated a relationship between food and SM. 38% of participants reported that SM was associated with increased food choices. SM participants (28%) stated that they also use pictures of their meals as SM sharing places. 32% of the participants also stated that SM could be a source of distraction at mealtimes and when making food choices[12].

In our study, 58.8% of women and 40.7% of men state that they suddenly desire to eat after watching food videos, and 60.1% of them consume fast food in total. Studies emphasize that individuals' eating behaviors are highly affected by environmental stimuli, and even the type of food changes accordingly[13]. Therefore, respondents indicate that they will adjust their intake to match the consumption of others. For example, in cases where others reported consuming too much fruit and vegetables or less junk food, participants reported eating more fruit and vegetables or consuming less junk food[13-15]. In another study, it was stated that those who were exposed to descriptive norms stating that other employees chose vegetables with their meals for six weeks increased the number of those who chose vegetables with their meals at the end of 6 weeks[16].

In our study, 875 (78.2%) of SM users were watching food videos (group 1), 243 (21.7%) were not (group 2). Weight, BMI, and duration of SM use were statistically significantly higher in the group that watched the food video (group 1) compared to group 2. In the gender evaluation, while men were more common in group 1, women were more common in group 2 (p<0.001). In addition, in our study, while women

Table 4. Correlation of social media use and watching food videos with BMI

	x±SD	Correlation Coefficient	p value*
Social media usage time	160.87±63.96	0.485	**<0.001**
Food video watching time	38.21±19.16	0.691	**<0.001**

*Paired samples t-test (p<0.05).

used SM longer than men, men watched food videos for longer (p<0.001).

In our study, "Do you think that watching food videos in SM suddenly creates a feeling of eating and makes people eat?" 58.8% of women and 40.7% of men answered "yes". Women stated that they were more affected in this regard (p<0.001). Vaterlaus et al. reported in their study that viewing food videos in young people may lead to feeling hungry, eating, or restricting oneself[6].

In our study, the feeling of eating suddenly after the food video was higher in women (p<0.001). Mollen et al. stated in their study that food choices could be affected by social norms as well as whether individuals like it or not. It is emphasized that social approval may be more important than the individual's pleasure[15].

Our study determined that there was a positive correlation between BMI and the duration of SM use and the duration of watching food videos in SM (p<0.001). Most of the studies on SM have investigated SM addiction and screen addiction in young people. It is associated with BMI due to SM's reduced movement and excessive eating in front of the screen[17]. Young people are highly influenced by the interactive nature of SM back and forth. Clark et al. found in their study that obese youths in SM communication were in transmission. It suggests that the social environment may affect body weight[18]. The meals and shares of people in our social circle affect each other. It is stated that this interaction may affect body weight[19,20].

Young adults often prefer SM for nutrition and food. They use their motives to inform others about eating through restaurant reviews, recipes, and pictures[21]. McFerran et al. reported that those who follow obese individuals in SM are higher than those who follow thin individuals[22]. Studies have shown that if SM affects eating behavior, it may impact body weight. It has been reported that individuals in weight loss programs with norms that encourage acceptance of unhealthy eating behavior in SM have less weight loss[23,24]. Therefore, it has been stated that SM can also affect body weight if social norms encourage the consumption of certain foods. However, few studies have addressed the relationship between perceived eating norms communicated through SM and young adults' eating habits and body weights.

Our study showed that besides eating behavior, BMI could be affected by SM. However, the sample size in this study is significant, and there are limitations as there is information based on the participants' statements in general. Therefore, it was accepted based on the participants' statements without measuring the weight and height. In addition, looking at the waist to hip ratio could determine the presence of abdominal obesity and the risk of related diseases in young adults in the study. Considering these in future studies will contribute to the explanation of the relationship between SM and BMI.

CONCLUSION

SM affects appetite and BMI. SM increases the urge to eat. The effect of the power of SM in the field of nutrition has been shown in every field. Accurate transfer of information with healthy nutrition in SM and controlling this transfer are essential steps for a healthy future.

CONTRIBUTORS

Aybala Tazeoğlu and Fatma Bengü Kuyulu Bozdoğan designed the study. Aybala Tazeoğlu was responsible for data collection, statistical analyses and wrote the first draft of the manuscript. Fatma Bengü Kuyulu Bozdoğan edited subsequent drafts of the manuscript, and have approved the final manuscript.

REFERENCES

1. Arslan M., Aydemir I., Ayhan Yabancı Nurcan. Examination Of The Relationship Between Depression and Body Mass Index (BMI) Among University Students. Clin Exp Health Sci 2021; 11: 175-181. doi: 10.33808/clinexphealthsci.789597

2. Icen H., Günes F.E. The Relationship Between University Students' Nutritional Status, Cardio-Metabolic Biomarkers and Physical Activity Levels. Clin Exp Health Sci 2021; 11: 495-503. doi: 10.33808/clinexphealthsci.820145

3. Özgür M., Uçar A. Comparison of social media addiction and body perception and nutrition knowledge levels in girls students studying at university. Journal of Health Sciences. 2020; 9(2): 46-54.

4. Barklamb AM, Molenaar A, Brennan L, Evans S, Choong J, Herron E, Reid M, McCaffrey TA. Learning the Language of Social Media: A Comparison of Engagement Metrics and Social Media Strategies Used by Food and Nutrition-Related Social Media Accounts. Nutrients. 2020; 12(9):2839. doi: 10.3390/nu12092839.

5. Carpenter DM, Geryk LL, Chen AT, Nagler RH, Dieckmann NF, Han PK. Conflicting health information: a critical research need. Health Expect. 2016 Dec;19(6):1173-1182. doi: 10.1111/hex.12438.

6. Mendoza-Herrera K, Valero-Morales I, Ocampo-Granados ME, Reyes-Morales H, Arce-Amaré F, Barquera S. An Overview of Social Media Use in the Field of Public Health Nutrition: Benefits, Scope, Limitations, and a Latin American Experience. Prev Chronic Dis. 2020 Aug 6;17:E76. doi: 10.5888/pcd17.200047.

7. Stirling E, Willcox J, Ong KL, Forsyth A. Social media analytics in nutrition research: a rapid review of current usage in investigation of dietary behaviours. Public Health Nutr. 2021 Apr;24(6):1193-1209. doi: 10.1017/S1368980020005248.

8. Hawkins LK, Farrow C, Thomas JM. Do perceived norms of social media users' eating habits and preferences predict our own food consumption and BMI? Appetite. 2020 Jun 1;149:104611. doi: 10.1016/j.appet.2020.104611.

9. Norman G. Likert scales, levels of measurement and the "laws" of statistics. Adv Health Sci Educ Theory Pract. 2010 Dec;15(5):625-32. doi: 10.1007/s10459-010-9222-y.

10. Rounsefell K, Gibson S, McLean S, Blair M, Molenaar A, Brennan L, Truby H, McCaffrey TA. Social media, body image and food choices in healthy young adults: A mixed methods systematic review. Nutr Diet. 2020 Feb;77(1):19-40. doi: 10.1111/1747-0080.12581.

11. Klassen KM, Douglass CH, Brennan L, Truby H, Lim MSC. Social media use for nutrition outcomes in young adults: a mixed-methods systematic review. Int J Behav Nutr Phys Act. 2018 Jul 24;15(1):70. doi: 10.1186/s12966-018-0696-y.

12. Vaterlaus JM, Patten E, Roche C, Young JA. # Gettinghealthy: The perceived influence of social media on young adult health behaviors. Computers in Human Behavior, 2015, 45: 151-157. doi: 10.1016/j.chb.2014.12.013

13. Robinson E, Harris E, Thomas J, Aveyard P, Higgs S. Reducing high calorie snack food in young adults: a role for social norms and health based messages. Int J Behav Nutr Phys Act. 2013 Jun 5;10:73. doi: 10.1186/1479-5868-10-73.

14. Robinson E, Fleming A, Higgs S. Prompting healthier eating: testing the use of health and social norm based messages. Health Psychol. 2014 Sep;33(9):1057-64. doi: 10.1037/a0034213.

15. Mollen S, Rimal RN, Ruiter RA, Kok G. Healthy and unhealthy social norms and food selection. Findings from a field-experiment. Appetite. 2013 Jun;65:83-9. doi: 10.1016/j.appet.2013.01.020.

16. Thomas JM, Ursell A, Robinson EL, Aveyard P, Jebb SA, Herman CP, Higgs S. Using a descriptive social norm to increase vegetable selection in workplace restaurant settings. Health Psychol. 2017 Nov;36(11):1026-1033. doi: 10.1037/hea0000478.

17. Muslu, Mücahit; Gökçay, Gülden Fatma. Teknoloji bağımlısı çocuklarda obeziteye neden olan risk faktörleri. Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi, 2019, 8.2: 72-79.

18. Clark JL, Algoe SB, Green MC. Social Network Sites and Well-Being: The Role of Social Connection. Current Directions in Psychological Science. 2018;27(1):32-37. doi:10.1177/0963721417730833

19. Cruwys T, Bevelander KE, Hermans RC. Social modeling of eating: a review of when and why social influence affects food intake and choice. Appetite. 2015 Mar;86:3-18. doi: 10.1016/j.appet.2014.08.035.

20. Pelletier JE, Graham DJ, Laska MN. Social norms and dietary behaviors among young adults. Am J Health Behav. 2014 Jan;38(1):144-52. doi: 10.5993/AJHB.38.1.15.

21. Zilberman, David & Kaplan, Scotts. What the Adoption Literature can teach us about Social Media and Network Effects on Food Choices, 2014 AAEA/EAAE/CAES Joint Symposium: Social Networks, Social Media and the Economics of Food, Montreal, Canada 173076, Agricultural and Applied Economics Association. 2014.

22. B. McFerran, D.W. Dahl, G.J. Fitzsimons, A.C. Morales. I'll have what she's having: Effects of social influence and body type on the food choices of others. Journal of Consumer Research, 2010;36:915-29. doi: 10.1086/644611.

23. Leahey TM, Doyle CY, Xu X, Bihuniak J, Wing RR. Social networks and social norms are associated with obesity treatment outcomes. Obesity (Silver Spring). 2015 Aug;23(8):1550-4. doi: 10.1002/oby.21074.

24. Leahey TM, Kumar R, Weinberg BM, Wing RR. Teammates and social influence affect weight loss outcomes in a team-based weight loss competition. Obesity (Silver Spring). 2012 Jul;20(7): 1413-8. doi: 10.1038/oby.2012.18.