nutrición clínica y Dietética Hospitalaria

Artículo Original

Nutr Clín Diet Hosp. 2021; 41(2):86-93
DOI: 10.12873/412tazeoglu

Evaluation of Osmaniye Korkut Ata University Students' Eating Behaviors During the Quarantine Period during the COVID-19 Pandemic Period

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Recibido: 25/febrero/2021. Aceptado: 11/abril/2021.

ABSTRACT

Introduction: This study was conducted in order to evaluate the effects of stress on eating behavior in cases of uncertainty experienced during the COVID-19 quarantine period.

Methods: Three hundred-eighty-six university students participated in the study. Demographic (age, gender) data, anthropometric (body weight, height) measurements and the faculty of education information were recorded. The Dutch Eating Behavior Questionnaire (DEBQ) was used to evaluate the eating behaviors of the participants. The body weight (BW), body mass index (BMI), body weight gain and DEBQ score of the participants before and after the quarantine applied during the COVID-19 pandemic period were recorded and compared.

Results: In the study, 203 (52.6%) of the participants were women, 183 (47.4%) were men;The average age was 21.9 ± 1.7 years. A significant increase was observed in the BW and BMI of the participants in the post-quarantine period compared to pre-quarantine period (p=0.00). During the quarantine period, a significant increase was found in the mean scores of the three subscales of DEBQ, "Restricted, Emotional and External eating", compared to the pre-quarantine averages (p=0.00).

Discussion: The act of eating is the simplest and the most important need for survival, which is maintained from birth to death. When the majority of individuals feel under stress, they tend to change their eating behavior, furthermore, there is evidence that an estimated 80% of the people change their calorie intake by increasing or decreasing their food consumption.

Conclusions: Stress-related eating behavior change, triggers the formation of repetitive stress as it may negatively affect the health of the individual. Realizing and accepting the situation in the earliest possible time makes it easy to cope with this period both physically and psychologically.

KEYWORDS

COVID-19; quarantine; eating disorder; emotional stress.

INTRODUCTION

World Health Organization (WHO) defines health as; not merely the absence of disease and infirmity, but also the complete physical, mental and social well-being of a person[1]. Nutrition, which starts with the formation of fetus in mother's womb, is an action which should be executed consciously in order to obtain the nutrients needed by the body in adequate amounts and at appropriate times to ensure growth and development, to protect and maintain health and improve the quality of life[2]. Intake of nutrients more or less than needed, leads to insufficient and unbalanced nutrition and that in turn causes impairment of health. Therefore, nutrition is a conscious action required for protection and maintenance of health and also for improvement of the quality of life[3]. Nutrition is a critical psychological need as much as it is a physical need. In anger, stress, or when under pressure, individuals may eat more than usual[4,5].

Eating, in response to stress or negative emotions is defined as emotional eating. Individuals prefer to eat in order to

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cope with their emotional distress[6]. Stress causes health problems, with unhealthy changes in diet and long-lasting general effects on appetite. Biological changes such as adrenaline-induced glycogenolysis which slows food intake for short term, slowing gastric emptying, autonomic interruption of the intestine-to-muscles shunt, and activation of the hypothalamic-pituitary-adrenal (HPA) axis are associated with stress[7].

Release of glucocorticoids, the main product of stress activation, produces physiological effects that can induce energy availability, appetizing behavior, and increase the incidence of obesity. During acute stress, the HPA axis reduces cortisol release with a glucocorticoid negative feedback. This provides protection from the negative effects of long-term cortisol. In chronic stress, increased glucocorticoids may induce stimulated eating behavior and excessive weight gain. Stress, especially with interaction of the reward pathways in the brain, can increase the tendency of individuals to eat high-calorie and better-tasting foods. Better-tasting food consumption behavior, can suppress the feeling of stress by interactions with the HPA axis[8].

Sources of Stress

Stress can be caused by the threatening and compelling conditions of the outside world, by the way people view the world and interpret the information coming from the outside world. The sources of stress are intertwined with each other and cannot be separated from one another with clear borders; thus, the stress sources have been classified differently in the literature. Baltaş classified stress sources into four different groups as 'social', 'work related', 'physical environment' and 'manner of self-interpretation (inner speech)'. Stress reactions to aforementioned sources can be acute or chronic. As a result of long-lasting and uncontrollable stress, regardless of its origin, a wide variety of health problems can develop[9].

Emotional Eating

Eating (nutrition) is one of the most basic biological activities. The thought of being under pressure or anger with another person, may lead to eat more than usual. The different eating behavior in such cases is due to psychological needs rather than biological needs[10].

The relationships between the eating behavior and the emotions have been studied in many ways. Changes in eating behavior develop as a mechanism to cope with emotions. Especially in individuals who are faced with negative emotions and consume more food than the amount of food they usually consume. The increase in food consumption in response to negative emotions is defined as emotional eating[6,11].

It is suggested that approximately 60% or more of individuals who are overweight or obese experience the need of emotional food consumption. Emotional eating, together with the increase in body weight, causes a higher risk for diabetes and heart diseases[12].

Anger, fear, pain and happiness are long-lasting and complex emotions and have effects on eating behavior and food consumption; which are expressed on chewing manner, eating speed, amount consumed and also on food choices. Epidemiological studies; have shown that eating with stress results in weight gain. Anger has been shown as the factor that most triggers binge eating behavior[6,13].

Various scales have been developed to evaluate emotional eating behaviors. The most common of them are; The Restriction Scale, The Dutch Eating Behavior Questionnaire, and The Three-Factor Eating Questionnaire[14,15].

Eating is not an automatic process, especially for young people. Over the past 30 years, theories have been developed to assess motivation to eat, adequate food intake, and behaviors that may impair body weight control. Based on psychological theories, Van Strien et al. defined three different eating behaviors. "Emotional eating" refers to eating to cope with negative emotions and to relieve stress by ignoring the satiety signals, without internal physiological signals of hunger. "External eating" refers to eating in response to stimuli (encounter or smell) of food consumption, regardless of hunger and satiety signals. "Restrictive eating" theory corresponds to the behaviour of consciously restricting food intake (attempts to avoid eating to lose or maintain a certain weight)[14].

The previous studies have shown that these three eating behaviors are associated with body mass index (BMI)[15]. These three types of eating behaviors can be measured reliably and validly using the Dutch Eating Behavior Questionnaire (DEBQ). The DEBQ consists of 33 questions, each with a 5-point Likert scale (ranging from "never" to "very often"). The English version of the original DEBQ has been translated into several languages: all versions have good factorial validity. DEBQ has a stable factorial structure between genders, weight categories and random samples. This study aimed to investigate the effects of the quarantine period on the eating behaviors of university students by using the Dutch Eating Behavior Questionnaire (DEBQ) and by comparison of the pre- and post-quarantine eating behavior scores.

MATERIAL AND METHODS

Participant Selection

In our study, "Evaluation of the eating behaviors of university students with the Dutch Eating Behavior Questionnaire (DEBQ): The Case of Osmaniye Korkut Ata University" was conducted using the Dutch Eating Disorder Questionnaire in order to evaluate the eating disorders in university students at Osmaniye Korkut Ata University. The study was approved by the Scientific Publication and Ethics Committee on

20.01.2020 with the approval code E.3097. The participants were contacted after the quarantine period applied by the Ministry of Health, changes in eating behavior during the quarantine was evaluated.

Data Collection and Analysis

The participants of the study from January 2020 which was titled as "Evaluation of the eating behaviors of university students with the Dutch Eating Behavior Questionnaire (DEBQ): The Case of Osmaniye Korkut Ata University" were tried to be reached again using a remote communication tool, that is phone or internet.

Participants who were students of our university, who do not have any chronic disease, who completed the DEBQ questionnaire in January 2020, and whose demographic and anthropometric measurements were in the records, were included in the study. Participants with a history of COVID-19 disease or a history of quarantine due to contact with a COVID-19 patient, participants who could not communicate remotely and who did not want to participate in the survey were excluded from the study.

Participants; A questionnaire was applied to record demographic data (age, gender), anthropometric measurement (height and body weight), body mass index (kg / m2)[1], the faculty where he / she was studying and the accommodation places during his education and to evaluate his eating behaviors (DEBQ). The questionnaire forms were applied to some of the participants face-to-face, by contacting the participants we could not reach via phone or mail.

DEBQ Survey

The DEBQ version with 33 questions, which studied for Turkish validity and reliability by Bozan in 2009, was used to evaluate the eating behaviors of the participants. The DEBQ consists of three (3) subscales which evaluate emotional eating behaviors, external eating behaviors, and restricted eating behaviors. The items in the questionnaire are evaluated with a 5-point Likert scale (1: never, 2: rarely, 3: sometimes, 4: often, 5: very often). The total score of the test is not evaluated, but 3 subscales are evaluated independently. No cut-off point is defined in the total test score, however, the high scores in the 3 individual subscales indicates the negativity of eating behavior. In the Turkish version of the Dutch Eating Behavior Questionnaire, the first 10 questions evaluate restricted eating, questions 11-23 emotional eating, and questions 24-33 external eating manner. The 31st question in the external eating scale is the reverse question.

Approval of the Ethics Committee

Our study was submitted to the Scientific Research and Publication Ethics Board of Osmaniye Korkut Ata University on 24.06.2020, and ethics committee approval was obtained with the approval code E.4739. Our study has been made according to the Helsinki Declaration Principles. Participants were contacted after ethics committee approval for data collection.

Statistical Analysis

Packaged software SPSS (IBM SPSS Statistics 22) was used for the statistical analysis. Descriptive statistics were used to evaluate the results. Descriptive statistics were number (n), percentage (%), arithmetic mean ($\bar{}$), standard deviation (SD), median (M), interquartile range (IQR). "Independent Sample-t" test (t-table value) was used for comparison of two independent variables for parametric parameters by convention, and One-way ANOVA test was used for comparison of more than two independent variables. To determine the relationship between two qualitative variables, χ^2-cross tables were used with corresponding expected values.

RESULTS

Our study was conducted between May 2020 and June 2020, after the COVID-19 pandemic outbreak, with participation of 386 students who were receiving online education at Osmaniye Korkut Ata University from home during the quarantine period.

Among the 746 participants of the study titled "Evaluation of the eating behaviors of university students with the Dutch Eating Behavior Questionnaire (DEBQ): The Case of Osmaniye Korkut Ata University" 265 participants were excluded because of the lack of communication; 43 students who did not want to participate due to personal reasons, 23 who had COVID-19 disease, 39 because of a contact history with patients with COVID-19 disease were also excluded.

The participation in the study was voluntary. The voluntary consent form for participation in the survey was sent to the participants online via e-mail, and the participants approved it online. The communications related to study were conducted over the phone or the internet, and no face-to-face interviews were conducted with any participant.

Among the participants, 203 (52.6%) were female, 183 (47.4%) were male; the mean age was 21.9 ± 1.7 (18-30) years. A total of 104 participants continued their education in Engineering Faculty, 61 in Economics and Administrative Sciences Faculty, 63 in Faculty of Health Sciences, 49 in Faculty of Science and Literature, 43 in Faculty of Theology and 66 in Vocational School.

The mean body weight (BW) value was 68.1 ± 14.6 (43-112) kg before the quarantine; 58.8 ± 10.2 (43-89) kg in women and 78.3 ± 11.6 (45-112) kg in men. Post-quarantine mean BW value was 68.9 ± 15.4 (43-115) kg; 59.25 ± 10.7

Table 1. Pre and Post Quarantine Demographic Features and DEBQ Analysis.

	Pre Quarantine	Post Quarantine	p-value
Participant	746	386 (%51,7)	
Woman	397 (%53,2)	203 (%52,6)	
Male	349 (%46,8)	183 (%47,4)	
Age (years)		21,9 ±1,7 (18-30)	
Woman		21,41 ±1,32 (18-25)	
Male		22,46 ±2,04 (18-30)	
Body Weight (kg)	68,1±14,6	68,9±15,4	**0,00**
Woman	58,8±10,2	59,25±10,7	0,00
Male	78,3±11,6	79,6±12,5	0,00
BMI (kg / m2)	23,9±3,07	24,2±4,05	**0,00**
Woman	22,4±3,7	22,6±3,9	0,00
Male	25,6±3,7	26,00±3,3	0,00
VA Change		0,85 (0-9)	
Woman		0,46 (0-4)	
Male		1,29 (0-9)	
DEBQ general	2,54±0,51	2,86,50	**0,00**
Woman	2,62±0,52	2,94±0,49	0,00
Male	2,45±0,47	2,77±0,49	0,00
Restricted eating	2,27±0,75	2,48±0,71	**0,00**
Woman	2,24±0,74	2,47±0,68	0,00
Male	2,31±0,76	2,50±0,75	0,00
Emotional eating	2,30±1,00	2,75±0,89	**0,00**
Woman	2,51±0,97	2,96±0,84	0,00
Male	2,06±0,98	2,52±0,89	0,00
External eating	3,13±0,70	3,38±0,66	**0,00**
Woman	3,15±0,67	3,38±0,66	0,00
Male	3,09±0,73	3,37±0,66	0,00

(BW: Body Weight, kg: kılogram, BMI: Body Mass Index, kg/m2: kılogram/ square meters, DEBQ: Dutch Eating Behaviour Questionnaire, P: statistical p-value).

(43-89) kg in women and 79.6 ± 12.5 (45-115) kg in men (Table 1).

Body mass index (BMI) mean value was 23.9 ± 3.7 (16.9-34.9) in the pre-quarantine period, 22.4 ± 3.7 (16.9-32.4) in women, 25.6 ± 3.07 (17.6-34.9) in men. Average BMI after the quarantine period was 24.2 ± 4.05 (16.9-37.1); 22.6 ± 3.9 (16.9-33.6) in women and 26.00 ± 3.3 (17.6-37.1) in men. The mean value of the BW and BMI values were significantly lower in women than men in pre- and post-quarantine periods ($p< 0.01$) (Table 1).

The body weight change of the participants was 0.85 ± 1.45 (0-9); body weight change was 0.46 ± 0.97 (0-4) kg in women, and it was 1.29 ± 1.75 (0-9) kg in men (Table 1). Comparison of BW between genders yielded, BW change of men was statistically significantly higher than that of women ($p< 0.01$) (Table 1).

The BW and BMI of the participants were observed to be statistically significantly higher in the post-quarantine period than pre-quarantine period ($p< 0.01$). Gender-wise comparison of BW and BMI between post- and pre-quarantine periods yielded a statistically significant increase in women and in men ($p< 0.01$) (Table 1).

The general evaluation of the eating behavior of the participants score according to the DEBQ was 2.54 ± 0.51 in the pre-quarantine period, it was determined as 2.86 ± 0.50 in the post-quarantine period. The average eating behavior score according to DEBQ in women was 2.62 + 0.52 in the pre-quarantine period, it was 2.94 + 0.49 in the post-quarantine period; it was 2.45 ± 0.47 in men in the pre-quarantine period and 2.77 ± 0.49 in the post-quarantine period. A significant increase was established in the DEBQ eating behavior score between post- and pre-quarantine periods, and the increase was statistically significant in both genders ($p< 0.01$) (Table 1).

Average restrictive eating behavior score (which is a subgroup of DEBQ scale) of the participants was 2.27 ± 0.75 in the pre-quarantine period, and it was 2.48 ± 0.71 in the post-quarantine period. A statistically significant difference post- and pre-quarantine periods in the restrictive eating behavior score was established ($p< 0.01$). It was 2.24 ± 0.74 in the pre-quarantine period and 2.47 ± 0.68 in the post-quarantine period in women; and it was 2.31 ± 0.76 in the pre-quarantine period and 2.50 ± 0.75 in the post-quar-

antine period in men. The increases in women and men were statistically significantly different (p< 0.01) (Table 1).

Average emotional eating behavior score (which is a subgroup of DEBQ scale) of the participants was 2.30 ± 1.00 in the pre-quarantine period, and it was 2.75 ± 0.89 in the post-quarantine period. There was a statistically significant difference between the post- and pre-quarantine periods in the emotional eating behavior score (p< 0.01). It was 2.51 ± 0.97 in the pre-quarantine period in women and 2.96 + 0.84 in the post-quarantine period; and it was 2.06 ± 0.98 in the pre-quarantine period in men and 2.52 ± 0.89 in the post-quarantine period. The increases in women and men were statistically significantly different (p< 0.01) (Table 1).

The average external eating behaviour score (which is a subgroup of DEBQ scale) of the participants was 3.13 ± 0.70 in the pre-quarantine period, and 3.38 ± 0.66 in the post-quarantine period. A statistically significant difference was established between the post and pre-quarantine periods in the external eating behavior score (p< 0.01). It was 3.15 + 0.67 before the quarantine in women and 3.38 + 0.66 after the quarantine; and it was 3.09 + 0.73 before the quarantine in men and 3.37 + 0.66 after the quarantine. The increases in women and men were statistically significantly different (p< 0.01) (Table 1).

Table 2. DEBQ Analysis According to Body Weight Change.

Body Weight	No Change	Decreased	Increased
Participant	252(%65,3)	12 (%3,1)	122 (%31,6)
Woman	155 (%76,4)	9 (%4,4)	39 (%19,2)
Male	97 (%53)	3 (%1,6)	83 (%45,4)
BW change (kg) (min-max)	0	1-2	1-9
Woman	0	1,22±0,44 (1-2)	2,13±1,05 (1-4)
Male	0	1,64±1,15 (1-2)	2,78±1,6 (1-9)
DEBQ general	2,83±0,54	2,96±0,36	2,92±0,4
Woman	2,88±0,52	3,05±0,37	3,15±0,31
Male	2,75±0,57	2,72±0,18	2,81±0,40
Restricted eating	2,47±0,72	2,95±0,69	2,47±0,68
Woman	2,44±0,70	2,98±0,77	2,45±0,54
Male	2,51±0,76	2,83±0,49	2,48±0,74
Emotional eating	2,69±0,90	2,85±0,54	2,86±0,90
Woman	2,83±0,87	3,00±0,55	3,47±0,56
Male	2,48±0,90	2,41±0,11	2,58±0,89
External eating	3,37±0,72	3,13±0,28	3,43±0,53
Woman	3,39±0,69	3,16±0,32	3,42±0,55
Male	3,34±0,77	3,03±0,15	3,43±0,53

(BW: Body Weight, kg: kılogram, BMI: Body Mass Index, kg/m2: kılogram/ square meters, DEBQ: Dutch Eating Behaviour Questionnaire, P: statistical p-value).

The comparison of the genders did not yield statistically significant differences for the restrictive and the external eating scores between the post- and pre-quarantine periods; however, emotional eating score was found to be statistically significantly higher in women than in men in both the post- and the pre-quarantine periods (p <0.001) (Table 1).

No change in BW was established in 252 (65.3%) of the participants, BW of 122 participants (31.6%) increased and BW of 12 participants (3.1%) decreased (in post-quarantine period with respect to pre-quarantine period). No change in BW was established in 155 (76.4%) of the women, the BW of 39 women (19.2%) increased and the BW of 9 women (4.4%) decreased. No change in BW was established in 97 men (53.0%), BW of 83 men (45.4%) increased and BW of 3 men (1.6%) decreased (Table 2).

Grouping of participants according to the BW change did not yield statistically significant differences between restrictive, emotional, and external eating behavior scores in the DEBQ analysis performed in the post-quarantine period in all the three groups (p> 0.05).

Single gender comparisons for women yielded; the DEBQ total score of women was statistically significantly higher in those who had an increase in BW than those whose BW remained the same (p< 0.01). Emotional eating score was statistically significantly higher in those with increased BW than those whose BW remained the same (p< 0.01) (Table 2). Single gender comparisons for men yielded; the external eating score of the men was statistically significantly higher in those with increased BW than those with decreased BW (p = 0.04) (Table 2).

DISCUSSION

The act of eating is the simplest and the most important need for survival, which is maintained from birth to death. Eating behavior, which is learned impulsively at the very be-

ginning of life and later learned socially, has become a field of study of great importance in recent years as a biopsychosocial phenomenon[16]. Eating is a biological need but also has a psychological perspective. When individuals are under stress, their diet is correspondingly affected and they tend to eat more or less[17]. However, when the majority of individuals feel under stress, they tend to change their eating behavior, furthermore, there is evidence that an estimated 80% of the people change their calorie intake by increasing or decreasing their food consumption[18].

The COVID-19 pandemic brought a lot of uncertainty with it, apart from its nature and its effects on social life and economy. Since this uncertainty directly affects our spiritual and mental health, it is a crucial and difficult process to balance our emotions and deal with such feelings. The behavioral consequences of the stress are the changes in our practices during the COVID-19 pandemic; e.g. eating too little or too much, sleeping too little or too much, isolation from the society, procrastinating or avoiding to take responsibility, use of alcohol, cigarettes or drugs to relax, nervous habits (nail biting, foot shaking, etc.).

In our study, it was observed that the mean scores of 'Restricted, Emotional and External eating', which are the three subscales of DEBQ, increased statistically significantly in the post-quarantine period of the COVID-19 outbreak compared with the pre-quarantine averages. This suggests that the uncertainty experienced during the quarantine period may cause stress in individuals and trigger stress-related eating behavior. During the process, exposure to stress became inevitable. Among the psychosocial effects of the stress, a prominent one is the way it affects food consumption choices.

Consumption of high-fat and sugary foods can increase obesity when individuals try to suppress their emotions in stressful moments. The use of food in order to escape from the emotions is in line with the escape theory. Individuals consume food to cope with stress. During stress times, the glucocorticoid hormone cortisol increases in humans. This triggers emotional eating. Excessively high calorie foods are consumed and results in excessive weight gain in obesity. Additionally, people who are more responsive to stress also have higher cortisol levels, a glucocorticoid hormone. High cortisol triggers emotional feeding. Exposure to stress at early ages and high BMI were also found to be associated with emotional eating[6,13].

A study in the literature examined women whose BW increased after a stressful event. No difference in cortisol levels was found between the normal-weight, non-stressed individuals in the control group and the not-stress-related obesity group. Additionally, the increase in the BW of the stress-related obesity group was higher and occurred in a much shorter time period[19].

The hypothalamo-adrenal axis, which regulates stress responses, also regulates nutritional responses. Daily stress levels are crucial in food choices. Consumption of snacks is reported to increase with the increase in cortisol release due to stress. It was reported that the snacks that were rich in carbohydrate and fat were preferred[20].

Peripheral injection of CRH in humans caused increase in food intake after 1 hour. The amount of food consumed is directly related to the amount of the response to injected cortisol[21].

Under stressful conditions, rats prefer foods high in fat and sucrose when available. Chronically stressed animals, therefore, prefer high-calory foods[21-23].

Stress-induced increase in ghrelin causes social isolation together with increased food intake in wild-type animals, while the deletion of the ghrelin receptor results in social isolation and does not cause any increase in the food intake[24].

Ghrelin plays a fundamental role in analyzing whether the individual responds to stress with an increase or decrease in appetite. On the other hand, high ghrelin levels caused by stress do not decrease with food intake in emotional eaters whereas high ghrelin levels decrease to the former levels in non-emotional eaters[25].

Excessive glucocorticoid production and/or elevated basal glucocorticoids are observed under chronic stress and mood disorders and in turn cause energy conservation and appetite stimulation. Extremely high calorie foods are consumed and obesity occurs with excessive weight gain. However, exposure to chronic stress may suppress the appetite of some individuals, particularly those who are not self-restrained, compared with individuals who are self-restricted (individuals who voluntarily limit their diet in order to maintain healthy weight but tend to increase their food intake while under stress)[8,26].

Previous studies have found that perceived stress is associated with increased consumption of fast food and a decrease in fruit and vegetable consumption[26,27].

In a study conducted with more than 800 nurses in the UK, it was concluded that those who reported high stress related to excessive workload consumed more snacks such as chocolate, chips and biscuits than those under less stress[28].

A possible relationship between obesity, eating behavior, and job stress in Japanese men workers was examined. 595 people, between the ages 19-60 participated in the study conducted in the fiber manufacturing factory during daytimes. 431 of the participants were normal weight individuals and 164 were obese individuals. The study established eating behaviors to be associated with quantitative workload and work demand. In addition to association of eating behaviors with quantitative workload; further associations with fatigue, tension/anxiety, and depression which are psychological stress responses were

found. It was concluded that increased workplace stress caused by tension at work may lead workers to overeat, which in turn causes obesity through eating behaviors[29].

In a study examined the effect of difficulties at work on eating behavior in a group of 422 workers. The daily food intake of the individuals was reported and the stress levels of the individuals at certain times were evaluated. The study concluded that there was a relationship such that increase in daily difficulties leads to increase in consumption of high-energy snacks[18].

Studies conducted in different countries yielded; workplace-related stress in factory workers in the USA, civil servants and agricultural workers in Japan, truck drivers and factory workers in Brazil, and civil servants in Korea and Poland lead to an unhealthy eating tendency (Stewart and Knox 2014). The interaction between stress and eating changes by gender and case; it was reported that the relationship between stress, inflammation and eating is in the form of a cycle[30].

Comparison by genders in this study yielded; BMI and BW of both women and men statistically significantly increased in the post-quarantine period with respect to pre-quarantine period.

Comparison between genders in this study yielded, BMI and BW values of women were found to be statistically significantly lower than men in both post- and pre-quarantine measurements ($p < 0.01$). Comparison of the weight changes yielded, the weight change was statistically significantly lower in women than in men.

No statistically significant difference between genders for the restrictive and external eating scores of the participants in post- and pre-quarantine was found; however, emotional eating score was statistically significantly higher in women than in men both in both post- and pre-quarantine period.

CONCLUSIONS

When we look at the separation of 122 of the participants (31.6%) according to the gender with increased BW, it was found that 39 of the women (19.2%) increased BW and 83 of the males (45.4%) increased their BW. These results are considered as an indicator that stress-induced food intake of individuals increased during the pandemic period. As a matter of fact, the fact that emotional eating score is statistically significantly higher in those with increased BW compared to those whose BW remains the same is an indicator of this result.

A significant difference was found between before and after quarantine according to the subgroup of the DEBQ scale, restrictive eating behavior score, sensory eating behavior score, and external eating behavior scores. This result suggests that there are psychological changes in food choice of individuals during the pandemic period.

The DEBQ general score and emotional eating score were found to be statistically significantly higher in those who had an increase in BW compared to those who remained the same. This result suggests that the increase in high fat and calorie food preference of individuals with the increase of cortisol release due to stress affects the sensory eating during the pandemic period and as a result of this effect, individuals have increased BW.

When exposed to stress, individuals may overeat or eat less as the behavioral consequences of stress. The uncertainty experienced during the quarantine period of the COVID-19 pandemic and the sudden changes in the lifestyle was shown to cause stress and related eating behaviors.

Since the behavioral change due to the stress can affect the health of the individuals negatively, it further triggers exposure to more stress. In order to avoid this vicious circle, individuals should be aware of stress-related eating compulsions during the quarantine periods and prevent them. Realizing and accepting the situation at the earliest possible time makes it easier to cope with this period both physically and psychologically.

Planning a daily routine, taking care of the body well and following the news from the sources that are accurate and reliable during the pandemic period can be considered as actions which can help overcome the period in the healthiest way.

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