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Covid-19 Pandemisinde Bireylerin Ortoreksiya Eğilimleri ile Beslenme Durumları Arasındaki İlişkinin İncelenmesi

Investigation of the Relationship Between Orthorexia Tendencies and Nutritional Status of Individuals in the Covid-19 Pandemic

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ÖZ

Amaç: Bu çalışmanın amacı Covid-19 pandemisinde bireylerin ortoreksiya eğilimlerinin ve özellikle ortorektik kişilerin beslenme durumlarının incelenmesidir.
Yöntem: Haziran 2020'de Google Formlar üzerinden gerçekleştirilen çalışmaya 1129 kişi katılmış, 297 kişi 18 yaş altı olma, form ve/veya ölçeği eksik/yanlış doldurma nedeniyle çalışmadan çıkarılmış ve 832 katılımcı çalışmaya dahil edilmiştir. Verilerin toplanmasında ORTO-11 Test ve geliştirilen anket formu kullanılmıştır. Araştırmanın değişkenleri katılımcıların cinsiyeti, vücut ağırlığı, beslenme durumu, ortorektik eğilimleri, egzersiz durumu, mesleği ve sosyal medya kullanımıdır. Çalışmanın verileri SPSS programı kullanılarak değerlendirilmiştir.
Bulgular: Ortoreksiya riski Instagram kullanıcılarında, diyetisyen olanlarda, pandemide egzersiz yapmayanlarda daha yüksek saptanmıştır. Pandemi öncesi ve pandemi sırasında vücut ağırlığı arasında istatistiksel olarak anlamlı bir fark bulunamamıştır. Et ve et ürünleri, kuru baklagillerin tüketim artışı; ekmek, pilav, makarna, şekerli içecek ve tatlıların tüketim azalışı en çok ortorektik bireylerde olmuştur. Tüm katılımcılara bakıldığında ise en çok sebze ve meyve, tatlı, kuruyemiş, çay ve kahvede tüketim artışı; en çok ekmek, pilav, makarna, şekerli içecek, cipste tüketim azalışı olduğu bireyler tarafından belirtilmiştir.
Sonuç: Pandemide vücut ağırlığında artış saptayan çalışmalara rağmen, bu çalışmanın sonuçlarına göre vücut ağırlığında anlamlı bir değişim saptanamadı. Ayrıca pandemide katılımcıların özellikle ortorektik bireylerin daha sağlıklı besinler tercih ettikleri görülmüştür.

Anahtar Kelimeler: Covid, Beslenme, Ortoreksiya.

ABSTRACT

Objective: The aim of this study is to examine the orthorexia tendencies of individuals and especially the nutritional status of orthorexic people in the Covid 19 pandemic.
Methods: 1129 people participated in the study conducted through Google Forms in June 2020, 297 people were excluded due to being under the age of 18, filling in the form and/or scale incompletely/incorrectly, and 832 participants were included in the study. The ORTO-11 Test and the developed questionnaire were used to collect the data. The variables of the research are the participants' gender, body weight, nutritional status, orthorexic tendencies, exercise status, occupation and social media use. The data of the study were evaluated using the SPSS program.
Results: The risk of orthorexia was found to be higher in Instagram users, dietitians, and those who did not exercise during the pandemic. There was no statistically significant difference between body weight before and during the pandemic. Increase in consumption of meat and meat products, legumes; decrease in consumption of bread, rice, pasta, sugary drinks and sweets was mostly in orthorexic individuals. Considering all participants, highest consumption increase in vegetables and fruits, sweets, nuts, tea and coffee; consumption decreased mostly in bread, rice, pasta, sugary drinks and chips.
Conclusion: Despite the studies that found an increase in body weight in the pandemic, no significant change was found in body weight according to the results of this study. In addition, it was observed that the participants, especially orthorexic individuals, preferred healthier foods during the pandemic.

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Key words: Covid, Nutrition, Orthorexia.

1. INTRODUCTION

Although there is no universal definition of orthorexia nervosa (ON), it is expressed as an obsession with healthy eating, but it is not an eating disorder syndrome (1,2). Orthorexic individuals generally tend to avoid specific foods such as trans fatty acids, red meat, non-organic foods, processed foods, and this tendency can interfere with their daily lives (3). Some risk factors have been investigated in studies among orthorexic individuals. According to some studies, orthorexia tendency is higher in women, younger people, Instagram users due to excessive exposure to images and influencers' suggestions, and individuals in many professions (performance artists, doctors, dietitians) (2,4,5). According to studies, the tendency to orthorexia is found to be higher in those who exercise more than 150 minutes, those who use supplements, and those who do not use alcohol or tobacco products(3,6,7-10).

The New Coronavirus Disease (Covid-19), which emerged in Wuhan, China in December 2019, has spread to all continents and has been declared a pandemic by the World Health Organization (11). Although there is no evidence in the literature that Covid-19 is transmitted by food, in a study it was determined that the corona type virus can survive on lettuce for up to two days (12). Studies show that men are more likely to be diagnosed with Covid-19 (13). In addition, the weakening of the immune system with age and the lethal outcome of the virus in people with a low immune system are risk factors for the elderly (14-16). One of the risky groups in the pandemic is people with chronic diseases such as diabetes, hypertension, cardiovascular disease, because of chronic diseases adversely affect the immune system (17,18). It has been reported in studies that the virus progresses more severely and hospitalizations are higher in obese people (19,20) There are some studies that recommend the use of supplements such as antioxidants and exercise, as they will strengthen the immune system in the pandemic (21,22) From a nutritional point of view, there are studies showing that people eat more to cope with the pandemic and fight boredom, and that people gain weight during the pandemic (23,24) Accordingly, the demand for the Mediterranean diet has increased in the general population, and some people have begun to eat more unhealthy (25,26). With this study, it is aimed to examine the relationship between orthorexia tendencies and nutritional status of individuals in the Covid-19 pandemic.

2. MATERIALS AND METHODS

This study was conducted on adult individuals (n:832) over the age of 18. Before starting the study, power analysis was performed using G*power software to determine the number of individuals to be included in the sample. Alpha (α)=0.05, power (1-β)=0.95 taken as. As a result of the analysis, 15% was added for possible losses and the sample size was found to be 338. 1129 participants participated, but 297 participants were excluded from the study due to reasons such as being under the age of 18 and filling in the form and scale incompletely. For this study, ethics committee approval was obtained from Adnan Menderes University Ethics Committee at the meeting dated 05.06.2020 and numbered 02 (92340882-050.04.04), and the data of the study were evaluated by obtaining the online consent of all individuals participating in the study. Whether the participants were willing to participate in the study was asked from Google Forms before the questionnaire form. Only volunteers were included in the study.

Design of the Study

In the study, some demographic characteristics, eating habits, body weight (kg) and height (cm) of individuals were questioned online. The applied questionnaire form was delivered to the participants via social media. The ORTO-11 scale was used to assess the risk of orthorexia.

Anthropometric Measurements

The body weight (kg) and height (cm) data of the participants in the study were taken based on the statements of the participants. Body mass indeks (BMI) value was calculated with the equation of body weight (kg)/height (m2) and evaluated according to the World Health Organization classification. Accordingly, those with a BMI of 18.5–24.99 kg/m2 were classified as normal, those between 25.0–29.99 kg/m2 as overweight, and those ≥30kg/m2 as obese (27).

ORTO-11 Scale

In the study, the ORTO-11 scale was used to assess the risk of ON. The ORTO-11 scale was adapted into Turkish by Arusoğlu G. et al. (2008). The Cronbach's alpha coefficient of the scale is 0.62. Never, sometimes, often and always statements in the questions asked to the participants in the scale are converted into 1,2,3 and 4 points while scoring. Low scores have been associated with orthorexic tendencies. The cut-off point of the study was determined as 27 points. In other words, those who score 27 and below are associated with orthorexic tendency (28).

Statistical Evaluation of Data

The data obtained in the study were evaluated using the SPSS 22.0 program. In the study, descriptive values were stated as number (n), percent (%), arithmetic mean ($\bar{X}$), standard deviation (SD). The variables of the research are the participants' gender, body weight, nutritional status, orthorexic tendencies, exercise status, occupation and social media use. The Mann-Whitney U test was used because none of the data fit the normal distribution. Pearson Chi-Square and Fisher Freeman Halton Test were used to compare the differences between categorical variables. Wilcoxon T test was also used to compare the statistical differences of dependent variables. The statistical significance limit was accepted as $p<0.05$.

3. RESULTS

A total of 832 individuals, 92.2% (n:767) female and 7.8% (n:65) male, were included in the study. When analyzed by age, 68.4% of the participants (n:569) are in the 18-25 age group. The socio-demographic characteristics of the participants are given in Table 1.

Table 1. Distribution Of The Socio-Demographic Characteristics Of The Sample

	n	%
Gender		
Male	65	7.8
Female	767	92.2
Age Group (years)		
18-25	569	68.4
26-35	229	27.5
36-59	34	4,1
Becoming a Healthcare Professionals		
Health Care Professionals	107	12.9
Not Health Care Professionals	725	87.1
Occupation of Healthcare Professionals		
Dietician	13	12.1
Not Dietician	94	87.9
Total	**832**	**100**

%: Percent
n: Frequency

The average BMI of the participants before the pandemic was 26.76±5.4099 kg/m², and during the pandemic it was 26.79±5.2860 kg/m². While the mean body weight of the participants was 73.94± 16.8148 kg before the pandemic, it was 74.01±16.5781 kg after the pandemic. Weight and BMI values before and after the pandemic are given in Table 2.

Table 2. Evaluation Of Body Weight and BMI Values Of Participants By Gender

	n	Minimum	Maximum	$\bar{x} \pm \sigma$
Body weight before pandemic (kg)				
Female	767	40	132	72.2693±15.3918
Male	65	57	165	93.6308±20.2104
Total	832	40	156	73.9381±16.8148
Body weight during the pandemic (kg)				
Female	767	44	135	72.2540±14.7772
Male	65	57	161	94.7923±21.8944
Total	832	44	161	74.0148±16.5781
BMI before the pandemic (kg/m²)				
Female	767	15.62	49.68	26.5183±5.2935
Male	65	22.10	52.12	29.5961±5.9804
Total	832	15.62	52.12	26.7588±5.4099
BMI during the pandemic (kg/m²)				
Female	767	16.53	47.05	26.5234±5.0982
Male	65	20.90	53.79	29.9324±6.3909
Total	832	16.53	53.79	26.7897±5.2860

n: Frequency
$\bar{x}$: Mean
σ: Standart Deviation

78.6% (n:654) of the 832 people who participated in the study showed orthorexic tendencies with a score of 27 and below. In addition, the mean ORTO-11 score was 23.98±4.3179. Considering the orthorexia status, 79.3% of women (n:608), 70.8% of men (n:46), 82.2% of health workers (n:88), 57% of dietitians (n:8), 81.1% of Instagram users (n:539) are orthorexic. In the study, 99.3% of the participants (n:826) were not diagnosed with Covid-19 positive. In terms of exercise, 53.8% of the participants stated that they exercised before the pandemic, and 68.3% of them did exercise during the pandemic. 79.9% of the

participants state that their use of social media has increased during the pandemic period. In addition, 77.2% of the participants prefer the Instagram platform.

There was no statistically significant difference between the weight of the participants before and during the pandemic ($p>0.05$). There was a statistically significant difference between those who exercised during the pandemic and those who did not; the ORTO-11 score of those who did not exercise during the pandemic was found to be statistically significantly higher than those who exercised ($p<0.001$). In terms of ON risk, a statistically significant difference was found between those who use Instagram and those who do not ($p<0.05$). Instagram users have a higher risk of ON. In terms of ORTO-11 score, the orthorexia tendency of dietitians was found to be statistically significantly higher than that of other non-dietitian healthcare professionals ($p<0.01$). Factors associated with orthorexia are given in Table 3.

Table 3. Mann Whitney-U Test Results According to The Comparison of Dimensions in Terms of ORTO-11 Score.

Dimension	Category	n	Rank Average	Rank Sum	U	p
Exercising during the pandemic	Yes	568	388.59	220717.50	59121.500	0.000*
	No	264	476.55	125810.50		
Becoming a Dietitian in Healthcare	Yes	14	76.54	1071.50	349.500	0.005**
	No	94	51.22	4814.50		

*p<0.001
**p<0.01
n: Frequency
U: Mann Whitney-U test score

When looking at the relationship between orthorexia and nutritional changes in the pandemic, no statistically significant difference was found between orthorexic and non-orthorexic changes in the consumption of dairy products, vegetables and fruits, nuts, tea and coffee, and chips ($p>0.05$). An increase in meat and meat products and legumes consumption was observed more frequently in orthorexic individuals than in non-orthorexic individuals ($p<0.05$). The frequency of decrease in consumption of bread, rice, pasta and sugary drinks was found to be higher in orthorexic individuals ($p<0.001$). The results associated with orthorexia and nutritional change in the pandemic are given in Table 4.

4. DISCUSSION

Although there is no universal definition of ON, it is expressed as an obsession with healthy eating (1). In the Covid-19 pandemic, 78.6% of 832 people who participated in this study, which examined the orthorexia tendencies of people and the eating habits of orthorexic individuals, showed orthorexic tendencies with a score of 27 and below on the ORTO-11 scale. In a similar study examining the orthorexic tendencies of individuals in the pandemic, 68.2% of the participants were found to have ON tendency (29). The reason for the high rate of participants to be orthorexic is interpreted as the increase in their obsession with healthy eating, as it will support people's immunity in the pandemic.

Among the ON risk factors, the use of Instagram is questioned. The study on ON and social media shows that the use of Instagram will increase individuals' risk of ON (30). In this study, orthorexic tendencies were found to be higher in Instagram users compared to those who

do not use Instagram (p<0.01). In this regard, the influence of the suggestions of the influencers on Instagram and the high visual exposure of the people clarifies the ON trend (31).

Table 4. Pearson Chi-Square Test Analysis Results Of Food Change Frequencies In Terms Of Orthorexia

Food group	Orthorexic	Non-orthorexic	Pearson Chi-Square Value	p
Meat and meat products			8.538	0.014*
Increased	%83.4	%16.6		
Decreased	%78.0	%22.0		
Hasn't changed	%74.5	%25.5		
Legumes			8.218	0.016*
Increased	%86.3	%13.7		
Decreased	%77.5	%22.5		
Hasn't changed	%76.2	%23.8		
Bread, rice, pasta			18.689	0.000**
Increased	%76.5	%23.5		
Decreased	%86.6	%13.4		
Hasn't changed	%71.9	%28.1		
Sugary drink			7.504	0.023*
Increased	%76.1	%23.9		
Decreased	%82.7	%17.3		
Hasn't changed	%78.6	%21.4		
Dessert			24.311	0.000**
Increased	%73.0	%27.0		
Decreased	%88.6	%11.4		
Hasn't changed	%74.9	%25.1		

*p<0.05
**p<0.01

Dietitians and nutrition and dietetics students live together with healthy eating rules. Studies have shown that almost 50% of dietitians and dietitians are orthorexic (2,32,33). 82.2% of health workers and 57.1% of dietitians among these health workers, similar to the literature, were orthorexic. Moreover, according to this study, dietitians have a higher risk of ON than other healthcare professionals (p<0.01). However, there is no study in the current literature that examines whether there is a statistically significant difference between dietitians and other healthcare professionals. The fact that dietitians specialize in healthy eating suggests that health nutrition ideas are constantly on their minds. Orthorexic tendencies, which can also be counted as occupational deformation, may have changed people's perspectives on foods during their profession and the department they studied.

While the studies in the literature indicate that people are more inclined to the Mediterranean diet during the pandemic, some studies indicate that the trend of unhealthy eating has increased, while some studies indicate that there is an increase in terms of healthy nutrition because the time spent at home and accordingly the eating at home increase (34–37). If we look at the changes in the eating habits of all participants without making any distinction between orthorexic, milk and dairy products, meat and meat products, legumes consumption of most of the participants did not change. However, the majority of the participants also increased their consumption of vegetables and fruits, sweets, nuts, tea and coffee, and water. In addition, a decrease was observed in the consumption of bread, rice, pasta, sugary drinks and chips in most of the participants. In the study, the decrease in sugary drinks, chips and foods such as bread,

rice, pasta, which are consumed excessively in our society; the increase in consumption of vegetables and fruits, nuts, tea and coffee, and water are good examples of healthy eating.

Many studies show that people gain weight during the Covid-19 pandemic (19,20,38). In this study, in which the weight before and during the pandemic was compared, no weight change was detected in a statistically significant way ($p>0.05$). It was interpreted that there was no change in the weight of the participants, since the nutritional patterns of the participants were mostly healthier.

Nutritional pattern of people is a very important pattern for ON. In a study, they emphasized that orthorexic symptoms may increase due to increased concerns about healthy eating during the Covid-19 pandemic (39). In support of this, some studies have found a decrease in the ON tendency with an increase in sugary product consumption (29). In the study, no significant difference was found between orthorexic and non-orthorexic consumption changes in milk and dairy products, vegetables and fruits, nuts, tea and coffee, and chips ($p>0.05$). On the other hand, orthorexic people increased the consumption rates of healthy foods such as meat and meat products and legumes more than those without orthorexic ($p<0.05$). In addition, they decreased the consumption rates of carbohydrate-based foods such as bread, rice and pasta, and unhealthy foods such as dessert ($p<0.01$). Supporting the literature, the decrease in sugary beverage consumption was mostly in orthorexic individuals ($p<0.05$). In most of the individuals who are not orthorexic, an increase was observed in the consumption of sugary drinks and sweets. In other words, orthorexic individuals paid more attention to their nutrition than non-orthorexic individuals and decreased the consumption of foods that are considered unhealthy, while increasing the amount of healthy foods.

Due to the use of an online questionnaire and scale in the study, it is an important limitation that it is not known whether the scale and questionnaire were filled in correctly. In addition, since the information of individuals on orthorexia before the Covid-19 pandemic was not obtained, a comparison between the periods could not be made.

5. CONCLUSION

As a result, the majority of participants are orthorexic. The ON trend was higher especially in dietitians and Instagram users. Orthorexic individuals show more healthy eating patterns in the pandemic. It is very important not to overdo it and to spread the right information about nutrition on social media, while encouraging healthy eating as it will strengthen immunity in crisis situations such as pandemics. However, in future studies, the nutritional status of orthorexic individuals should be examined in detail by comparing before and after the pandemic. Examining orthorexic slopes before and after the pandemic will provide more meaningful results.

Ethicial Considerations

It was approved by Adnan Menderes University Ethics Committee (Decision Date: 05.06.2020 Decision No: 02-92340882-050.04.04).

Conflict of Interest

The authors declare that they have no conflict of interest.

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